

Fișa cu date de securitate
FASSA EPOXY 300 COMP.A

Fișa cu date de securitate din data 29/05/2025 versiunea 3

SECȚIUNEA 1: Identificarea substanței/amestecului și a societății/întreprinderii
1.1. Identificator de produs

Identificarea preparatului:

Nume comercial: FASSA EPOXY 300 COMP.A

Cod comercial: 1223

UFI: Q3QW-WAS1-C00X-AG4T

1.2. Utilizări relevante identificate ale substanței sau ale amestecului și utilizări contraindicate

Utilizarea recomandată: Rășină epoxidică

Utilizări de evitat: Nu este destinat utilizării de către consumator

1.3. Detalii privind furnizorul fișei cu date de securitate

Compania: FASSA Srl

Via Lazzaris, 3 - 31027 Spresiano (TV) - ITALY

Tel. +39 0422 7222

Fax +39 0422 887509

Responsabil: laboratorio.spresiano@fassabortolo.it

1.4. Număr de telefon care poate fi apelat în caz de urgență

+40213183606

SECȚIUNEA 2: Identificarea pericolelor

2.1. Clasificarea substanței sau a amestecului
Regulamentul (CE) nr. 1272/2008 (CLP)

Skin Irrit. 2 Provoacă iritarea pielii.

Eye Irrit. 2 Provoacă o iritare gravă a ochilor.

Skin Sens. 1A Poate provoca o reacție alergică a pielii.

Repr. 1B Poate să dăuneze fertilității sau fătului în contact cu pielea și prin înghițire.

Aquatic Chronic 2 Toxic pentru mediul acvatic cu efecte pe termen lung.

Efecte fizico-chimice dăunătoare sănătății omului și mediului înconjurător:

Nici un alt risc

2.2. Elemente de etichetare
Regulamentul (CE) nr. 1272/2008 (CLP)
Pictograme de pericol și cuvânt de avertizare


Pericol

Fraze de pericol

H315 Provoacă iritarea pielii.

H317 Poate provoca o reacție alergică a pielii.

H319 Provoacă o iritare gravă a ochilor.

H360 Poate să dăuneze fertilității sau fătului în contact cu pielea și prin înghițire.

H411 Toxic pentru mediul acvatic cu efecte pe termen lung.

Fraze de precauție

P201 Procurați instrucțiuni speciale înainte de utilizare.

P261 Evitați să inspirați praful/fumul/gazul/ceața/vaporii/spray-ul.

P273 Evitați dispersarea în mediu.

P280 Purtați mănuși/echipamente de protecție și protejați ochii/vederea.

P308+P313 ÎN CAZ DE expunere sau de posibilă expunere: consultați medicul.

Prevederi speciale:

EUH205 Conține componenți epoxidici. Poate provoca o reacție alergică.

Conține:

oxiran, derivați mono[(alchiloxi C12-14)metil].

amestec de: 2,2'-[metilenbis(4,1-fenilenoximetilen)]dioxiran și 2-({2-[4-(oxiran-2-ilmetoxi)]fenoxi})oxiran și 2,2'-[metilenbis(2,1-fenilenoximetilen)]dioxiran

bis-[4-(2,3-epoxipropoxi)fenil]propan

Dispoziții speciale conform Anexei XVII (REACH) cu modificările și completările ulterioare:

Nici una

2.3. Alte pericole

Nu conține PBT, vPvB sau perturbatori endocrini prezenți în concentrații >= 0,1%.

Nici un alt risc

SECȚIUNEA 3: Compoziție/informații privind componenții

3.1. Substanțe

N.A.

3.2. Amestecuri

Identificarea preparatului: FASSA EPOXY 300 COMP.A

Componente periculoase în sensul Regulamentului CLP și clasificarea corespunzătoare:

Cantitate	Nume	Nr. de Ident.	Clasificare	Număr de înregistrare:
≥20 - <30 %	bis-[4-(2,3-epoxipropoxi)fenil]propan	CAS:1675-54-3 EC:216-823-5 Index:603-073-00-2	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 2, H411 Limite de concentrație specifice: 5% ≤ C < 100%: Skin Irrit. 2 H315 5% ≤ C < 100%: Eye Irrit. 2 H319	01-2119456619-26-xxxx
≥10 - <20 %	amestec de: 2,2'-[metilenbis(4,1-fenilenoximetilen)]dioxiran și 2-({2-[4-(oxiran-2-ilmetoxi)]fenoxi})oxiran și 2,2'-[metilenbis(2,1-fenilenoximetilen)]dioxiran	EC:701-263-0	Skin Irrit. 2, H315; Skin Sens. 1A, H317; Aquatic Chronic 2, H411	01-2119454392-40-xxxx
≥5 - <10 %	oxiran, derivați mono[(alchiloxi C12-14)metil].	CAS:68609-97-2 EC:271-846-8 Index:603-103-00-4	Skin Irrit. 2, H315; Skin Sens. 1, H317; Repr. 1B, H360F	01-2119485289-22-xxxx
≥0.3 - <0.5 %	dioxid de titan	CAS:13463-67-7 EC:236-675-5 Index:022-006-00-2	Carc. 2, H351	01-2119489379-17-xxxx
≥0.3 - <0.5 %	amestec de etilbenzen, m-xilen, p-xilen	EC:905-562-9	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Chronic 3, H412 Toxicitate Acută Estimată: ATE - Dermică: 1100mg/kg gc ATE - Inhalare (Vapori): 11mg/l	01-2119555267-33-xxxx
≥0.05 - <0.1 %	butanonă	CAS:78-93-3 EC:201-159-0 Index:606-002-00-3	Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336, EUH066	01-2119457290-43-xxxx
≥0.05 - <0.1 %	acetat de etil	CAS:141-78-6 EC:205-500-4	Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336, EUH066	01-2119475103-46-xxxx

≥0.05 - <0.1 %	acetat de 2-metoxi-1-metiletil	CAS:108-65-6 EC:203-603-9 Index:607-195-00-7	Flam. Liq. 3, H226; STOT SE 3, H336	01-2119475791-29-xxxx
≥0.05 - <0.1 %	Quaternary ammonium compounds, benzyl(hydrogenated tallow alkyl)dimethyl, chlori	CAS:61789-72-8 EC:263-081-3	Acute Tox. 4, H302; Skin Corr. 1B, H314; Eye Dam. 1, H318; Aquatic Acute 1, H400; Aquatic Chronic 1, H410, M-Chronic:1, M-Acute:10	01-2119970169-28-xxxx
≥0.005 - <0.025 %	acetat de n-butil	CAS:123-86-4 EC:204-658-1 Index:607-025-00-1	Flam. Liq. 3, H226; STOT SE 3, H336, EUH066	01-2119485493-29-xxxx
≥0.005 - <0.025 %	Silice cristalină, cuarț (fracție respirabilă)	CAS:14808-60-7 EC:238-878-4	STOT RE 1, H372	Scutit
≥0.005 - <0.025 %	xilen	CAS:1330-20-7 EC:215-535-7 Index:601-022-00-9	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 STOT RE 2, H373 Asp. Tox. 1, H304	01-2119488216-32-xxxx
Toxicitate Acută Estimată: ATE - Dermică: 1100mg/kg gc ATE - Inhalare (Vapori): 11mg/l				
≥0.005 - <0.025 %	etilbenzen	CAS:100-41-4 EC:202-849-4 Index:601-023-00-4	Flam. Liq. 2, H225; Acute Tox. 4, H332; STOT RE 2, H373; Asp. Tox. 1, H304	01-2119489370-35-xxxx

Observație: orice informație din coloana EC# care începe cu numărul „9” este un EC # Provisional List Number (Număr Provizoriu de Listă) furnizat de către ECHA în așteptarea publicării Inventarului European oficial al substanțelor. Informații suplimentare privind numărul CAS al substanței: amestec de etilbenzen, m-xilen, p-xilen: Următoarea substanță este indicată cu numărul CAS atât în țările care nu fac obiectul Regulamentelor REACH, cât și în Regulamentele care nu au fost încă actualizate cu noile nomenclaturi ale solvenților: CAS 1330-20-7.

SECȚIUNEA 4: Măsuri de prim ajutor

4.1. Descrierea măsurilor de prim ajutor

În caz de contact cu pielea:

Îndepărtați imediat hainele contaminate și eliminați-l în mod sigur.

Zonele corpului care au venit, sau se presupune numai că au venit, în contact cu produsul trebuie spălate imediat și abundent cu apă curentă.

Spălați complet corpul (duș sau baie).

În caz de contact cu ochii:

În caz de contact cu ochii, clătiți cu apă pentru un interval de timp corespunzător și țineți deschise pleoapele, după care consultați imediat un oftalmolog.

Protejați ochiul lezat.

În caz de ingerare:

Nu provocați vomitarea, adresați-vă unui medic arătând Fișa de Siguranță și eticheta produsului.

În caz de inhalare:

Conduceți accidentatul la aer liber și țineți-l la cald și în repaus.

4.2. Cele mai importante simptome și efecte, atât acute, cât și întârziate

Simptomele și efectele sunt cele preconizate în secțiunea 2 cu privire la pericole.

4.3. Indicații privind orice fel de asistență medicală imediată și tratamentele speciale necesare

În caz de accident sau stare proastă consultați imediat un medic (dacă este posibil arătați instrucțiunile de folosință sau fișa de siguranță).

SECȚIUNEA 5: Măsuri de combatere a incendiilor

5.1. Mijloace de stingere a incendiilor

Mijloace de stingere corespunzătoare:

CO₂, stingătoare cu pulbere, spumă, apă pulverizată.

Mijloace de stingere care nu trebuie să fie utilizate din motive de siguranță:

Jeturi de apă.

5.2. Pericole speciale cauzate de substanță sau de amestec

Combustia produce fum greu.

Nu inhalați gazele produse prin explozie și/sau prin combustie (monoxid de carbon, dioxid de carbon, oxizi de azot).

5.3. Recomandări destinate pompierilor

Folosiți dispozitive respiratorii corespunzătoare.

Strângeți separat apa contaminată folosită pentru stingerea incendiului. Nu o descărcați în rețeaua de canalizare.
Dacă este posibil din punct de vedere al siguranței, îndepărtați din zona de pericol imediat recipientele neafectate.

SECȚIUNEA 6: Măsuri împotriva pierderilor accidentale

6.1. Precauții personale, echipament de protecție și proceduri de urgență

Pentru personalul care nu este implicat în situații de urgență:

- Îmbrăcați dispozitivele de protecție individuală.
- Duceți persoanele în loc sigur.
- Citiți măsurile de protecție prezentate la punctele 7 și 8.

Pentru personalul care intervine în situații de urgență:

- Îmbrăcați dispozitivele de protecție individuală.

6.2. Precauții pentru mediul înconjurător

- Împiedicați penetrarea în sol/subsol. Împiedicați vărsarea în apele de suprafață sau în rețeaua de canalizare.
- În caz de scurgere de gaz sau penetrare în cursuri de apă, sol sau sistemul de canalizare, informați autoritățile răspunzătoare.

6.3. Metode și material pentru izolarea incendiilor și pentru curățenie

- Material corespunzător pentru colectare: material absorbant inert (de exemplu, nisip, vermiculit)
- Dupa ce produsul a fost recuperat, clătiți suprafața și materialele folosite cu apă
- Rețineți apa de spălat contaminată și eliminați-o.

6.4. Trimiteri către alte secțiuni

- Vezi și paragrafele 8 și 13

SECȚIUNEA 7: Manipulare și depozitare

7.1. Precauții pentru manipularea în condiții de securitate

- Evitați contactul cu pielea și ochii, precum și inhalarea vaporilor și a ceții.
- Nu folosiți recipiente goale înainte de a fi curățate.
- Înainte operațiilor de transfer, asigurați-vă că în recipiente nu sunt materiale rezidue incompatibile.

Sfaturi privind igiena generală la locul de muncă:

- Hainele contaminate trebuie înlocuite înainte de accesul la zona de prânz.
- Nu mincați sau beți în timpul lucrului
- Se face trimitere și la paragraful 8 pentru dispozitivele de protecție recomandate.

7.2. Condiții de depozitare în condiții de securitate, inclusiv eventuale incompatibilități

- Păstrați recipientele bine închise într-un spațiu răcoros și bine ventilat, la distanță de surse de căldură.
- Țineți departe de alimente, băuturi și hrană pentru animale.

Materiale incompatibile

- Vezi pct. 10.5

Instrucțiuni privind spațiile de depozitare:

- Spații ventilate adecvat

7.3. Utilizare (utilizări) finală (finale) specifică (specifice)

Recomandări

- Vezi pct. 1.2

Soluții specifice pentru sectorul industrial

- Nici o utilizare particulară

SECȚIUNEA 8: Controale ale expunerii/protecția personală

8.1. Parametri de control

Limitele de expunere profesională

dioxid de titan

CAS: 13463-67-7	Tip OEL	ACGIH		Termen lung 0.2 mg/m3 Note: Nanoscale particles - A3 - (R) URT irr, Pneumoconiosis
				Termen lung 2.5 mg/m3 Note: Finescale particles - A3 - (R) URT irr, Pneumoconiosis
	Tip OEL	MAK	Austria	Termen lung 5 mg/m3; Termen scurt 10 mg/m3 Note: Respirable fraction
	Tip OEL	MAK	Germania	Termen lung 0.3 mg/m3; Termen scurt 2.4 mg/m3 Note: Respirable fraction, except ultrafine particles , Multiplied by the material density
	Tip OEL	VLEP	Belgia	Termen lung 10 mg/m3
	Tip OEL	VLEP	Franța	Termen lung 11 mg/m3 Note: Inhalable aerosol

Tip OEL	VLEP	România	Termen lung 10 mg/m ³ ; Termen scurt 15 mg/m ³
Tip OEL	TLV	Bulgaria	Termen lung 10 mg/m ³
Tip OEL	VLA	Spania	Termen lung 10 mg/m ³ Note: Inhalable fraction
Tip OEL	SUVA	Elveția	Termen lung 3 mg/m ³ Note: Respirable aerosol
Tip OEL	WEL	U.K.	Termen lung 10 mg/m ³ Note: Inhalable fraction
			Termen lung 4 mg/m ³ Note: Respirable fraction
Tip OEL	GVI	Croația	Termen lung 10 mg/m ³ Note: Inhalable fraction
			Termen lung 4 mg/m ³ Note: Respirable fraction
Tip OEL	NDS	Polonia	Termen lung 10 mg/m ³ Note: Inhalable fraction
Tip OEL	IPRV	Lituania	Termen lung 5 mg/m ³
Tip OEL	RV	Letonia	Termen lung 10 mg/m ³
Tip OEL	NGV/KG V	Suedia	Termen lung 5 mg/m ³ Note: inhalable aerosol

amestec de etilbenzen, m-xilen, p-xilen

Tip OEL	ACGIH		Termen lung 20 ppm Note: A4, BEI - URT and eye irr, CNS impair
Tip OEL	UE		Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin
Tip OEL	MAK	Austria	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm
Tip OEL	MAK	Germania	Termen lung 220 mg/m ³ - 50 ppm; Termen scurt 440 mg/m ³ - 100 ppm Note: Skin
Tip OEL	VLEP	Belgia	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Additional indication "D" means that the absorption of the agent through the skin, mucous membranes or eyes is an important part of the total exposure. It can be the result of both direct contact and its presence in the air.
Tip OEL	VLEP	Franța	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin
Tip OEL	VLEP	Italia	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin
Tip OEL	VLEP	România	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm
Tip OEL	TLV	Bulgaria	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin
Tip OEL	TLV	Cehia	Termen lung 200 mg/m ³ - 45.4 ppm; Termen scurt 400 mg/m ³ - 90.8 ppm Note: Skin
Tip OEL	VLA	Spania	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm
Tip OEL	ÁK	Ungaria	Termen lung 221 mg/m ³ ; Termen scurt 442 mg/m ³ Note: Skin
Tip OEL	MAC	Olanda	Termen lung 210 mg/m ³ - 47.5 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin
Tip OEL	VLE	Portugalia	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin
Tip OEL	SUVA	Elveția	Termen lung 220 mg/m ³ - 50 ppm; Termen scurt 440 mg/m ³ - 100 ppm
Tip OEL	WEL	U.K.	Termen lung 220 mg/m ³ - 50 ppm; Termen scurt 441 mg/m ³ - 100 ppm Note: Skin
Tip OEL	GVI	Croația	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin
Tip OEL	AGW	Germania	Termen lung 220 mg/m ³ - 50 ppm; Termen scurt 440 mg/m ³ - 100 ppm Note: Skin

butanonă CAS: 78-93-3	Tip OEL	NDS	Polonia	Termen lung 100 mg/m3; Termen scurt 200 mg/m3 Note: Skin
	Tip OEL	MV	Slovenia	Termen lung 221 mg/m3 - 50 ppm; Termen scurt 442 mg/m3 - 100 ppm Note: Skin
	Tip OEL	IPRV	Lituania	Termen lung 221 mg/m3 - 50 ppm; Termen scurt 442 mg/m3 - 100 ppm Note: Skin
	Tip OEL	ACGIH		Termen lung 75 ppm; Termen scurt 150 ppm Note: BEI Skin - URT irr, CNS and PNS impair
	Tip OEL	UE		Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
	Tip OEL	MAK	Austria	Termen lung 295 mg/m3 - 100 ppm; Termen scurt 590 mg/m3 - 200 ppm Note: Skin
	Tip OEL	MAK	Germania	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 600 mg/m3 - 200 ppm Note: Skin
	Tip OEL	VLEP	Belgia	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
	Tip OEL	VLEP	Franța	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
	Tip OEL	VLEP	Italia	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
	Tip OEL	VLEP	România	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
	Tip OEL	TLV	Bulgaria	Termen lung 590 mg/m3; Termen scurt 885 mg/m3
	Tip OEL	TLV	Cehia	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
	Tip OEL	VLA	Spania	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
	Tip OEL	ÁK	Ungaria	Termen lung 600 mg/m3; Termen scurt 900 mg/m3 Note: Skin
	Tip OEL	MAC	Olanda	Termen lung 590 mg/m3 - 197 ppm; Termen scurt 900 mg/m3 - 300 ppm Note: Skin
	Tip OEL	VLE	Portugalia	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
	Tip OEL	SUVA	Elveția	Termen lung 590 mg/m3 - 200 ppm; Termen scurt 590 mg/m3 - 200 ppm
	Tip OEL	WEL	U.K.	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 899 mg/m3 - 300 ppm Note: Skin
	Tip OEL	GVI	Croația	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
acetat de etil CAS: 141-78-6	Tip OEL	AGW	Germania	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 600 mg/m3 - 200 ppm Note: Skin 15
	Tip OEL	NDS	Polonia	Termen lung 450 mg/m3; Termen scurt 900 mg/m3 Note: Skin
	Tip OEL	MV	Slovenia	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm Note: Skin
	Tip OEL	IPRV	Lituania	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3
	Tip OEL	ACGIH		Termen lung 400 ppm Note: URT and eye irr
	Tip OEL	UE		Termen lung 734 mg/m3 - 200 ppm; Termen scurt 1468 mg/m3 - 400 ppm
	Tip OEL	MAK	Austria	Termen lung 734 mg/m3 - 200 ppm; Termen scurt 1468 mg/m3 - 400 ppm
	Tip OEL	MAK	Germania	Termen lung 750 mg/m3 - 200 ppm; Termen scurt 1500 mg/m3 - 400 ppm
	Tip OEL	VLEP	Belgia	Termen lung 734 mg/m3 - 200 ppm; Termen scurt 1468 mg/m3 - 400 ppm
	Tip OEL	VLEP	Franța	Termen lung 734 mg/m3 - 200 ppm; Termen scurt 1468 mg/m3 - 400 ppm
	Tip OEL	VLEP	Italia	Termen lung 734 mg/m3 - 200 ppm; Termen scurt 1468 mg/m3 - 400 ppm
	Tip OEL	VLEP	România	Termen lung 734 mg/m3 - 200 ppm; Termen scurt 400 mg/m3 - 1468 ppm
	Tip OEL	TLV	Bulgaria	Termen lung 734 mg/m3 - 200 ppm; Termen scurt 1468 mg/m3 - 400 ppm
	Tip OEL	TLV	Cehia	Termen lung 700 mg/m3 - 191.1 ppm; Termen scurt 900 mg/m3 - 245.7 ppm
	Tip OEL	VLA	Spania	Termen lung 734 mg/m3 - 200 ppm; Termen scurt 1460 mg/m3 - 400 ppm
	Tip OEL	ÁK	Ungaria	Termen lung 734 mg/m3; Termen scurt 1468 mg/m3
	Tip OEL	MAC	Olanda	Termen lung 734 mg/m3 - 200 ppm; Termen scurt 1468 mg/m3 - 400 ppm
	Tip OEL	VLE	Portugalia	Termen lung 734 mg/m3 - 200 ppm; Termen scurt 1468 mg/m3 - 400 ppm

Tip OEL	SUVA	Elveția	Termen lung 730 mg/m3 - 200 ppm; Termen scurt 1470 mg/m3 - 400 ppm
Tip OEL	WEL	U.K.	Termen lung 730 mg/m3 - 200 ppm; Termen scurt 1468 mg/m3 - 400 ppm
Tip OEL	GVI	Croația	Termen lung 734 mg/m3 - 200 ppm; Termen scurt 1468 mg/m3 - 400 ppm
Tip OEL	AGW	Germania	Termen lung 730 mg/m3 - 200 ppm; Termen scurt 1460 mg/m3 - 400 ppm
Tip OEL	NDS	Polonia	Termen lung 734 mg/m3 - 200 ppm; Termen scurt 1468 mg/m3 - 400 ppm
Tip OEL	MV	Slovenia	Termen lung 734 mg/m3 - 200 ppm; Termen scurt 1468 mg/m3 - 400 ppm
Tip OEL	IPRV	Lituania	Termen lung 500 mg/m3 - 150 ppm; Termen scurt 1100 mg/m3 - 300 ppm
Tip OEL	RV	Letonia	Termen lung 200 mg/m3 - 54 ppm; Termen scurt 1468 mg/m3 - 400 ppm

acetat de 2-metoxi-1-metiletil

CAS: 108-65-6	Tip OEL	UE		Termen lung 275 mg/m3 - 50 ppm; Termen scurt 550 mg/m3 - 100 ppm Note: Skin
	Tip OEL	MAK	Austria	Termen lung 275 mg/m3 - 50 ppm; Termen scurt 550 mg/m3 - 100 ppm Note: Skin
	Tip OEL	MAK	Germania	Termen lung 270 mg/m3 - 50 ppm; Termen scurt 270 mg/m3 - 50 ppm
	Tip OEL	VLEP	Belgia	Termen lung 275 mg/m3 - 50 ppm; Termen scurt 550 mg/m3 - 100 ppm Note: Additional indication "D" means that the absorption of the agent through the skin, mucous membranes or eyes is an important part of the total exposure. It can be the result of both direct contact and its presence in the air.
	Tip OEL	VLEP	Franța	Termen lung 275 mg/m3 - 50 ppm; Termen scurt 550 mg/m3 - 100 ppm Note: Skin
	Tip OEL	VLEP	Italia	Termen lung 275 mg/m3 - 50 ppm; Termen scurt 550 mg/m3 - 100 ppm Note: Skin
	Tip OEL	VLEP	România	Termen lung 275 mg/m3 - 50 ppm; Termen scurt 550 mg/m3 - 100 ppm
	Tip OEL	TLV	Bulgaria	Termen lung 275 mg/m3 - 50 ppm; Termen scurt 550 mg/m3 - 100 ppm Note: Skin
	Tip OEL	TLV	Cehia	Termen lung 270 mg/m3 - 49.14 ppm; Termen scurt 550 mg/m3 - 10.01 ppm Note: Skin
	Tip OEL	VLA	Spania	Termen lung 275 mg/m3 - 50 ppm; Termen scurt 550 mg/m3 - 100 ppm Note: Skin
	Tip OEL	ÁK	Ungaria	Termen lung 275 mg/m3; Termen scurt 550 mg/m3
	Tip OEL	MAC	Olanda	Termen lung 550 mg/m3 - 100 ppm
	Tip OEL	VLE	Portugalia	Termen lung 275 mg/m3 - 50 ppm; Termen scurt 550 mg/m3 - 100 ppm Note: Skin
	Tip OEL	SUVA	Elveția	Termen lung 275 mg/m3 - 50 ppm; Termen scurt 275 mg/m3 - 50 ppm
	Tip OEL	WEL	U.K.	Termen lung 274 mg/m3 - 50 ppm; Termen scurt 548 mg/m3 - 100 ppm Note: Skin
	Tip OEL	GVI	Croația	Termen lung 275 mg/m3 - 50 ppm; Termen scurt 550 mg/m3 - 100 ppm Note: Skin
	Tip OEL	AGW	Germania	Termen lung 270 mg/m3 - 50 ppm; Termen scurt 270 mg/m3 - 50 ppm
	Tip OEL	NDS	Polonia	Termen lung 260 mg/m3; Termen scurt 520 mg/m3 Note: Skin
	Tip OEL	MV	Slovenia	Termen lung 275 mg/m3 - 50 ppm; Termen scurt 550 mg/m3 - 100 ppm Note: Skin
	Tip OEL	IPRV	Lituania	Termen lung 250 mg/m3 - 50 ppm; Termen scurt 400 mg/m3 - 75 ppm Note: Skin
	Tip OEL	RV	Letonia	Termen lung 275 mg/m3 - 50 ppm; Termen scurt 550 mg/m3 - 100 ppm Note: Skin

acetat de n-butil

CAS: 123-86-4	Tip OEL	ACGIH		Termen lung 50 ppm; Termen scurt 150 ppm Note: Eye and URT irr
	Tip OEL	UE		Termen lung 241 mg/m3 - 50 ppm; Termen scurt 723 mg/m3 - 150 ppm
	Tip OEL	MAK	Austria	Termen lung 241 mg/m3 - 50 ppm; Termen scurt 480 mg/m3 - 100 ppm
	Tip OEL	MAK	Germania	Termen lung 480 mg/m3 - 100 ppm; Termen scurt 960 mg/m3 - 200 ppm
	Tip OEL	VLEP	Belgia	Termen lung 238 mg/m3 - 50 ppm; Termen scurt 712 mg/m3 - 150 ppm

Note: Butylacetates, all isomers

Tip OEL	VLEP	Franța	Termen lung 241 mg/m3 - 50 ppm; Termen scurt 723 mg/m3 - 150 ppm
Tip OEL	VLEP	Italia	Termen lung 241 mg/m3 - 50 ppm; Termen scurt 723 mg/m3 - 150 ppm
Tip OEL	VLEP	România	Termen lung 241 mg/m3 - 50 ppm; Termen scurt 723 mg/m3 - 150 ppm
Tip OEL	TLV	Bulgaria	Termen lung 241 mg/m3 - 50 ppm; Termen scurt 723 mg/m3 - 150 ppm
Tip OEL	TLV	Cehia	Termen lung 241 mg/m3 - 50 ppm; Termen scurt 723 mg/m3 - 150 ppm
Tip OEL	VLA	Spania	Termen lung 241 mg/m3 - 50 ppm; Termen scurt 723 mg/m3 - 150 ppm
Tip OEL	ÁK	Ungaria	Termen lung 241 mg/m3; Termen scurt 723 mg/m3
Tip OEL	MAC	Olanda	Termen lung 241 mg/m3 - 50 ppm; Termen scurt 723 mg/m3 - 150 ppm
Tip OEL	SUVA	Elveția	Termen lung 240 mg/m3 - 50 ppm; Termen scurt 720 mg/m3 - 150 ppm
Tip OEL	WEL	U.K.	Termen lung 724 mg/m3 - 150 ppm; Termen scurt 966 mg/m3 - 200 ppm
Tip OEL	GVI	Croația	Termen lung 724 mg/m3 - 150 ppm; Termen scurt 966 mg/m3 - 200 ppm
Tip OEL	AGW	Germania	Termen lung 300 mg/m3 - 62 ppm; Termen scurt 600 mg/m3 - 124 ppm
Tip OEL	NDS	Polonia	Termen lung 240 mg/m3; Termen scurt 720 mg/m3
Tip OEL	MV	Slovenia	Termen lung 300 mg/m3 - 62 ppm; Termen scurt 600 mg/m3 - 124 ppm

Silice cristalină, cuarț (fracție respirabilă)

CAS: 14808-60-7	Tip OEL	ACGIH	Termen lung 0.025 mg/m3 Note: (R), A2 - Pulm fibrosis, lung cancer
	Tip OEL	UE	Termen lung 0.1 mg/m3 Note: Respirable dust particles
	Tip OEL	MAK Austria	Termen lung 0.05 mg/m3 Note: Respirable fraction
	Tip OEL	VLEP Belgia	Termen lung 0.1 mg/m3 Note: Respirable dust; Additional indication "C" means that the agent falls within the scope of Title 2 concerning carcinogenic, mutagenic and reprotoxic agents of Book VI of the Codex on well-being at work.
	Tip OEL	VLEP Franța	Termen lung 0.1 mg/m3 Note: Respirable fraction
	Tip OEL	VLEP Italia	Termen lung 0.1 mg/m3 Note: Respirable dust particles
	Tip OEL	VLA Spania	Termen lung 0.05 mg/m3 Note: Respirable fraction
	Tip OEL	ÁK Ungaria	Termen lung 0.1 mg/m3 Note: Respirable fraction
	Tip OEL	MAC Olanda	Termen lung 0.075 mg/m3 Note: Respirable fraction
	Tip OEL	SUVA Elveția	Termen lung 0.15 mg/m3 Note: Respirable aerosol
	Tip OEL	GVI Croația	Termen lung 0.1 mg/m3
	Tip OEL	AGW Germania	Termen lung 0.05 mg/m3; Termen scurt 0.4 mg/m3 Note: Respirable fraction
	Tip OEL	NDS Polonia	Termen lung 0.1 mg/m3 Note: Respirable fraction
	Tip OEL	MV Slovenia	Termen lung 0.15 mg/m3
	Tip OEL	IPRV Lituania	Termen lung 0.1 mg/m3
	Tip OEL	NGV/KG Suedia V	Termen lung 0.1 mg/m3 Note: Respirable fraction

xilen

CAS: 1330-20-7	Tip OEL	UE	Termen lung 221 mg/m3 - 50 ppm; Termen scurt 442 mg/m3 - 100 ppm Note: Skin
	Tip OEL	TLV Cehia	Termen lung 200 mg/m3 - 45.4 ppm; Termen scurt 400 mg/m3 - 90.8 ppm Note: Skin
	Tip OEL	RV Letonia	Termen lung 221 mg/m3 - 50 ppm; Termen scurt 442 mg/m3 - 100 ppm

etilbenzen

CAS: 100-41-4

Tip OEL	ACGIH		Termen lung 20 ppm Note: A3, BEI - URT irr, kidney dam (nephropathy), cochlear impair
Tip OEL	UE		Termen lung 442 mg/m3 - 100 ppm; Termen scurt 884 mg/m3 - 200 ppm Note: Skin
Tip OEL	MAK	Austria	Termen lung 440 mg/m3 - 100 ppm; Termen scurt 880 mg/m3 - 200 ppm Note: Skin
Tip OEL	MAK	Germania	Termen lung 88 mg/m3 - 20 ppm; Termen scurt 176 mg/m3 - 40 ppm Note: Skin
Tip OEL	VLEP	Belgia	Termen lung 87 mg/m3 - 20 ppm; Termen scurt 551 mg/m3 - 125 ppm Note: Additional indication "D" means that the absorption of the agent through the skin, mucous membranes or eyes is an important part of the total exposure. It can be the result of both direct contact and its presence in the air.
Tip OEL	VLEP	Franța	Termen lung 88.4 mg/m3 - 20 ppm; Termen scurt 442 mg/m3 - 100 ppm Note: Skin
Tip OEL	VLEP	Italia	Termen lung 442 mg/m3 - 100 ppm; Termen scurt 884 mg/m3 - 200 ppm Note: Skin
Tip OEL	VLEP	România	Termen lung 442 mg/m3 - 100 ppm; Termen scurt 884 mg/m3 - 200 ppm
Tip OEL	TLV	Bulgaria	Termen lung 435 mg/m3; Termen scurt 535 mg/m3 Note: Skin
Tip OEL	TLV	Cehia	Termen lung 200 mg/m3 - 45.4 ppm; Termen scurt 500 mg/m3 - 113.5 ppm Note: Skin
Tip OEL	VLA	Spania	Termen lung 441 mg/m3 - 100 ppm; Termen scurt 884 mg/m3 - 200 ppm
Tip OEL	ÁK	Ungaria	Termen lung 442 mg/m3; Termen scurt 884 mg/m3 Note: Skin
Tip OEL	MAC	Olanda	Termen lung 215 mg/m3 - 48.6 ppm; Termen scurt 430 mg/m3 - 97.3 ppm Note: Skin
Tip OEL	VLE	Portugalia	Termen lung 442 mg/m3 - 100 ppm; Termen scurt 884 mg/m3 - 200 ppm Note: Skin
Tip OEL	SUVA	Elveția	Termen lung 435 mg/m3 - 100 ppm; Termen scurt 435 mg/m3 - 100 ppm
Tip OEL	WEL	U.K.	Termen lung 441 mg/m3 - 100 ppm; Termen scurt 552 mg/m3 - 125 ppm Note: Skin
Tip OEL	GVI	Croația	Termen lung 442 mg/m3 - 100 ppm; Termen scurt 884 mg/m3 - 200 ppm Note: Skin
Tip OEL	AGW	Germania	Termen lung 88 mg/m3 - 20 ppm; Termen scurt 176 mg/m3 - 40 ppm Note: Skin
Tip OEL	NDS	Polonia	Termen lung 200 mg/m3; Termen scurt 400 mg/m3 Note: Skin
Tip OEL	MV	Slovenia	Termen lung 442 mg/m3 - 100 ppm; Termen scurt 884 mg/m3 - 200 ppm Note: Skin
Tip OEL	IPRV	Lituania	Termen lung 442 mg/m3 - 100 ppm; Termen scurt 884 mg/m3 - 200 ppm Note: Skin

Valori limită de expunere PNEC

bis-[4-(2,3-epoxipropoxi)fenil]propan

CAS: 1675-54-3

Cale de expunere: Apă dulce; PNEC Limită: 0.006 mg/l

Cale de expunere: Apă sărată; PNEC Limită: 0.001 mg/l

Cale de expunere: Sedimente în apă dulce; PNEC Limită: 0.341 mg/kg

Cale de expunere: Sedimente în apă sărată; PNEC Limită: 0.034 mg/kg

Cale de expunere: Sol (agricol); PNEC Limită: 0.065 mg/kg

Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 10 mg/l

amestec de: 2,2'-[metilenbis(4,1-fenilenoximetilen)]dioxiran și 2-{2-[4-(oxiran-2-ilmetoxi)]fenoxi}oxiran și 2,2'-[metilenbis(2,1-fenilenoximetilen)]dioxiran

Cale de expunere: Apă dulce; PNEC Limită: 0.003 mg/l

Cale de expunere: Apă sărată; PNEC Limită: 0.0003 mg/l

Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 10 mg/l

Cale de expunere: Sedimente în apă sărată; PNEC Limită: 0.0294 mg/kg

Cale de expunere: Sedimente în apă dulce; PNEC Limită: 0.294 mg/kg

Cale de expunere: Sol (agricol); PNEC Limită: 0.237 mg/kg

oxiran, derivați mono[(alchiloxi C12-14)metil].

CAS: 68609-97-2 Cale de expunere: Apă dulce; PNEC Limită: 0.106 mg/l

Cale de expunere: Apă sărată; PNEC Limită: 0.011 mg/l

Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 10 mg/l

Cale de expunere: Sedimente în apă sărată; PNEC Limită: 30.72 mg/kg

Cale de expunere: Sedimente în apă dulce; PNEC Limită: 307.16 mg/kg

Cale de expunere: Sol; PNEC Limită: 1.234 mg/kg

amestec de etilbenzen, m-xilen, p-xilen

Cale de expunere: Apă dulce; PNEC Limită: 0.044 mg/l

Cale de expunere: Eliberări intermitente (apă dulce); PNEC Limită: 0.01 mg/l

Cale de expunere: Apă sărată; PNEC Limită: 0.004 mg/l

Cale de expunere: Eliberări intermitente (apă de mare); PNEC Limită: 0.001 mg/l

Cale de expunere: Sedimente în apă dulce; PNEC Limită: 2.52 mg/kg

Cale de expunere: Sedimente în apă sărată; PNEC Limită: 0.252 mg/kg

Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 1.6 mg/l

Cale de expunere: Sol; PNEC Limită: 0.852 mg/kg

butanonă

CAS: 78-93-3 Cale de expunere: Apă dulce; PNEC Limită: 55.8 mg/l

Cale de expunere: Apă sărată; PNEC Limită: 55.8 mg/l

Cale de expunere: Sedimente în apă dulce; PNEC Limită: 284.74 mg/kg

Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 709 mg/l

Cale de expunere: Lanț alimentară; PNEC Limită: 1000 mg/kg

Cale de expunere: Sol (agricol); PNEC Limită: 22.5 mg/kg

acetat de etil

CAS: 141-78-6 Cale de expunere: Apă sărată; PNEC Limită: 0.024 mg/l

Cale de expunere: Apă dulce; PNEC Limită: 0.24 mg/l

Cale de expunere: Sedimente în apă sărată; PNEC Limită: 0.115 mg/kg

Cale de expunere: Sedimente în apă dulce; PNEC Limită: 1.15 mg/kg

Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 650 mg/l

Cale de expunere: Sol (agricol); PNEC Limită: 0.148 mg/kg

Cale de expunere: Otrăvire secundară; PNEC Limită: 0.2 mg/kg

acetat de 2-metoxi-1-metiletil

CAS: 108-65-6 Cale de expunere: Apă dulce; PNEC Limită: 0.635 mg/l

Cale de expunere: Apă sărată; PNEC Limită: 0.064 mg/l

Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 100 mg/l

Cale de expunere: Sedimente în apă dulce; PNEC Limită: 3.29 mg/kg

Cale de expunere: Sedimente în apă sărată; PNEC Limită: 0.329 mg/kg

Cale de expunere: Sol (agricol); PNEC Limită: 0.29 mg/kg

acetat de n-butil

CAS: 123-86-4 Cale de expunere: Apă sărată; PNEC Limită: 0.018 mg/l

Cale de expunere: Apă dulce; PNEC Limită: 0.18 mg/l

Cale de expunere: Sedimente în apă sărată; PNEC Limită: 0.098 mg/kg

Cale de expunere: Sedimente în apă dulce; PNEC Limită: 0.981 mg/kg

Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 35.6 mg/l

Cale de expunere: Sol (agricol); PNEC Limită: 0.09 mg/kg

etilbenzen

CAS: 100-41-4 Cale de expunere: Apă dulce; PNEC Limită: 0.1 mg/l

Cale de expunere: Apă sărată; PNEC Limită: 0.01 mg/l

Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 9.6 mg/l

Cale de expunere: Sedimente în apă dulce; PNEC Limită: 13.7 mg/kg

Cale de expunere: Sedimente în apă sărată; PNEC Limită: 1.37 mg/kg

Cale de expunere: Sol (agricol); PNEC Limită: 2.68 mg/kg

Nivel Derivat Fără Efect (DNEL)

bis-[4-(2,3-epoxipropoxi)fenil]propan

CAS: 1675-54-3 Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 0.75 mg/kg; Consumator: 0.089 mg/kg

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 4.93 mg/m³; Consumator: 0.87 mg/m³

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen scurt, efecte sistemice
Consumator: 0.5 mg/kg

amestec de: 2,2'-[metilenbis(4,1-fenilenoximetilen)]dioxiran și 2-({2-[4-(oxiran-2-ilmetoxi)]fenoxi})oxiran și 2,2'-[metilenbis(2,1-fenilenoximetilen)]dioxiran

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 104.15 mg/kg; Consumator: 62.5 mg/kg

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen scurt, efecte locale
Lucrător profesionist: 0.0083 mg/cm²

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 29.39 mg/m³; Consumator: 8.7 mg/m³

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Consumator: 6.25 mg/kg

oxiran, derivați mono[(alchiloxi C12-14)metil].

CAS: 68609-97-2 Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 3.6 mg/m³; Consumator: 0.87 mg/m³

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 1 mg/kg; Consumator: 0.5 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Consumator: 0.5 mg/kg

amestec de etilbenzen, m-xilen, p-xilen

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător: 221 mg/m³; Consumator: 65.3 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte sistemice
Lucrător: 442 mg/m³; Consumator: 260 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte locale
Lucrător: 221 mg/m³; Consumator: 65.3 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte locale
Lucrător: 442 mg/m³; Consumator: 260 mg/m³

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător: 212 mg/kg; Consumator: 125 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Consumator: 12.5 mg/kg

butanonă

CAS: 78-93-3 Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 600 mg/m³; Consumator: 106 mg/m³

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 1161 mg/kg; Consumator: 412 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Consumator: 31 mg/kg

acetat de etil

CAS: 141-78-6 Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 734 mg/m³; Consumator: 367 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte locale

Lucrător profesionist: 734 mg/m³; Consumator: 367 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte sistemice
Lucrător profesionist: 1468 mg/m³; Consumator: 734 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte locale
Lucrător profesionist: 1468 mg/m³; Consumator: 734 mg/m³

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 63 mg/kg; Consumator: 37 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Consumator: 4.5 mg/kg

acetat de 2-metoxi-1-metiletil

CAS: 108-65-6 Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 796 mg/kg; Consumator: 320 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Consumator: 36 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen scurt, efecte sistemice
Consumator: 500 mg/kg

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 275 mg/m³; Consumator: 33 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte locale
Lucrător profesionist: 550 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte locale
Consumator: 33 mg/m³

Quaternary ammonium compounds, benzyl(hydrogenated tallow alkyl)dimethyl, chlori

CAS: 61789-72-8 Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 3.96 mg/kg; Consumator: 1.64 mg/kg

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 5.7 mg/kg; Consumator: 3.4 mg/kg

acetat de n-butil

CAS: 123-86-4 Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 300 mg/m³; Consumator: 35.7 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte sistemice
Lucrător profesionist: 600 mg/m³; Consumator: 300 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte locale
Lucrător profesionist: 300 mg/m³; Consumator: 35.7 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte locale
Lucrător profesionist: 600 mg/m³; Consumator: 300 mg/m³

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 11 mg/kg; Consumator: 6 mg/kg

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen scurt, efecte sistemice
Lucrător profesionist: 11 mg/kg; Consumator: 6 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen scurt, efecte sistemice
Consumator: 2 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Consumator: 2 mg/kg

etilbenzen

CAS: 100-41-4 Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 77 mg/m³; Consumator: 15 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte locale
Lucrător profesionist: 293 mg/m³

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 180 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Consumator: 1.6 mg/kg

8.2. Controale ale expunerii

Asigurați o ventilație adecvată. Atunci când este rezonabil posibil, aceasta se poate obține prin utilizarea de ventilație de schimb și a unei aspirații generale bune.

Protecția ochilor

Ochelari cu protecție laterală (EN 16321).

Protecția pielii

Utilizați îmbrăcăminte corespunzătoare pentru protecția completă a pielii, în funcție de activitate și expunere (EN 14605/EN 13982), de exemplu salopetă de lucru, șorț, încălțăminte de siguranță, îmbrăcăminte corespunzătoare.

Protecția mainilor

Nu există niciun material sau combinație de materiale pentru mănuși care să poată garanta o rezistență nelimitată la orice produs chimic sau combinație de produse.

Pentru manipulare prelungită sau repetată, utilizați mănuși rezistente la produse chimice.

Tipul de mănuși adecvate (EN 374/EN 16523); FKM (fluor cauciuc): grosime ≥ 0.4 mm; timp de penetrare ≥ 480 min. NBR (cauciuc nitrilic): grosime ≥ 0.4 mm; timp de penetrare ≥ 480 min

Alegerea mănușilor potrivite nu depinde numai de material, ci și de alte caracteristici de calitate care variază de la un producător la altul, precum și de metodele și timpii de utilizare a amestecului.

Protecție respiratorie

Dacă lucrătorii sunt expuși la concentrații mai mari decât limitele de expunere, trebuie să poarte aparate respiratorii certificate.

Filtru amestec (EN 14387): mască cu filtru A-P2.

Controale de expunere ambientală:

Vezi pct. 6.2

Măsurile de igienă și tehnice

Vezi alineatul 7.

SECȚIUNEA 9: Proprietățile fizice și chimice

9.1. Informații privind proprietățile fizice și chimice de bază

Stare fizică: Lichid

Aspect: Lichid

Culoare: alb

Miros: caracteristic

Punctul de topire/punctul de înghețare: N.D.

Punctul de fierbere sau punctul inițial de fierbere și intervalul de fierbere: N.D.

Inflamabilitatea: N.A.

Limita inferioară și superioară de explozie: N.D.

Punctul de aprindere: $> 93^{\circ}\text{C}$

Temperatura de autoaprindere: N.D.

Temperatura de descompunere: N.D.

pH: N.A.

Viscozitatea cinematică: N.A.

Densitatea și/sau densitatea relativă: 1.66 kg/l (Metoda internă)

Densitatea relativă a vaporilor: N.D.

Presiunea vaporilor: N.D.

Solubilitatea în apă: Insolubil

Solubilitate în ulei: N.A.

Coeficientul de partiție n-octanol/apă (valoarea log): N.A.

Caracteristicile particulei:

Dimensiunea particulei: N.A.

9.2. Alte informații

Conductivitatea: N.D.

Proprietati explozive: N.A. (Evaluare internă)

Proprietati oxidante: N.A. (Evaluare internă)

SECȚIUNEA 10: Stabilitate și reactivitate

10.1. Reactivitate

Stabilă în condiții normale

10.2. Stabilitate chimică

Stabilă în condiții normale

10.3. Posibilitatea de reacții periculoase

Din cauza efectului căldurii sau în caz de incendiu, se pot elibera oxizi de carbon și vapori care pot fi dăunători pentru sănătate.

10.4. Condiții de evitat

Evitați apropierea de surse de căldură.

10.5. Materiale incompatibile

Nici una în particular

Vezi pct. 10.3

10.6. Producși de descompunere periculoși

În cazul depozitării și manipulării adecvate, nu există produse de descompunere periculoase.

Vezi pct. 5.2

SECȚIUNEA 11: Informații toxicologice

11.1. Informații privind clasele de pericol definite în Regulamentul (CE) nr. 1272/2008

Rasina epoxi lichida continuta de acest material produse doar iritari minore ale pielii. Oricum, toate rasinile epoxi sunt capabile sa produca sensibilizarea pielii. Susceptibilitatea la sensibilizare si iritare a pielii difera de la persoana la persoana

La indivizii sensibilizati dermatita alergica poatesa nu apara decat la cateva zile sau saptamani dupa contactul frecvent sau prelungit. De aceea, chiar daca potentialul de iritare al pielii este scazut, contactul cu pielea trebuie evitat

Odata sensibilitatea instalata, expunerea pielii la cantitati foarte mici de material poate cauza eritem sau edem

Informații toxicologice ale produsului:

a) toxicitate acută	Neclasificat Pe baza datelor disponibile, criteriile de clasificare nu sunt îndeplinite.
b) corodarea/iritarea pielii	Produsul este clasificat: Skin Irrit. 2(H315)
c) lezarea gravă/iritarea ochilor	Produsul este clasificat: Eye Irrit. 2(H319)
d) sensibilizarea căilor respiratorii sau a pielii	Produsul este clasificat: Skin Sens. 1A(H317)
e) mutagenitatea celulelor germinative	Neclasificat Pe baza datelor disponibile, criteriile de clasificare nu sunt îndeplinite.
f) cancerogenitatea	Neclasificat Pe baza datelor disponibile, criteriile de clasificare nu sunt îndeplinite.
g) toxicitatea pentru reproducere	Produsul este clasificat: Repr. 1B(H360)
h) STOT (toxicitate asupra organelor țintă specifice) - expunere unică	Neclasificat Pe baza datelor disponibile, criteriile de clasificare nu sunt îndeplinite.
i) STOT (toxicitate asupra organelor țintă specifice) - expunere repetată	Neclasificat
j) pericol prin aspirare	Pe baza datelor disponibile, criteriile de clasificare nu sunt îndeplinite. Neclasificat Pe baza datelor disponibile, criteriile de clasificare nu sunt îndeplinite.

Informații toxicologice referitoare la substanțele principale găsite în acest produs:

bis-[4-(2,3-epoxipropoxi)fenil]propan

CAS: 1675-54-3 a) toxicitate acută LD50 Oral Șobolan > 2000 mg/kg
LD50 Piele Șobolan > 2000 mg/kg

amestec de: 2,2'-[metilenbis(4,1-fenilenoximetilen)]dioxiran și 2-{[4-(oxiran-2-ilmetoxi)]fenoxi}oxiran și 2,2'-[metilenbis(2,1-fenilenoximetilen)]dioxiran

a) toxicitate acută LD50 Piele Șobolan > 2000 mg/kg
LD50 Oral Șobolan > 5000 mg/kg

oxiran, derivați mono[(alchiloxi C12-14)metil].

CAS: 68609-97-2 a) toxicitate acută LC0 Vapori de inhalare Șobolan > 0.15 mg/l 7h
LD50 Oral Șobolan > 2000 mg/kg
LD50 Piele Iepure > 4000 mg/kg

dioxid de titan

CAS: 13463-67-7 a) toxicitate acută LD50 Oral Șobolan > 5000 mg/kg
LC50 Praf de inhalare Șobolan > 6.82 mg/l 4h

amestec de etilbenzen, m-xilen, p-xilen

a) toxicitate acută ATE - Dermică: 1100 mg/kg gc
ATE - Inhalare (Vapori): 11 mg/l
LD50 Oral Șobolan 3523 mg/kg

butanonă		
CAS: 78-93-3	a) toxicitate acută	LD50 Oral Șobolan > 2193 mg/kg LD50 Piele Iepure > 5000 mg/kg
acetat de etil		
CAS: 141-78-6	a) toxicitate acută	LD50 Oral Șobolan 4934 mg/kg LD50 Piele Iepure > 20000 mg/kg LC50 Vapori de inhalare Șobolan > 22.5 mg/l 6h
acetat de 2-metoxi-1-metiletil		
CAS: 108-65-6	a) toxicitate acută	LD50 Oral Șobolan > 5000 mg/kg LD50 Piele Iepure > 5000 mg/kg LC0 Vapori de inhalare Șobolan > 4345 ppm 6h
Quaternary ammonium compounds, benzyl(hydrogenated tallow alkyl)dimethyl, chlori		
CAS: 61789-72-8	a) toxicitate acută	LD50 Oral Șobolan 398 mg/kg
acetat de n-butyl		
CAS: 123-86-4	a) toxicitate acută	LD50 Oral Șobolan 10760 mg/kg LD50 Piele Iepure 14112 mg/kg LC50 Vapori de inhalare Șobolan > 21.1 mg/l 4h
xilen		
CAS: 1330-20-7	a) toxicitate acută	ATE - Dermică: 1100 mg/kg gc ATE - Inhalare (Vapori): 11 mg/l
etilbenzen		
CAS: 100-41-4	a) toxicitate acută	LD50 Oral Șobolan 3500 mg/kg LD50 Piele Iepure 15400 mg/kg LC50 Inhalare Șobolan 17629 mg/m3 4h

11.2. Informații privind alte pericole

Proprietăți de perturbator endocrin:

Nu conține perturbatori endocrini prezenți în concentrații $\geq 0,1\%$

SECȚIUNEA 12: Informații ecologice

A se adopta bune practici de producție astfel încât produsul să nu fie eliberat în mediu

12.1. Toxicitate

Informații Ecotoxicologice:

Toxic pentru mediul acvatic cu efecte pe termen lung.

Lista proprietăților Eco-toxicologice ale produsului

Produsul este clasificat: Aquatic Chronic 2(H411)

Lista componentelor cu proprietăți ecotoxicologice

bis-[4-(2,3-epoxipropoxi)fenil]propan

- | | |
|----------------|--|
| CAS: 1675-54-3 | a) Toxicitate acvatică acută: EC50 Daphnia 1.8 mg/l 48h |
| | a) Toxicitate acvatică acută: LC50 Pește 2 mg/l 96h |
| | a) Toxicitate acvatică acută: EC50 Alge 11 mg/l 72h |
| | b) Toxicitatea acvatică cronică: NOEC Daphnia 0.3 mg/l 21d |

amestec de: 2,2'-[metilenbis(4,1-fenilenoximetilen)]dioxiran și 2-({2-[4-(oxiran-2-ilmetoxi)]fenoxi})oxiran și 2,2'-[metilenbis(2,1-fenilenoximetilen)]dioxiran

- | |
|--|
| a) Toxicitate acvatică acută: LC50 Pește 2.54 mg/l 96h |
| a) Toxicitate acvatică acută: EC50 Alge 1.8 mg/l 72h |
| a) Toxicitate acvatică acută: EC50 Daphnia 2.55 mg/l 48h |
| b) Toxicitatea acvatică cronică: NOEC Daphnia 0.3 mg/l - 21d |

oxiran, derivați mono[(alchiloxi C12-14)metil].

- | | |
|-----------------|---|
| CAS: 68609-97-2 | a) Toxicitate acvatică acută: LL50 Pește > 100 mg/l 96h |
| | a) Toxicitate acvatică acută: EL50 Daphnia 7.2 mg/l 48h |
| | a) Toxicitate acvatică acută: IC50 Alge 843.75 mg/l 72h |

dioxid de titan

CAS: 13463-67-7 a) Toxicitate acvatică acută: LC50 Pește > 1000 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia > 1000 mg/l 48h
a) Toxicitate acvatică acută: EC50 Alge 61 mg/l 72h

butanonă

CAS: 78-93-3 a) Toxicitate acvatică acută: LC50 Pește 2973 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia 308 mg/l 48h
a) Toxicitate acvatică acută: EC50 Alge 1229 mg/l 96h

acetat de etil

CAS: 141-78-6 a) Toxicitate acvatică acută: LC50 Pește 230 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia 165 mg/l 48h

acetat de 2-metoxi-1-metiletil

CAS: 108-65-6 a) Toxicitate acvatică acută: LC50 Pește 134 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia 408 mg/l 48h
a) Toxicitate acvatică acută: EC50 Alge > 1000 mg/l 96h
b) Toxicitatea acvatică cronică: NOEC Pește 47.5 mg/l - 14 d

Quaternary ammonium compounds, benzyl(hydrogenated tallow alkyl)dimethyl, chlori

CAS: 61789-72-8 a) Toxicitate acvatică acută: LC50 Pește 0.1 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia 0.059 mg/l 48h
a) Toxicitate acvatică acută: EC50 Alge 0.11 mg/l 72h

acetat de n-butyl

CAS: 123-86-4 a) Toxicitate acvatică acută: LC50 Pește 18 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia 44 mg/l 48h
a) Toxicitate acvatică acută: EC50 Alge 675 mg/l 72h
b) Toxicitatea acvatică cronică: NOEC Daphnia 23 mg/l - 21d

etilbenzen

CAS: 100-41-4 a) Toxicitate acvatică acută: LC50 Pește 4.2 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia 1.8 mg/l 48h
a) Toxicitate acvatică acută: EC50 Alge 3.6 mg/l 96h
b) Toxicitatea acvatică cronică: NOEC Daphnia 1 mg/l - 7d

12.2. Persistență și degradabilitate

bis-[4-(2,3-epoxipropoxi)fenil]propan

CAS: 1675-54-3 Degradabil în mod lent

oxiran, derivați mono[(alchiloxi C12-14)metil].

CAS: 68609-97-2 Degradabil în mod rapid

amestec de etilbenzen, m-xilen, p-xilen

Degradabil în mod rapid

butanonă

CAS: 78-93-3 Degradabil în mod rapid

acetat de etil

CAS: 141-78-6 Degradabil în mod rapid

acetat de 2-metoxi-1-metiletil

CAS: 108-65-6 Degradabil în mod rapid

acetat de n-butyl

CAS: 123-86-4 Degradabil în mod rapid

etilbenzen

CAS: 100-41-4 Degradabil în mod rapid

12.3. Potențial de bioacumulare

N.A.

12.4. Mobilitate în sol

amestec de etilbenzen, m-xilen, p-xilen

12.5. Rezultatele evaluărilor PBT și vPvB

În baza datelor disponibile, produsul nu conține substanțe PBT/vPvB în procentaj \geq de 0.1%.

12.6. Proprietăți de perturbator endocrin

Nu conține perturbatori endocrini prezenți în concentrații \geq 0,1%

12.7. Alte efecte adverse

N.A.

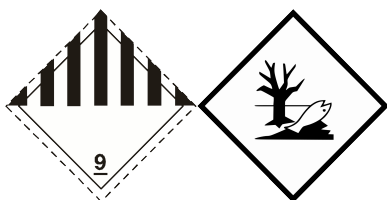
SECȚIUNEA 13: Considerații privind eliminarea**13.1. Metode de tratare a deșeurilor**

A se recupera, dacă este posibil. A se trimite către punctele de depozitare sau de incinerare, în condiții controlate. A se respecta regulamentele locale în vigoare

Nu permiteți pătrunderea produsului în sistemul de canalizare sau în cursurile de apă.

Recipientele contaminate cu produs, în conformitate cu dispozițiile legale locale sau naționale.

Odată ce produsul a expirat, acesta trebuie eliminat în conformitate cu reglementările în vigoare.

SECȚIUNEA 14: Informații referitoare la transport**14.1. Numărul ONU sau numărul de identificare**

3082

14.2. Denumirea corectă ONU pentru expediție

ADR-Nume transport îmbarcare: MATERIE PERICULOASĂ DIN PUNCT DE VEDERE AL MEDIULUI, LICHIDĂ, N.D. (bis-[4-(2,3-epoxipropoxi)fenil]propan - amestec de: 2,2'-[metilenbis(4,1-fenilenoximetilen)]dioxiran și 2-({2-[4-(oxiran-2-ilmetoxi)]fenoxi})oxiran și 2,2'-[metilenbis(2,1-fenilenoximetilen)]dioxiran)

IATA-Nume transport îmbarcare: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi)fenil]propan - amestec de: 2,2'-[metilenbis(4,1-fenilenoximetilen)]dioxiran și 2-({2-[4-(oxiran-2-ilmetoxi)]fenoxi})oxiran și 2,2'-[metilenbis(2,1-fenilenoximetilen)]dioxiran)

IMDG-Nume transport îmbarcare: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi)fenil]propan - amestec de: 2,2'-[metilenbis(4,1-fenilenoximetilen)]dioxiran și 2-({2-[4-(oxiran-2-ilmetoxi)]fenoxi})oxiran și 2,2'-[metilenbis(2,1-fenilenoximetilen)]dioxiran)

14.3. Clasa (clasele) de pericol pentru transport

ADR-clasa: 9

IATA-Clasa: 9

IMDG-Clasa: 9

14.4. Grupul de ambalare

ADR-Grup Ambalare: III

IATA-Grup Ambalare: III

IMDG-Grup Ambalare: III

14.5. Pericole pentru mediul înconjurător

Componentul toxic principal: Quaternary ammonium compounds, benzyl(hydrogenated tallow alkyl)dimethyl, chlori

Poluant marin: Da

Poluant ambiental: Da

IMDG-EMS: F-A, S-F

14.6. Precauții speciale pentru utilizatori

Drumuri și Căi Ferate (ADR-RID):

ADR-Etichetă: 9

ADR - Număr de identificare a pericolului: 90

ADR-Dispoziții Speciale: 274 335 375 601

ADR-Cod de restricție în tunel:

Aer (IATA):

IATA-Aeronavă de pasagerit: 964

IATA-Aeronavă de marfă: 964

IATA-Etichetă: 9

IATA-Riscul secundar: -

IATA-Erg: 9L

IATA-Dispoziții Speciale: A97 A158 A197 A215

Mare (IMDG):

IMDG-Depozitare și manipulare: Category A

IMDG-Segregare: -

IMDG-Riscul secundar: -

IMDG-Dispoziții Speciale: 274 335 969

14.7. Transportul maritim în vrac în conformitate cu instrumentele OMI

N.A.

SECȚIUNEA 15: Informații de reglementare

15.1. Regulamente/legislație în domeniul securității, al sănătății și al mediului specifice (specifică) pentru substanța sau amestecul în cauză

Directiva 98/24/CE (Riscuri în legătură cu agenții chimici la locul de muncă)

Directiva 2000/39/CE (Valori limită a expunerii profesionale)

Directiva 2010/75/UE

Regulamentul (CE) nr. 1907/2006 (REACH)

Regulamentul (CE) nr. 1272/2008 (CLP)

Regulamentul (CE) nr. 790/2009 (ATP 1 CLP) și (EU) nr. 758/2013

Regulamentul (EU) nr. 2020/878

Regulamentul (EU) nr. 286/2011 (ATP 2 CLP)

Regulamentul (EU) nr. 618/2012 (ATP 3 CLP)

Regulamentul (EU) nr. 487/2013 (ATP 4 CLP)

Regulamentul (EU) nr. 944/2013 (ATP 5 CLP)

Regulamentul (EU) nr. 605/2014 (ATP 6 CLP)

Regulamentul (EU) nr. 2015/1221 (ATP 7 CLP)

Regulamentul (EU) nr. 2016/918 (ATP 8 CLP)

Regulamentul (EU) nr. 2016/1179 (ATP 9 CLP)

Regulamentul (EU) nr. 2017/776 (ATP 10 CLP)

Regulamentul (EU) nr. 2018/669 (ATP 11 CLP)

Regulamentul (EU) nr. 2018/1480 (ATP 13 CLP)

Regulamentul (EU) nr. 2019/521 (ATP 12 CLP)

Regulamentul (EU) nr. 2020/217 (ATP 14 CLP)

Regulamentul (EU) nr. 2020/1182 (ATP 15 CLP)

Regulamentul (EU) nr. 2021/643 (ATP 16 CLP)

Regulamentul (EU) nr. 2021/849 (ATP 17 CLP)

Regulamentul (EU) nr. 2022/692 (ATP 18 CLP)

Regulamentul (UE) nr. 2023/707

Regulamentul (EU) nr. 2023/1434 (ATP 19 CLP)

Regulamentul (EU) nr. 2023/1435 (ATP 20 CLP)

Regulamentul (EU) nr. 2024/197 (ATP 21 CLP)

Restricții referitoare la produsele sau substanțele conținute de acestea conform Anexei XVII Regulamentul (CE) 1907/2006 (REACH) cu modificările ulterioare:

Restricții referitoare la produs: 3

Restricții referitoare la substanțele conținute: 40, 75

Dispoziții în legătură cu directiva EU 2012/18 (Seveso III):

Categoria Seveso III conform Anexei 1, partea 1	Limită nivel inferior (tone)	Limită nivel superior (tone)
---	------------------------------	------------------------------

Produsul face parte din categoria: E2	200	500
---------------------------------------	-----	-----

Regulamentul (UE) nr. 649/2012 (Regulamentul PIC)

Nu există substanțe menționate

Clasa Germană a Periculozității Apei

Clasa 2: periculos pentru ape.

Substanțe SVHC:

În baza datelor disponibile, produsul nu conține substanțe SVHC în procentaj \geq de 0.1%.

15.2. Evaluarea securității chimice

A fost efectuată o Evaluare de Securitate Chimică pentru amestecul

SECȚIUNEA 16: Alte informații

Cod	Descriere
EUH066	Expunerea repetată poate provoca uscarea sau crăparea pielii.
H225	Lichid și vapori foarte inflamabili.
H226	Lichid și vapori inflamabili.
H304	Poate fi mortal în caz de înghițire și de pătrundere în căile respiratorii.
H312	Nociv în contact cu pielea.
H315	Provoacă iritarea pielii.
H317	Poate provoca o reacție alergică a pielii.
H319	Provoacă o iritare gravă a ochilor.
H332	Nociv în caz de inhalare.
H335	Poate provoca iritarea căilor respiratorii.
H336	Poate provoca somnolență sau amețeală.
H351	Susceptibil de a cauza cancer dacă este inhalat.
H360	Poate să dăuneze fertilității sau fătului în contact cu pielea și prin înghițire.
H360F	Poate dăuna fertilității.
H372	Provoacă daune organelor în caz de expunere îndelungată sau repetată prin inhalare.
H373	Poate provoca leziuni ale organelor în caz de expunere prelungită sau repetată.
H411	Toxic pentru mediul acvatic cu efecte pe termen lung.
H412	Nociv pentru mediul acvatic cu efecte pe termen lung.

Cod	Clasa de pericol și categoria de pericol	Descriere
2.6/2	Flam. Liq. 2	Lichid inflamabil, Categoria 2
2.6/3	Flam. Liq. 3	Lichid inflamabil, Categoria 3
3.1/4/Dermal	Acute Tox. 4	Toxicitate acută (dermică), Categoria 4
3.1/4/Inhal	Acute Tox. 4	Toxicitate acută (inhalare), Categoria 4
3.10/1	Asp. Tox. 1	Pericol prin aspirare, Categoria 1
3.2/2	Skin Irrit. 2	Iritarea pielii, Categoria 2
3.3/2	Eye Irrit. 2	Iritarea ochilor, Categoria 2
3.4.2/1	Skin Sens. 1	Sensibilizarea pielii, Categoria 1
3.4.2/1A	Skin Sens. 1A	Sensibilizarea pielii, Categoria 1A
3.6/2	Carc. 2	Cancerigenitate, Categoria 2
3.7/1B	Repr. 1B	Toxicitate pentru reproducere, Categoria 1B
3.8/3	STOT SE 3	Toxicitate asupra unui organ țintă specific – o singură expunere, Categoria 3
3.9/1	STOT RE 1	Toxicitate asupra unui organ țintă specific – expunere repetată, Categoria 1
3.9/2	STOT RE 2	Toxicitate asupra unui organ țintă specific – expunere repetată, Categoria 2
4.1/C2	Aquatic Chronic 2	Pericol cronic (pe termen lung) pentru mediul acvatic, Categoria 2
4.1/C3	Aquatic Chronic 3	Pericol cronic (pe termen lung) pentru mediul acvatic, Categoria 3

Clasificarea și procedura utilizate pentru realizarea clasificării pentru amestecuri în conformitate cu Regulamentul (CE) nr. 1272/2008 [CLP]:

Clasificare conform Regulamentului (CE) nr. 1272/2008	Procedura de clasificare
Skin Irrit. 2, H315	Metoda de calcul
Eye Irrit. 2, H319	Metoda de calcul
Skin Sens. 1A, H317	Metoda de calcul
Repr. 1B, H360	Metoda de calcul
Aquatic Chronic 2, H411	Metoda de calcul

Acest document a fost întocmit de un tehnician competent în domeniul SDS și care este pregătit în mod corespunzător.

Principalele surse bibliografice:

ECDIN - Rețeaua de date și informații de mediu privind produsele chimice - Centrul comun de cercetare, Comisia Comunităților Europene

SAX PROPRIETĂȚI PERICULOASE ALE MATERIALELOR INDUSTRIALE - Ediția a opta - Van Nostrand Reinold

Fișe tehnice de securitate ale furnizorilor de materii prime.

Aceste informații se bazează pe cunoștințele deținute la data menționată mai sus. Se referă numai la produsul menționat și nu constituie o garanție a calității pentru cazurile particulare

Este de datoria utilizatorului să se asigure că aceste informații sunt adecvate și corespund domeniului specific de utilizare

Această FTS anulează și înlocuiește pe cele emise anterior.

Legenda cu abrevierile și acronimele folosite în fișa cu date de securitate

ACGIH: Conferința Americană a Igieniştilor Industriali Guvernamentali

ADR: Acordul European referitor la Încărcătura Internațională de Bunuri Periculoase pe Drumuri

ATE: Toxicitate Acută Estimată

ATEmix: Estimarea toxicității acute (Amestecuri)

BEI: Index de Expunere Biologică

CAS: Chemical Abstracts Service (departament al Societății Americane de Chimie)

CAV: Centrul de Otrăvuri

CE: Comunitatea Europeană

CLP: Clasificare, Etichetare, Ambalare

CMR: Cancerigene, Mutagene și Toxice pentru reproducere

COV: Compus Organic Volatil

CSA: Evaluarea Securității Chimice

CSR: Raportul Securității Chimice

DNEL: Nivel Derivat Fără Efect

EC50: Jumătate din Concentrația Efectivă Maximă

ECHA: Agenția Europeană pentru Produse Chimice

EINECS: Inventarul European al Substanțelor Chimice Existente pe piață

ES: Scenariul de Expunere

GefStoffVO: Ordonanță în legătură cu Substanțele Periculoase, Germania

GHS: Sistemul Mondial Armonizat de Clasificare și Etichetare a Produselor Chimice

IARC: Agenția Internațională pentru Cercetare în Domeniul Cancerului

IATA: Asociația Internațională de Transport Aerian

IC50: jumătate din concentrația inhibitorie maximă

IMDG: Coduri Maritime Internaționale pentru Bunurile Periculoase

LC50: Concentrația letală pentru un procent de 50% din populația test

LD50: Doza letală pentru un procent de 50% din populația test

LDLo: Doză Letală Scăzută

N.A.: Nu se aplică

N/A: Nu se aplică

N/D: Nedefinit/Nu este disponibil

N.D.: Nu este disponibil

NIOSH: Institutul Național pentru Securitate și Sănătate în Muncă

NOAEL: Nu există un Nivel al Efectelor Adverse Observat

OSHA: Administrația Securității și Sănătății în Muncă.

PBT: Persistente, Bioacumulative și Toxice

PGK: Instrucțiuni de ambalare

PNEC: Concentrația Fără Efect Prevăzută

PSG: Pasageri

RID: Regulamentul Referitor la Transportul Internațional de Bunuri Periculoase pe Calea Ferată

STEL: Limita de Expunere pe Termen Scurt

STOT: Toxicitatea pentru Organul Țintă Specific

TLV: Valoarea Limită a Pragului

TLV-TWA: Valoarea Limită a Pragului pentru Durata Ponderată Medie 8 ore pe zi (Standard ACGIH)

vPvB: Foarte Persistent, Foarte Bioacumulativ.

WGK: Clasa Germană a Periculozității Apei

Paragrafe modificate de la ultima revizuire:

- SECȚIUNEA 1: Identificarea substanței/amestecului și a societății/întreprinderii
- SECȚIUNEA 2: Identificarea pericolelor
- SECȚIUNEA 3: Compoziție/informații privind componenții
- SECȚIUNEA 8: Controale ale expunerii/protecția personală
- SECȚIUNEA 9: Proprietățile fizice și chimice
- SECȚIUNEA 11: Informații toxicologice
- SECȚIUNEA 12: Informații ecologice
- SECȚIUNEA 15: Informații de reglementare
- SECȚIUNEA 16: Alte informații

Ethyl acetate

Substance identification

Chemical Name: Ethyl acetate

CAS number: 141-78-6

ETHYL ACETATE

ES 1: Cosmetics, personal care products (PC39); User for consumers (SU21).
 ES 2: Filling of drums and small packages (CS6); INDUSTRIAL USES (SU3).
 ES 3: Formulation or repackaging (F); INDUSTRIAL USES (SU3).
 ES 4: Use of non-reactive processing aid at industrial site (no inclusion in article) (ERC4); Industrial uses (su3); Extraction agents (PC40).
 ES 5: PROFESSIONAL APPLICATION OF COATINGS AND INKS; INDUSTRIAL USES (SU3).
 ES 6: Use as laboratory reagent (PROC15); Industrial uses (su3); Industrial use.
 ES 7: Use in cleaning products (GEST4_I, GEST4_P, GEST4_C); INDUSTRIAL USES (SU3).
 ES 8: Use in lubricants (GEST6_I, GEST6_P, GEST6_C); INDUSTRIAL USES (SU3).
 ES 9: Professional application of coatings and inks (14); INDUSTRIAL USES (SU3). Covers use in coatings (paints, inks, adhesives, etc.) including exposures during use (receipt of material, storage, preparation and transfer of bulk and semi-bulk products, application by spray, roller or spreader, dipping, flow, fluidized bed on production lines and film formation), the cleaning and maintenance of the equipment and the associated laboratory activities [GES3_I].
 ES 10: Use as laboratory reagent (PROC15); Industrial uses (su3); Professional (G27).
 ES 11: Use in agrochemical products (GEST11_P, GEST11_C); INDUSTRIAL USES (SU3).
 ES 12: Use in detergent products (GEST4_I, GEST4_P, GEST4_C).
 ES 13: Use in lubricants (GEST6_I, GEST6_P, GEST6_C).
 ES 14: Adhesives, Sealants (PC1); Use in coatings (GEST3_I, GEST3_P, GEST3_C).

ES 5: PROFESSIONAL APPLICATION OF COATINGS AND INKS (17); INDUSTRIAL USES (SU3).

5.1. USE AT INDUSTRIAL SITES

Environment

SC 1: Use of non-reactive processing aid at industrial site (no inclusion in article) ERC4

Worker

SC 2: Generalized exposures (closed systems) PROC1
 SC 3: Generalized exposures (closed systems); Use in closed systems, with sample taking PROC2
 SC 4: Film formation - forced drying (50 -100°C). Stove (>100°C), Curing by UV/EB radiation PROC2
 SC 5: Mixing operations, Generalized exposures PROC3
 SC 6: Film formation, air drying PROC4
 SC 7: Preparation of material for application, Mixing operations (open systems) PROC5
 SC 8: Spraying (automatic/robotic) PROC7
 SC 9: Manual spraying PROC7
 SC 10: Material transfers, Non-Specialized site PROC8a
 SC 11: Material transfers, Specialized site PROC8b
 SC 12: Roller, diffusion, flow application PROC10
 SC 13: Immersion, dipping and pouring PROC13
 SC 14: Laboratory activities PROC15
 SC 15: Material transfers, Drum/batch transfers, Transfer from/pour from containers PROC9
 SC 16: Production or preparation of articles by tableting, compression, extrusion or pelletisation. PROC14

5.2. CONDITIONS OF USE THAT AFFECT EXPOSURE

5.2.1 Environmental exposure control: Use of non-reactive processing aid at industrial site (no inclusion in article) (ERC4)

Amount used (or contained in articles), frequency and duration of use/exposure

Daily amount per site: ≤ 1 t/day

Annual amount per site: ≤ 300 t/year

Organizational and technical measures and conditions

A wastewater treatment plant is expected.

Assumed domestic sewage treatment plant flow: ≥ 2E3 m³/day

Conditions and measures for waste treatment (including the article of waste)

Waste treatment: Dispose of waste products or used containers according to local regulations.

Other conditions affecting environmental exposure

Water flow on the receiving surface: 18,000 m³/g

5.2.2. Worker Exposure Control: Chemical production or refinement in closed processes without likelihood of exposure or in processes with equivalent containment conditions (PROC1)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.3. Worker Exposure Control: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.4. Worker Exposure Control: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.5. Worker Exposure Control: Chemical production or formulation in closed batch processes, with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.6. Worker Exposure Control: Production of chemicals with the possibility of exposure (PROC4)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.7. Worker Exposure Control: Mixing or blending in batch processes (PROC5)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.8. Worker Exposure Control: Industrial spraying (PROC7)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 95%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.9. Worker Exposure Control: Industrial spraying (PROC7)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 95%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.10. Worker Exposure Control: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.11. Worker Exposure Control: Transfer of a substance or a mixture (charging/discharging) at dedicated facilities (PROC8b)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 95%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.12. Worker Exposure Control: Application with rollers or brushes (PROC10)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.13. Worker Exposure Control: Treatment of articles by dipping and pouring (PROC13)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.14. Worker Exposure Control: Use as laboratory reagents (PROC15)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.15. Worker Exposure Control: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.16. Worker Exposure Control: Tableting, compression, extrusion, pelletising, granulation (PROC14)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

5.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion in article) (ERC4)

Route release	Release rate	Method for estimating for release
water	20 kg/day	Estimated release factor
air	980 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	Estimated exposure	RCR
Fresh water	0.119 mg/l (EUSES v2.1)	0.495
freshwater sediments	0.708 mg/kg dry weight (EUSES v2.1)	0.616
Sea water	0.012 mg/l (EUSES v2.1)	0.495
Marine sediment	0.071 mg/kg dry weight (EUSES v2.1)	0.617
Sewage treatment plant	1.184 mg/l (EUSES v2.1)	< 0.01
Farmland	0.081 mg/kg dry weight (EUSES v2.1)	0.547
Prey for predators (freshwater)	1.469 mg/kg dry weight (EUSES v2.1)	< 0.01
Prey for predators (marine water)	0.148 mg/kg dry weight (EUSES v2.1)	< 0.01
Main predator prey (marine water)	0.031 mg/kg dry weight (EUSES v2.1)	< 0.01
Prey for Predators (Terrestrial)	0.028 mg/kg dry weight (EUSES v2.1)	< 0.01

5.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	0.037 mg/m ³ (ECETOC TRA worker v3)	< 0.01
inhalation	systemic	Short term	0.147 mg/m ³ (ECETOC TRA worker v3)	< 0.01
inhalation	local	Long-term	0.037 mg/m ³ (ECETOC TRA worker v3)	< 0.01
inhalation	local	Short term	0.147 mg/m ³ (ECETOC TRA worker v3)	< 0.01
dermal	systemic	Long-term	0.034 mg/kg bw/day (ECETOC TRA worker v3)	< 0.01
combined routes	systemic	Long-term	/	< 0.01

5.3.3. Worker exposure: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	361.7 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	361.7 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	1.37 mg/kg bw/day (ECETOC TRA worker v3)	0.022
combined routes	systemic	Long-term	/	0.147

5.3.4. Worker exposure: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	361.7 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	361.7 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	1.37 mg/kg bw/day (ECETOC TRA worker v3)	0.022
combined routes	systemic	Long-term	/	0.147

5.3.5. Worker exposure: Chemical production or formulation in closed batch processes, with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	systemic	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
inhalation	local	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
dermal	systemic	Long-term	0.69 mg/kg bw/day (ECETOC TRA worker v3)	0.011
combined routes	systemic	Long-term	/	0.261

5.3.6. Worker exposure: Production of chemicals with the possibility of exposure (PROC4)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	36.71 mg/m ³ (ECETOC TRA worker v3)	0.05
inhalation	systemic	Short term	146.8 mg/m ³ (ECETOC TRA worker v3)	0.1
inhalation	local	Long-term	36.71 mg/m ³ (ECETOC TRA worker v3)	0.05
inhalation	local	Short term	146.8 mg/m ³ (ECETOC TRA worker v3)	0.1
dermal	systemic	Long-term	6.86 mg/kg bw/day (ECETOC TRA worker v3)	0.109
combined routes	systemic	Long-term	/	0.159

5.3.7. Worker exposure: Mixing or blending in batch processes (PROC5)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	13.71 mg/kg bw/day (ECETOC TRA worker v3)	0.218
combined routes	systemic	Long-term	/	0.343

5.3.8. Worker exposure: Industrial spraying (PROC7)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	42.86 mg/kg bw/day (ECETOC TRA worker v3)	0.68
combined routes	systemic	Long-term	/	0.805

5.3.9. Worker exposure: Industrial spraying (PROC7)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	42.86 mg/kg bw/day (ECETOC TRA worker v3)	0.68
combined routes	systemic	Long-term	/	0.805

5.3.10. Worker exposure: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	13.71 mg/kg bw/day (ECETOC TRA worker v3)	0.218
combined routes	systemic	Long-term	/	0.343

5.3.11. Worker exposure: Transfer of a substance or a mixture (charging/discharging) at dedicated facilities (PROC8b)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	27.53 mg/m ³ (ECETOC TRA worker v3)	0.038
inhalation	systemic	Short term	110.1 mg/m ³ (ECETOC TRA worker v3)	0.075
inhalation	local	Long-term	27.53 mg/m ³ (ECETOC TRA worker v3)	0.038
inhalation	local	Short term	110.1 mg/m ³ (ECETOC TRA worker v3)	0.075
dermal	systemic	Long-term	13.71 mg/kg bw/day (ECETOC TRA worker v3)	0.218
combined routes	systemic	Long-term	/	0.255

5.3.12. Worker exposure: Application with rollers or brushes (PROC10)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	27.43 mg/kg bw/day (ECETOC TRA worker v3)	0.435
combined routes	systemic	Long-term	/	0.56

5.3.13. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	13.71 mg/kg bw/day (ECETOC TRA worker v3)	0.218
combined routes	systemic	Long-term	/	0.343

5.3.14. Worker exposure: Use as laboratory reagents (PROC15)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	systemic	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
inhalation	local	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
dermal	systemic	Long-term	0.34 mg/kg bw/day (ECETOC TRA worker v3)	< 0.01
combined routes	systemic	Long-term	/	0.255

5.3.15. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	73.42 mg/m ³ (ECETOC TRA worker v3)	0.1
inhalation	systemic	Short term	293.6 mg/m ³ (ECETOC TRA worker v3)	0.2
inhalation	local	Long-term	73.42 mg/m ³ (ECETOC TRA worker v3)	0.1
inhalation	local	Short term	293.6 mg/m ³ (ECETOC TRA worker v3)	0.2
dermal	systemic	Long-term	6.86 mg/kg bw/day (ECETOC TRA worker v3)	0.109
combined routes	systemic	Long-term	/	0.209

5.3.16. Worker exposure: Tableting, compression, extrusion, pelletising, granulation (PROC14)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	3.43 mg/kg bw/day (ECETOC TRA worker v3)	0.054
combined routes	systemic	Long-term	/	0.179

5.4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: <https://echa.europa.eu/>

ES 9: PROFESSIONAL APPLICATION OF COATINGS AND INKS (14); INDUSTRIAL USES (SU3). COVERS USE IN COATINGS (PAINTS, INKS, ADHESIVES, ETC.) INCLUDING EXPOSURES DURING USE (RECEIPT OF MATERIAL, STORAGE, PREPARATION AND TRANSFER OF BULK AND SEMI-BULK PRODUCTS, APPLICATION BY SPRAY, ROLLER OR SPREADER, DIPPING, FLOW, FLUIDIZED BED ON PRODUCTION LINES AND FILM FORMATION), THE CLEANING AND MAINTENANCE OF THE EQUIPMENT AND THE ASSOCIATED LABORATORY ACTIVITIES [GES3_I].

9.1. WIDE DISPERSIVE USE BY PROFESSIONAL WORKERS

Environment

SC 1: Wide dispersive use of non-reactive processing aid (no inclusion into the article, outdoor) ERC8d

Worker

SC 3: Generalized exposures (closed systems) PROC1
SC 4: Filling of equipment from drums and containers PROC2
SC 5: Generalized exposures (closed systems), Use in closed systems PROC2
SC 6: Preparation of material for application, Generalized exposures PROC3
SC 7: Film formation - air drying, Indoor use PROC4
SC 8: Film formation - air drying, Outdoor use PROC4
SC 9: Preparation of material for application, Indoor use PROC5
SC 10: Preparation of material for application, Outdoor use PROC5
SC 11: Material transfers, Drum/batch transfers, Non-Specialized site PROC8a
SC 12: 12 Material Transfers, Drum/batch transfers, specialized site PROC8b
SC 13: Roller, diffusion, flow application, Indoor use PROC10
SC 14: Roller, diffusion, flow application, Outdoor use PROC10
SC 15: Manual spraying, Indoor use PROC11
SC 16: Manual spraying, Outdoor use PROC11
SC 17: Immersion, dipping and pouring, Indoor use PROC13
SC 18: Immersion, dipping and pouring, Outdoor use PROC13
SC 19: Laboratory activities PROC15
SC 20: Hand application - finger paints, crayons, stickers, Indoor use PROC19
SC 21: Hand application - finger paints, crayons, stickers, Outdoor use PROC19

9.2. CONDITIONS OF USE THAT AFFECT EXPOSURE

9.2.1 Environmental exposure control: Wide dispersive use of non-reactive processing aid (no inclusion into the article, outdoor) (ERC8d)

Organizational and technical measures and conditions

A wastewater treatment plant is expected.

Conditions and measures for waste treatment (including the article of waste)

Waste treatment: Dispose of waste products or used containers according to local regulations.

9.2.3. Worker Exposure Control: Chemical production or refinement in closed processes without likelihood of exposure or in processes with equivalent containment conditions (PROC1)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.4. Worker Exposure Control: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.5. Worker Exposure Control: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.6. Worker Exposure Control: Chemical production or formulation in closed batch processes, with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (3 to 5 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.7. Worker Exposure Control: Production of chemicals with the possibility of exposure (PROC4)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 80%

Provide a basic level of general ventilation (3 to 5 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.8. Worker Exposure Control: Production of chemicals with the possibility of exposure (PROC4)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.9. Worker Exposure Control: Mixing or blending in batch processes (PROC5)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 80%

Provide a basic level of general ventilation (3 to 5 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.10. Worker Exposure Control: Mixing or blending in batch processes (PROC5)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable respirator.

For more information, refer to Section 8 of the SDS (safety data sheet).

Inhalation - minimum yield of 90%

Other conditions affecting worker exposure

Indoor and outdoor use: Outdoor use

Temperature: Process temperature up to 40°C is assumed

9.2.11. Worker Exposure Control: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a) (PROC8b)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (3 to 5 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.12. Worker Exposure Control: Transfer of a substance or a mixture (charging/discharging) at dedicated facilities (PROC8b)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.13. Worker Exposure Control: Application with rollers or brushes (PROC10)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 80%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.14. Worker Exposure Control: Application with rollers or brushes (PROC10)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable respirator.

For more information, refer to Section 8 of the SDS (safety data sheet).

Inhalation - minimum yield of 90%

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.15. Worker Exposure Control: Non-industrial spray application (PROC11)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 80%

Provide a basic level of general ventilation (3 to 5 air changes per hour).

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, these parts should also be protected with impermeable clothing equivalent to that described for the hands.

For more information, refer to Section 8 of the SDS (safety data sheet).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.16. Worker Exposure Control: Non-industrial spray application (PROC11)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, these parts should also be protected with impermeable clothing equivalent to that described for the hands.

For more information, refer to Section 8 of the SDS (safety data sheet).

Wear suitable respirator.

For more information, refer to Section 8 of the SDS (safety data sheet).

Inhalation - minimum yield of 90%

Other conditions affecting worker exposure

Indoor and outdoor use: Outdoor use

Temperature: Process temperature up to 40°C is assumed

9.2.17. Worker Exposure Control: Treatment of articles by dipping and pouring (PROC13)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a good standard of general ventilation (from 5 to 10 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.18. Worker Exposure Control: Treatment of articles by dipping and pouring (PROC13)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable respirator.

For more information, refer to Section 8 of the SDS (safety data sheet).

Inhalation - minimum yield of 90%

Other conditions affecting worker exposure

Indoor and outdoor use: Outdoor use

Temperature: Process temperature up to 40°C is assumed

9.2.19. Worker Exposure Control: Use as laboratory reagents (PROC15)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.20. Worker Exposure Control: Hand-mixing with direct contact and only PPE available (PROC19)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a good standard of general ventilation (from 5 to 10 air changes per hour).

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, these parts should also be protected with impermeable clothing equivalent to that described for the hands.

For more information, refer to Section 8 of the SDS (safety data sheet).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.21. Worker Exposure Control: Hand-mixing with direct contact and only PPE available (PROC19)

Product features (article)

Covers concentrations up to 5 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, these parts should also be protected with impermeable clothing equivalent to that described for the hands.

For more information, refer to Section 8 of the SDS (safety data sheet).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

9.3.1. Environmental release and exposure: Wide dispersive use of non-reactive processing aid (no inclusion into the article, outdoor) (ERC8d)

Route release	Release rate	Method for estimating for release
water	0.014 kg/day	Estimated release factor
air	980 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	Estimated exposure	RCR
Fresh water	0.000396 mg/l (EUSES v2.1)	< 0.01
freshwater sediments	0.00236 mg/kg dry weight (EUSES v2.1)	< 0.01
Sea water	0.0000597 mg/l (EUSES v2.1)	< 0.01
Marine sediment	0.000356 mg/kg dry weight (EUSES v2.1)	< 0.01
Sewage treatment plant	0.000805 mg/l (EUSES v2.1)	< 0.01
Farmland	0.000131 mg/kg dry weight (EUSES v2.1)	< 0.01
Prey for predators (freshwater)	0.011 mg/kg wet weight (EUSES v2.1)	< 0.01
Prey for predators (marine water)	0.00167 mg/kg wet weight (EUSES v2.1)	< 0.01
Main predator prey (marine water)	0.00158 mg/kg wet weight (EUSES v2.1)	< 0.01
Prey for Predators (Terrestrial)	0.000114 mg/kg wet weight (EUSES v2.1)	< 0.01

9.3.3. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	0.367 mg/m ³ (ECETOC TRA worker v3)	< 0.01
inhalation	systemic	Short term	1.468 mg/m ³ (ECETOC TRA worker v3)	< 0.01
inhalation	local	Long-term	0.367 mg/m ³ (ECETOC TRA worker v3)	< 0.01
inhalation	local	Short term	1.468 mg/m ³ (ECETOC TRA worker v3)	< 0.01
dermal	systemic	Long-term	0.034 mg/kg bw/day (ECETOC TRA worker v3)	< 0.01
combined routes	systemic	Long-term	/	< 0.01

9.3.4. Worker exposure: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	systemic	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
inhalation	local	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
dermal	systemic	Long-term	1.37 mg/kg bw/day (ECETOC TRA worker v3)	0.022
combined routes	systemic	Long-term	/	0.272

9.3.5. Worker exposure: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
inhalation	local	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	systemic	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
dermal	systemic	Long-term	1.37 mg/kg bw/day (ECETOC TRA worker v3)	0.022
combined routes	systemic	Long-term	/	0.272

9.3.6. Worker exposure: Chemical production or formulation in closed batch processes, with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
dermal	systemic	Long-term	0.69 mg/kg bw/day (ECETOC TRA worker v3)	0.011
combined routes	systemic	Long-term	/	0.361

9.3.7. Worker exposure: Production of chemicals with the possibility of exposure (PROC4)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	128.4 mg/m ³ (ECETOC TRA worker v3)	0.175
inhalation	systemic	Short term	513.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Long-term	128.4 mg/m ³ (ECETOC TRA worker v3)	0.175
inhalation	local	Short term	513.9 mg/m ³ (ECETOC TRA worker v3)	0.35
dermal	systemic	Long-term	6.86 mg/kg bw/day (ECETOC TRA worker v3)	0.109
combined routes	systemic	Long-term	/	0.284

9.3.8. Worker exposure: Production of chemicals with the possibility of exposure (PROC4)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
dermal	systemic	Long-term	6.86 mg/kg bw/day (ECETOC TRA worker v3)	0.109
combined routes	systemic	Long-term	/	0.459

9.3.9. Worker exposure: Mixing or blending in batch processes (PROC5)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
dermal	systemic	Long-term	13.71 mg/kg bw/day (ECETOC TRA worker v3)	0.218
combined routes	systemic	Long-term	/	0.568

9.3.10. Worker exposure: Mixing or blending in batch processes (PROC5)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	128.4 mg/m ³ (ECETOC TRA worker v3)	0.175
inhalation	systemic	Short term	513.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Long-term	128.4 mg/m ³ (ECETOC TRA worker v3)	0.175
inhalation	local	Short term	513.9 mg/m ³ (ECETOC TRA worker v3)	0.35
dermal	systemic	Long-term	13.71 mg/kg bw/day (ECETOC TRA worker v3)	0.218
combined routes	systemic	Long-term	/	0.393

9.3.11. Worker exposure: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
dermal	systemic	Long-term	13.71 mg/kg bw/day (ECETOC TRA worker v3)	0.218
combined routes	systemic	Long-term	/	0.568

9.3.12. Worker exposure: Transfer of a substance or a mixture (charging/discharging) at dedicated facilities (PROC8b)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	13.71 mg/kg bw/day (ECETOC TRA worker v3)	0.218
combined routes	systemic	Long-term	/	0.343

9.3.13. Worker exposure: Application with rollers or brushes (PROC10)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
dermal	systemic	Long-term	27.43 mg/kg bw/day (ECETOC TRA worker v3)	0.435
combined routes	systemic	Long-term	/	0.785

9.3.14. Worker exposure: Application with rollers or brushes (PROC10)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	128.4 mg/m ³ (ECETOC TRA worker v3)	0.175
inhalation	systemic	Short term	513.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Long-term	128.4 mg/m ³ (ECETOC TRA worker v3)	0.175
inhalation	local	Short term	513.9 mg/m ³ (ECETOC TRA worker v3)	0.35
dermal	systemic	Long-term	27.43 mg/kg bw/day (ECETOC TRA worker v3)	0.435
combined routes	systemic	Long-term	/	0.61

9.3.15. Worker exposure: Non-industrial spray application (PROC11)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	308.3 mg/m ³ (ECETOC TRA worker v3)	0.42
inhalation	systemic	Short term	mg/m ³ (ECETOC TRA worker v3)	0.84
inhalation	local	Long-term	308.3 mg/m ³ (ECETOC TRA worker v3)	0.42
inhalation	local	Short term	mg/m ³ (ECETOC TRA worker v3)	0.84
dermal	systemic	Long-term	12.85 mg/kg bw/day (ECETOC TRA worker v3)	0.204
combined routes	systemic	Long-term	/	0.624

9.3.16. Worker exposure: Non-industrial spray application (PROC11)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	154.1 mg/m ³ (ECETOC TRA worker v3)	0.21
inhalation	systemic	Short term	616.7 mg/m ³ (ECETOC TRA worker v3)	0.42
inhalation	local	Long-term	154.1 mg/m ³ (ECETOC TRA worker v3)	0.21
inhalation	local	Short term	616.7 mg/m ³ (ECETOC TRA worker v3)	0.42
dermal	systemic	Long-term	12.85 mg/kg bw/day (ECETOC TRA worker v3)	0.204
combined routes	systemic	Long-term	/	0.414

9.3.17. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	165.1 mg/m ³ (ECETOC TRA worker v3)	0.225
inhalation	systemic	Short term	660.7 mg/m ³ (ECETOC TRA worker v3)	0.45
inhalation	local	Long-term	165.1 mg/m ³ (ECETOC TRA worker v3)	0.225
inhalation	local	Short term	660.7 mg/m ³ (ECETOC TRA worker v3)	0.45
dermal	systemic	Long-term	8.226 mg/kg bw/day (ECETOC TRA worker v3)	0.131
combined routes	systemic	Long-term	/	0.356

9.3.18. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	38.54 mg/m ³ (ECETOC TRA worker v3)	0.053
inhalation	systemic	Short term	154.1 mg/m ³ (ECETOC TRA worker v3)	0.105
inhalation	local	Long-term	38.54 mg/m ³ (ECETOC TRA worker v3)	0.053
inhalation	local	Short term	154.1 mg/m ³ (ECETOC TRA worker v3)	0.105
dermal	systemic	Long-term	8.226 mg/kg bw/day (ECETOC TRA worker v3)	0.131
combined routes	systemic	Long-term	/	0.183

9.3.19. Worker exposure: Use as laboratory reagents (PROC15)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	systemic	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
inhalation	local	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
dermal	systemic	Long-term	0.34 mg/kg bw/day (ECETOC TRA worker v3)	< 0.01
combined routes	systemic	Long-term	/	0.255

9.3.20. Worker exposure: Hand-mixing with direct contact and only PPE available (PROC19)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	330.3 mg/m ³ (ECETOC TRA worker v3)	0.45
inhalation	systemic	Short term	1.32 g/m ³ (ECETOC TRA worker v3)	0.9
inhalation	local	Long-term	330.3 mg/m ³ (ECETOC TRA worker v3)	0.45
inhalation	local	Short term	1.32 g/m ³ (ECETOC TRA worker v3)	0.9
dermal	systemic	Long-term	16.97 mg/kg bw/day (ECETOC TRA worker v3)	0.269
combined routes	systemic	Long-term	/	0.72

9.3.21. Worker exposure: Hand-mixing with direct contact and only PPE available (PROC19)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	mg/m ³ (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	mg/m ³ (ECETOC TRA worker v3)	0.7
dermal	systemic	Long-term	5.657 mg/kg bw/day (ECETOC TRA worker v3)	0.09
combined routes	systemic	Long-term	/	0.44

9.4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: <https://echa.europa.eu/>

ES 12: USE IN DETERGENT PRODUCTS (GEST4_I, GEST4_P, GEST4_C).

12.1. WIDE DISPERSIVE USE BY PROFESSIONAL WORKERS

Environment

SC 1: Wide dispersive use of non-reactive processing aid (no inclusion into the article, indoors) ERC8a

Worker

SC 2: Filling of equipment from drums and containers, specialised site PROC8b

SC 3: Automated process with (semi) closed systems; Use in closed systems PROC2

SC 4: Automated process with (semi) closed systems Drum/batch transfers, Use in closed systems PROC3

SC 5: Semi-automatic process (e.g: Semi-automatic application of floor care and maintenance products) PROC4

SC 6: Filling of equipment from drums and containers, Outdoor use PROC8a

SC 7: Immersion, dipping and pouring, Manual, Surfaces, Cleaning PROC13

SC 8: Cleaning with low-pressure washers, Roller application or brushing, No spraying PROC10

SC 9: Cleaning with high pressure washers, Spraying, Indoor use PROC11

SC 10: Cleaning with high pressure washers Spraying, Outdoor use PROC11

SC 11: Application of cleaning products in closed systems, Manual, Surfaces, Cleaning PROC10

SC 12: Ad hoc manual application via trigger sprays, partial dipping, etc., Roller application or brushing PROC10

SC 13: Application of cleaning products in closed systems, Outdoor use PROC4

SC 14: Cleaning of medical devices PROC4

12.2. CONDITIONS OF USE THAT AFFECT EXPOSURE

12.2.1 Environmental exposure control: Wide dispersive use of non-reactive processing aid (no inclusion into the article, indoors) (ERC8a)

Organizational and technical measures and conditions

A wastewater treatment plant is expected.

Conditions and measures for waste treatment (including the article of waste)

Waste treatment: Dispose of waste products or used containers according to local regulations.

12.2.2. Worker Exposure Control: Transfer of a substance or a mixture (charging/discharging) at dedicated facilities (PROC8b)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a good standard of general ventilation (from 5 to 10 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.2.3. Worker Exposure Control: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.2.4. Worker Exposure Control: Chemical production or formulation in closed batch processes, with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.2.5. Worker Exposure Control: Production of chemicals with the possibility of exposure (PROC4)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a good standard of general ventilation (from 5 to 10 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.2.6. Worker Exposure Control: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable respirator.

For more information, refer to Section 8 of the SDS (safety data sheet).

Inhalation - minimum yield of 90%

Other conditions affecting worker exposure

Indoor and outdoor use: Outdoor use

Temperature: Process temperature up to 40°C is assumed

12.2.7. Worker Exposure Control: Treatment of articles by dipping and pouring (PROC13)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a good standard of general ventilation (from 5 to 10 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.2.8. Worker Exposure Control: Application with rollers or brushes (PROC10)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a good standard of general ventilation (from 5 to 10 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.2.9. Worker Exposure Control: Non-industrial spray application (PROC11)

Product features (article)

Covers concentrations up to 5 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a good standard of general ventilation (from 5 to 10 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.2.10. Worker Exposure Control: Non-industrial spray application (PROC11)

Product features (article)

Covers concentrations up to 1%

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, these parts should also be protected with impermeable clothing equivalent to that described for the hands.

For more information, refer to Section 8 of the SDS (safety data sheet).

Other conditions affecting worker exposure

Indoor and outdoor use: Outdoor use

Temperature: Process temperature up to 40°C is assumed

12.2.11. Worker Exposure Control: Application with rollers or brushes (PROC10)

Product features (article)

Covers concentrations up to 5 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.12. Worker Exposure Control: Application with rollers or brushes (PROC10)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 80%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.2.13. Worker Exposure Control: Production of chemicals with the possibility of exposure (PROC4)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable respirator.

For more information, refer to Section 8 of the SDS (safety data sheet).

Inhalation - minimum yield of 90%

Other conditions affecting worker exposure

Indoor and outdoor use: Outdoor use

Temperature: Process temperature up to 40°C is assumed

12.2.14. Worker Exposure Control: Production of chemicals with the possibility of exposure (PROC4)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 80%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

12.3.1. Environmental release and exposure: Wide dispersive use of non-reactive processing aid (no inclusion into the article, indoors) (ERC8a)

Route release	Release rate	Method for estimating for release
water	0.014 kg/day	Environmental Release Category (ERC)
air	0.014 kg/day	Environmental Release Category (ERC)
Soil	0 kg/day	Environmental Release Category (ERC)

Protection target	Estimated exposure	RCR
Fresh water	0.000397 mg/l (EUSES v2.1)	< 0.01
freshwater sediments	0.00237 mg/kg dry weight (EUSES v2.1)	< 0.01
Sea water	0.000598 mg/l (EUSES v2.1)	< 0.01
Marine sediment	0.000357 mg/kg dry weight (EUSES v2.1)	< 0.01
Sewage treatment plant	0.000811 mg/l (EUSES v2.1)	< 0.01
Farmland	0.000131 mg/kg dry weight (EUSES v2.1)	< 0.01
Prey for predators (freshwater)	0.011 mg/kg dry weight (EUSES v2.1)	< 0.01
Prey for predators (marine water)	0.00167 mg/kg dry weight (EUSES v2.1)	< 0.01
Main predator prey (marine water)	0.00158 mg/kg dry weight (EUSES v2.1)	< 0.01
Prey for Predators (Terrestrial)	0.000114 mg/kg dry weight (EUSES v2.1)	< 0.01

12.3.2. Worker exposure: Transfer of a substance or a mixture (charging/discharging) at dedicated facilities (PROC8b)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	165.1 mg/m ³ (ECETOC TRA worker v3)	0.225
inhalation	systemic	Short term	660.7 mg/m ³ (ECETOC TRA worker v3)	0.45
inhalation	local	Long-term	165.1 mg/m ³ (ECETOC TRA worker v3)	0.225
inhalation	local	Short term	660.7 mg/m ³ (ECETOC TRA worker v3)	0.45
dermal	systemic	Long-term	8.226 mg/kg bw/day (ECETOC TRA worker v3)	0.131
combined routes	systemic	Long-term	/	0.356

12.3.3. Worker exposure: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	110.1 mg/m ³ (ECETOC TRA worker v3)	0.15
inhalation	local	Long-term	110.1 mg/m ³ (ECETOC TRA worker v3)	0.15
inhalation	local	Short term	440.5 mg/m ³ (ECETOC TRA worker v3)	0.3
inhalation	systemic	Short term	440.5 mg/m ³ (ECETOC TRA worker v3)	0.3
dermal	systemic	Long-term	0.822 mg/kg bw/day (ECETOC TRA worker v3)	0.013
combined routes	systemic	Long-term	/	0.163

12.3.4. Worker exposure: Chemical production or formulation in closed batch processes, with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	220.2 mg/m ³ (ECETOC TRA worker v3)	0.3
inhalation	systemic	Short term	881.0 mg/m ³ (ECETOC TRA worker v3)	0.6
inhalation	local	Long-term	220.2 mg/m ³ (ECETOC TRA worker v3)	0.3
inhalation	local	Short term	881.0 mg/m ³ (ECETOC TRA worker v3)	0.6
dermal	systemic	Long-term	0.414 mg/kg bw/day (ECETOC TRA worker v3)	< 0.01
combined routes	systemic	Long-term	/	0.307

12.3.5. Worker exposure: Production of chemicals with the possibility of exposure (PROC4)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	165.1 mg/m ³ (ECETOC TRA worker v3)	0.225
inhalation	systemic	Short term	660.7 mg/m ³ (ECETOC TRA worker v3)	0.45
inhalation	local	Long-term	165.1 mg/m ³ (ECETOC TRA worker v3)	0.225
inhalation	local	Short term	660.7 mg/m ³ (ECETOC TRA worker v3)	0.45
dermal	systemic	Long-term	4.116 mg/kg bw/day (ECETOC TRA worker v3)	0.065
combined routes	systemic	Long-term	/	0.29

12.3.6. Worker exposure: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	77.09 mg/m ³ (ECETOC TRA worker v3)	0.105
inhalation	systemic	Short term	308.3 mg/m ³ (ECETOC TRA worker v3)	0.21
inhalation	local	Long-term	77.09 mg/m ³ (ECETOC TRA worker v3)	0.105
inhalation	local	Short term	308.3 mg/m ³ (ECETOC TRA worker v3)	0.21
dermal	systemic	Long-term	8.226 mg/kg bw/day (ECETOC TRA worker v3)	0.131
combined routes	systemic	Long-term	/	0.236

12.3.7. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	165.1 mg/m ³ (ECETOC TRA worker v3)	0.225
inhalation	systemic	Short term	660.7 mg/m ³ (ECETOC TRA worker v3)	0.45
inhalation	local	Long-term	165.1 mg/m ³ (ECETOC TRA worker v3)	0.225
inhalation	local	Short term	660.7 mg/m ³ (ECETOC TRA worker v3)	0.45
dermal	systemic	Long-term	8.226 mg/kg bw/day (ECETOC TRA worker v3)	0.131
combined routes	systemic	Long-term	/	0.356

12.3.8. Worker exposure: Application with rollers or brushes (PROC10)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	330.3 mg/m ³ (ECETOC TRA worker v3)	0.45
inhalation	systemic	Short term	mg/m ³ (ECETOC TRA worker v3)	0.9
inhalation	local	Long-term	330.3 mg/m ³ (ECETOC TRA worker v3)	0.45
inhalation	local	Short term	mg/m ³ (ECETOC TRA worker v3)	0.9
dermal	systemic	Long-term	16.45 mg/kg bw/day (ECETOC TRA worker v3)	0.261
combined routes	systemic	Long-term	/	0.711

12.3.9. Worker exposure: Non-industrial spray application (PROC11)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	220.2 mg/m ³ (ECETOC TRA worker v3)	0.3
inhalation	systemic	Short term	881.0 mg/m ³ (ECETOC TRA worker v3)	0.6
inhalation	local	Long-term	220.2 mg/m ³ (ECETOC TRA worker v3)	0.3
inhalation	local	Short term	881.0 mg/m ³ (ECETOC TRA worker v3)	0.6
dermal	systemic	Long-term	21.42 mg/kg bw/day (ECETOC TRA worker v3)	0.34
combined routes	systemic	Long-term	/	0.64

12.3.10. Worker exposure: Non-industrial spray application (PROC11)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
dermal	systemic	Long-term	2.143 mg/kg bw/day (ECETOC TRA worker v3)	0.034
combined routes	systemic	Long-term	/	0.384

12.3.11. Worker exposure: Application with rollers or brushes (PROC10)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
dermal	systemic	Long-term	5.486 mg/kg bw/day (ECETOC TRA worker v3)	0.087
combined routes	systemic	Long-term	/	0.437

12.3.12. Worker exposure: Application with rollers or brushes (PROC10)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	220.2 mg/m ³ (ECETOC TRA worker v3)	0.3
inhalation	systemic	Short term	881.0 mg/m ³ (ECETOC TRA worker v3)	0.6
inhalation	local	Long-term	220.2 mg/m ³ (ECETOC TRA worker v3)	0.3
inhalation	local	Short term	881.0 mg/m ³ (ECETOC TRA worker v3)	0.6
dermal	systemic	Long-term	16.45 mg/kg bw/day (ECETOC TRA worker v3)	0.261
combined routes	systemic	Long-term	/	0.561

12.3.13. Worker exposure: Production of chemicals with the possibility of exposure (PROC4)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	38.54 mg/m ³ (ECETOC TRA worker v3)	0.053
inhalation	systemic	Short term	154.1 mg/m ³ (ECETOC TRA worker v3)	0.105
inhalation	local	Long-term	38.54 mg/m ³ (ECETOC TRA worker v3)	0.053
inhalation	local	Short term	154.1 mg/m ³ (ECETOC TRA worker v3)	0.105
dermal	systemic	Long-term	4.116 mg/kg bw/day (ECETOC TRA worker v3)	0.065
combined routes	systemic	Long-term	/	0.118

12.3.14. Worker exposure: Production of chemicals with the possibility of exposure (PROC4)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	110.1 mg/m ³ (ECETOC TRA worker v3)	0.15
inhalation	systemic	Short term	440.5 mg/m ³ (ECETOC TRA worker v3)	0.3
inhalation	local	Long-term	110.1 mg/m ³ (ECETOC TRA worker v3)	0.15
inhalation	local	Short term	440.5 mg/m ³ (ECETOC TRA worker v3)	0.3
dermal	systemic	Long-term	4.116 mg/kg bw/day (ECETOC TRA worker v3)	0.065
combined routes	systemic	Long-term	/	0.215

12.4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: <https://echa.europa.eu/>

n-butyl acetate

Substance identification

Chemical Name: n-butyl acetate

CAS number: 123-86-4

Date - Version: 07/06/2017 10.0

1. USE IN COATINGS. USE IN PAINTS. USE IN PRINTING INKS. USE IN ADHESIVES.

Short title of the exposure scenario: Use in coatings. Use in paints. Use in printing inks. Use in adhesives.

SU3; ERC4; PROC7, PROC10, PROC13

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: CEPE SPERC4.1a.v1

Operating conditions

Yearly amount used in EU: 5,000,000 kgs

Minimum emission days per year: 225

Emission factor to air: 0.8%

Emission factor in water: 2%

Emission factor in soil: 0%

Receiving surface water (flow rate): 18,000 m³/day

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Suitable measures to reduce emissions to air can be: Exhaust gas treatment with thermal oxidation.

Type of treatment plant: Municipal sewage treatment plant.

Assumed sewage treatment plant flow: 2,000 m³/day

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Environment

Risk Characterization Ratio (RCR): 0.925355

Risk from environmental exposure is driven by soil.

Maximum safe use amount: 1080.7 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥0 - ≤100%

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%
Minimize manual tasks.
Daily general cleaning of equipment and work area.
Regular inspection and maintenance of equipment and machinery.
Ensure that the activity is performed outside the operator's respiratory zone (head-product distance greater than 1m).
Avoid frequent and direct contact with the substance.
Check that risk reduction measures are implemented and that the conditions of use are respected.
Avoid splashes.
Make sure the spray booth is used.
Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.
Exposure estimation: 4.2857 mg/kg/day (body weight)
Risk Characterization Ratio (RCR): 0.38961
Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.
Exposure estimation: 0.0001 mg/m³
Risk Characterization Ratio (RCR): 0.000001

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$
Physical state: liquid
Vapor pressure of the substance during use: 1120Pa
Process temperature: 20°C
Duration and frequency of application: 480 mins. 5 days a week
Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation. Effectiveness: 90%
Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.
Exposure estimation: 2.7429 mg/kg/day (body weight)
Risk Characterization Ratio (RCR): 0.249351
Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.
Exposure estimation: 24.1996 mg/m³
Risk Characterization Ratio (RCR): 0.080665

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping and pouring

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation. Effectiveness: 90%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 1.3714 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.124675

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 24.1996 mg/m³

Risk Characterization Ratio (RCR): 0.080665

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

2. USE IN COATINGS. USE IN PAINTS. USE IN PRINTING INKS. USE IN ADHESIVES.

Short title of the exposure scenario: Use in coatings. Use in paints. Use in printing inks. Use in adhesives.
SU3; ERC4; PROC7, PROC10, PROC13

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: CEPE SPERC4.1a.v1

Operating conditions

Yearly amount used in EU: 43,000,000 kgs

Minimum emission days per year: 225

Emission factor to air: 0.8%

Emission factor in water: 2%

Emission factor in soil: 0%

Receiving surface water (flow rate): 18,000 m³/day

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Suitable measures to reduce emissions to air can be: Exhaust gas treatment with thermal oxidation.

Type of treatment plant: Municipal sewage treatment plant.

Assumed sewage treatment plant flow: 2,000 m³/day

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Environment

Risk Characterization Ratio (RCR): 0.925355

Risk from environmental exposure is driven by soil.

Maximum safe use amount: 1080.7 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥0 - ≤100%

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Daily general cleaning of equipment and work area.

Regular inspection and maintenance of equipment and machinery.

Ensure that the activity is performed outside the operator's respiratory zone (head-product distance greater than 1m).

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Avoid splashes.

Make sure the spray booth is used.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 4.2857 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.38961

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.
Exposure estimation: 0.0001 mg/m³
Risk Characterization Ratio (RCR): 0.000001

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥0 - ≤100%

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation. Effectiveness: 90%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 2.7429 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.249351

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 24.1996 mg/m³

Risk Characterization Ratio (RCR): 0.080665

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping and pouring

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥0 - ≤100%

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation. Effectiveness: 90%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 1.3714 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.124675

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 24.1996 mg/m³

Risk Characterization Ratio (RCR): 0.080665

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

3. USE IN COATINGS. USE IN PAINTS. USE IN PRINTING INKS. USE IN ADHESIVES.

Short title of the exposure scenario: Use in coatings. Use in paints. Use in printing inks. Use in adhesives.
SU22; ERC8a, ERC8d; PROC10, PROC11, PROC13, PROC19

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: CEPE SPERC 8a.2a.v1

Operating conditions

Yearly amount used in EU: 2,000,000 kgs

Minimum emission days per year: 225

Emission factor to air: 99%

Emission factor in water: 1%

Emission factor in soil: 0%

Receiving surface water (flow rate): 18,000 m³/day

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

The wastewater treatment measures considered suitable are, for example, wastewater or sewage treatment plant.

Type of treatment plant: Municipal sewage treatment plant.

Assumed sewage treatment plant flow: 2,000 m³/day

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Environment

Risk Characterization Ratio (RCR): 0.012923

Risk from environmental exposure is driven by freshwater sediment.

Maximum safe use amount: 1934.6 kg/giorno

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: CEPE SPERC 8d.3a.v1

Operating conditions

Yearly amount used in EU: 2,000,000 kgs

Minimum emission days per year: 225

Emission factor to air: 98%

Emission factor in water: 2%

Emission factor in soil: 0%

Receiving surface water (flow rate): 18,000 m³/day

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Type of treatment plant: Municipal sewage treatment plant.

Assumed sewage treatment plant flow: 2,000 m³/day

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Environment

Risk Characterization Ratio (RCR): 0.092422

Risk from environmental exposure is driven by soil.

Maximum safe use amount: 1082 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour). Effectiveness: 70%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 2.7429 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.249351

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 145.1979 mg/m³

Risk Characterization Ratio (RCR): 0.483993

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 45\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Daily general cleaning of equipment and work area.

Regular inspection and maintenance of equipment and machinery.

Ensure that the activity is performed outside the operator's respiratory zone (head-product distance greater than 1m).

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Avoid splashes.

Make sure the spray booth is used.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 10.7143 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.974026

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 0.0001 mg/m³

Risk Characterization Ratio (RCR): 0.000001

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 45\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Daily general cleaning of equipment and work area.

Regular control and maintenance of equipment and machinery.

Make sure doors and windows are open (general ventilation).

Avoid splashes.

Use an adequately effective local ventilation system.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker, modified version. The concentration of the substance has been considered using a linear approach. Worker - dermal, long-term - systemic.

Exposure estimation: 4.8214 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.438312

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker, modified version. Operator - inhalation, long-term - local.

Exposure estimation: 153 mg/m³

Risk Characterization Ratio (RCR): 0.51

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Daily general cleaning of equipment and work area.

Regular inspection and maintenance of equipment and machinery.

Avoid splashes.

Make sure doors and windows are open (general ventilation).

Wear a half face mask with a P2L filter or better.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker, modified version. The concentration of the substance has been considered using a linear approach. Worker - dermal, long-term - systemic.

Exposure estimation: 4.8214 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.438312

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker, modified version. Operator - inhalation, long-term - local.

Exposure estimation: 116 mg/m³

Risk Characterization Ratio (RCR): 0.386667

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping and pouring

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour). Effectiveness: 70%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 1.3714 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.124675

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 145.1979 mg/m³

Risk Characterization Ratio (RCR): 0.483993

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact with the only use of personal protective equipment

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 240 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation: Effectiveness: 80%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Ensure a good standard of general or controlled ventilation (no less than 3-5 air changes per hour). Effectiveness: 30%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 8.4857 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.771429

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 67.759 mg/m³

Risk Characterization Ratio (RCR): 0.225863

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact with the only use of personal protective equipment

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 60 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour). Effectiveness: 70%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 2.8286 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.257143

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 145.1979 mg/m³

Risk Characterization Ratio (RCR): 0.483993

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

Reaction mass of ethylbenzene and m-xylene and p-xylene

Substance identification

Chemical Name: Reaction mass of ethylbenzene and m-xylene and p-xylene

EC number: 905-562-9

Date - Version: 24/05/2019

Identified use	Process category (PROC)	Product Category (PC)	Sector of use (SU)	Article category (AC)	Environmental Release Category (ERC)	EU tonnage (in thousands of tons)	Regional fraction
Coatings (industrial)	PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC13, PROC15	ND	3	ND	4	50	0.1
Coatings (professional)	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19	ND	22	ND	8a, 8d	50	0.1

USE IN THE XYLENE CATEGORY IN COATINGS - INDUSTRIAL USE

SECTION 1. TITLE OF THE EXPOSURE SCENARIO

Title

Use of the xylene category in coatings

Sector of use

Industrial use SU3

Process categories

PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC13, PROC15

Environmental Release Categories

ERC4

Processes, tasks, activities considered

Considers use in coatings (paints, inks, adhesives, etc.) including exposure during use (including receipt of material, storage, preparation and transfer from bulk or semi-bulk, spray, roller, spatula application, dipping, flow, fluid layers in production lines and in film formation) and equipment cleaning, maintenance and associated laboratory activities.

SECTION 2. OPERATING CONDITIONS AND RISK MANAGEMENT MEASURES

SECTION 2.1 WORKERS EXPOSURE CONTROL

Product features

Liquid, vapor pressure >10 kPa [OC5].

Concentration of the substance in the product

Covers a percentage substance in the product up to 100% (unless otherwise stated) [G13].

Quantities used

Not applicable.

Frequency and duration of use

Covers a daily exposure up to 8 hours (unless otherwise specified) [G2].

Human factors not influenced by risk management

Not applicable.

Other operational conditions affecting worker exposure

Assumes use at not more than 20°C above ambient temperature [G15].

Assumes a good basic standard of occupational hygiene is implemented.

Scenarios and risk management measures

General exposures (closed systems) [CS15].

Handle substance within a closed system [E47].

General exposures (closed systems) [CS15]. With sampling [CS56]. Use in closed systems [CS38].

Handle substance within a closed system [E47].

Film formation - Forced drying (50-100°C). Drying (> 100°C). UV/EB radiation curing [CS94].

Handle substance within a closed system [E47].

Mixing operations (closed systems) [CS29]. General exposures (closed systems) [CS15].

Handle substance within a closed system [E47]. Provide a good standard of general ventilation (not less than 3-5 air changes per hour) [E11]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].

Film formation - air drying [CS95].

Provide a good standard of general ventilation (not less than 3-5 air changes per hour) [E11].

Preparation of material for application [CS96]. Film formation - air drying [CS95].

Provide a good standard of general or controlled ventilation (10-15 air changes per hour) [E40].

Spray application (automatic/robotic) [CS97].

Perform in a ventilated booth supported by laminar airflow [E59].

Manual [CS34]. Spraying [CS10].

Provide a good standard of general or controlled ventilation (10-15 air changes per hour) [E40]. Wear a respirator conforming to EN140 with a type A filter or better [PPE22].

Material transfers [CS3]. Non-dedicated facility [CS82].

Ensure material transfers are under containment or extract ventilation [E66].

Material transfers [CS3]. Dedicated facility [CS81].

Ensure material transfers are under containment or extract ventilation [E66].

Roller application, spreader, flow [CS98].

Provide extract ventilation at points where emissions occur [E54].

Dipping and pouring [CS4].

Provide a good standard of general or controlled ventilation (10-15 air changes per hour) [E40].

Laboratory activity [CS36].

No specific measures have been identified [E118].

Material transfers [CS3]. Drum/batch transfers [CS8]. Transfer/pour from containers [CS22].

Provide a good standard of general or controlled ventilation (10-15 air changes per hour) [E40].

Equipment cleaning and maintenance [CS39].

Drain system before equipment downtime or maintenance [E65].

Storage [CS67]. With occasional controlled exposure [CS137].

Handle substance within a closed system [E47].

SECTION 2.2 ENVIRONMENTAL EXPOSURE CONTROL

Evaluation method

EUSES 2.1.1 using predefined release fractions from ESVOC SpERC 4.3a.v1

Product features

The xylene category consists of liquids of medium volatility.

The solubility in water for the category is 166mg/l; the vapor pressure is 821 Pa at 20°C; and log Kow is 3.16 and is readily biodegradable.

Quantities used

EU tonnage: 50 kt/year

Regional tonnage: 5 kt/year

Main fraction of local origin: 1

Frequency and duration of use

Issue days per year: 300

Environmental factors not influenced by risk management

Local fresh water dilution factor: 10

Local dilution factor in sea water: 100

The conditions reported on the SPERC information sheet (ESVOC SpERC 4.3.v1) give rise to the following fraction versions

Additional conditions of use affecting environmental exposure

Fraction of release to air from process before RMMs: 0.98.

Fraction of release to waste water from process before RMMs: 0.007.

Fraction of release to soil from process before RMMs: 0.

On-site conditions and technical measures to reduce or limit discharges, emissions to air and releases to soil

Treat air emissions to provide a typical removal efficiency of [TCR7]: >90%.

Typical on-site waste water treatment technology provides removal efficiency of [TCR11]: 93.67%.

Soil emission controls are not applicable as there is no direct release to soil [TCR4].

Prevent discharge of undissolved substance to or recover from waste water [TCR14].

Organisational measures to avoid/limit release from a site

Do not apply industrial sludge to natural soils [OMS2].

Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures for the municipal sewage treatment plant

Estimated substance removal from wastewater via municipal sewage treatment [STP3]: 93.67%.

Assumed domestic sewage treatment plant flow (m³/d) [STP5]: 2000.

Conditions and measures for external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].

Conditions and measures for the external recovery of waste

External recovery or recycling of waste must be in accordance with applicable local and/or national laws [ERW1].

Other environmental control measures in addition to those described above

None.

SECTION 3. EXPOSURE ESTIMATION

SECTION 3.1 HEALTH

When complying with the recommended risk management measures (RMMs) and operational conditions (OCs), exposure is not expected to exceed the DNELs and the risk characterisation ratio should be less than 1.

SECTION 3.2 ENVIRONMENT

When complying with the recommended risk management measures (RMMs) and operational conditions (OCs), exposure is not expected to exceed the PNECs and the risk characterisation ratio should be less than 1.

SECTION 4. GUIDELINES FOR THE DU TO VERIFY COMPLIANCE WITH THE EXPOSURE SCENARIO

SECTION 4.1 HEALTH

Confirm that the RMMs and OCs match the description or have equivalent efficiency.

SECTION 4.2 ENVIRONMENT

Confirm that the RMMs and OCs match the description or have equivalent efficiency.

As typically found in a waste water treatment plant, the required waste water removal efficiency is: 93.67%.

Scaling values

Further details on scaling and control technologies are provided in the SPERC sheet [DSU4].

Basis for scaling: Environment. Risk: ground. MSafe 68871 kg/day after RMM.

Use of the site: 5 kt/year

On-site emission factors: Water - 93.67% efficiency. Air - 0% efficiency.

Dilution factors Fresh water 10. Marine water 100.

Initial fraction of release to water on-site (before RMMs): 0.7%.

Typical release to water after RMMs 3.75E-02 mg/l.

USE IN THE XYLENE CATEGORY IN COATINGS - PROFESSIONAL USE

SECTION 1. TITLE OF THE EXPOSURE SCENARIO

Title

Use of the xylene category in coatings

Sector of use

Professional use, SU22

Process categories

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19

Environmental Release Categories

ERC8a, ERC8d

Processes, tasks, activities considered

Considers use in coatings (paints, inks, adhesives, etc.) including exposure during use (including receipt of material, storage, preparation and transfer from bulk or semi-bulk, spray, roller, brush, manual spatula application or similar methods and in film formation) and equipment cleaning, maintenance and associated laboratory activities.

SECTION 2. OPERATING CONDITIONS AND RISK MANAGEMENT MEASURES

SECTION 2.1 WORKERS EXPOSURE CONTROL

Product features

Liquid, vapour pressure 0.5 - 10 kPa [OC4].

Concentration of the substance in the product

Covers a percentage substance in the product up to 100% (unless otherwise stated) [G13].

Quantities used

Not applicable.

Frequency and duration of use

Covers a daily exposure up to 8 hours (unless otherwise specified) [G2].

Human factors not influenced by risk management

Not applicable.

Other operational conditions affecting worker exposure

Assumes use at not more than 20°C above ambient temperature [G15].

Assumes a good basic standard of occupational hygiene is implemented.

Scenarios and risk management measures

General exposures (closed systems) [CS15].

Handle substance within a closed system [E47].

Filling/preparation of equipment from drums or containers [CS45].

Handle substance within a closed system [E47]. Ensure material transfers are under containment or extract ventilation [E66].

General exposures (closed systems) [CS15]. Use in closed systems [CS38].

Handle substance within a closed system [E47]. Ensure material transfers are under containment or extract ventilation [E66].

Preparation of material for application [CS96].

Handle substance within a closed system [E47]. Provide a good standard of general or controlled ventilation (10-15 air changes per hour) [E40].

Film formation - air drying [CS95]. Outdoor [OC9].

Make sure the operation is performed outdoors [E69]. Avoid carrying out activities involving exposure for more than 1 hour [OC27]. Wear suitable gloves tested to standard EN374 [PPE15].

Film formation - air drying [CS95]. Indoor [OC8].

Provide extract ventilation at points where emissions occur [E54]. Provide a good standard of general ventilation (not less than 3-5 air changes per hour) [E11].

Preparation of material for application [CS96]. Indoor [OC8].

Provide a good standard of general or controlled ventilation (10-15 air changes per hour) [E40]. Avoid carrying out activities involving exposure for more than 1 hour [OC27].

Preparation of material for application [CS96]. Outdoor [OC9].

Make sure the operation is performed outdoors [E69]. Avoid carrying out activities involving exposure for more than 1 hour [OC27].

Material transfers [CS3]. Drum/batch transfers [CS8].

Transfer via enclosed lines [E52]. Provide a good standard of general ventilation (not less than 3-5 air changes per hour) [E11].

Roller application, spreader, flow [CS98]. Indoor [OC8].

Provide a good standard of general or controlled ventilation (10-15 air changes per hour) [E40]. Wear a respirator conforming to EN140 with a type A filter or better [PPE22].

Roller application, spreader, flow [CS98]. Outdoor [OC9].

Make sure the operation is performed outdoors [E69]. Wear a respirator conforming to EN140 with a type A filter or better [PPE22].

Manual [CS34]. Spraying [CS10]. Indoor [OC8].

Perform in a ventilated booth supported by laminar airflow [E59].

Manual [CS34]. Spraying [CS10]. Outdoor [OC9].

Make sure the operation is performed outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [OC28]. Wear suitable gloves tested to standard EN374 [PPE15]. Wear a full face respirator conforming to EN140 with type A filter or better [PPE24].

Dipping and pouring [CS4]. Indoor [OC8].

Provide extract ventilation at points where emissions occur [E54]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].

Dipping and pouring [CS4]. Outdoor [OC9].

Make sure the operation is performed outdoors [E69]. Wear a respirator conforming to EN140 with a type A filter or better [PPE22].

Laboratory activity [CS36].

Handle in a fume cupboard or under extract ventilation [E83].

Hand application - finger paints, crayons, stickers [CS72]. Indoor [OC8].

Limit the substance content in the product to 5% [OC17]. Provide a good standard of controlled ventilation (10-15 air changes per hour) [E40]. Wear suitable gloves tested to standard EN374 [PPE15].

Hand application - finger paints, crayons, stickers [CS72]. Outdoor [OC9].

Limit the substance content in the product to 5% [OC17]. Avoid carrying out activities involving exposure for more than 4 hours [OC28]. Wear suitable gloves tested to standard EN374 [PPE15].

Equipment cleaning and maintenance [CS39].

Drain system before equipment downtime or maintenance [E65]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].

Storage [CS67]. With occasional controlled exposure [CS137].

Handle substance within a closed system [E47]. Provide a good standard of general or controlled ventilation (10-15 air changes per hour) [E40].

SECTION 2.2 ENVIRONMENTAL EXPOSURE CONTROL**Evaluation method**

EUSES 2.1.1 using predefined release fractions from ESVOC SpERC 8.3b.v1

Product features

The xylene category consists of liquids of medium volatility.

The solubility in water for the category is 166mg/l; the vapor pressure is 821 Pa at 20°C; and log Kow is 3.16 and is readily biodegradable.

Quantities used

EU tonnage: 50 kt/year

Regional tonnage: 5 kt/year

Main fraction of local origin: 0.002

Frequency and duration of use

Issue days per year: 365

Environmental factors not influenced by risk management

Local fresh water dilution factor: 10

Local dilution factor in sea water: 100

The conditions reported on the SPERC information sheet (ESVOC SpERC 4.3.v1) give rise to the following fraction versions

Additional conditions of use affecting environmental exposure

Fraction of release to air from process before RMMs: 0.98

Fraction of release to waste water from process before RMMs: 0.01

Fraction of release to soil from process before RMMs: 0.01

On-site conditions and technical measures to reduce or limit discharges, emissions to air and releases to soil

Treat air emissions to provide a typical removal efficiency of [TCR7]: 0%.

Typical on-site waste water treatment technology provides removal efficiency of [TCR11]: 93.67%.

Organisational measures to avoid/limit release from a site

Prevent environmental discharge consistent with regulatory requirements [OMS4].

Conditions and measures for the municipal sewage treatment plant

Estimated substance removal from wastewater via municipal sewage treatment [STP3]: 93.67%.

Assumed domestic sewage treatment plant flow (m³/d) [STP5]: 2000.

Conditions and measures for external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].

Conditions and measures for the external recovery of waste

External recovery or recycling of waste must be in accordance with applicable local and/or national laws [ERW1].

Other environmental control measures in addition to those described above

None.

SECTION 3. EXPOSURE ESTIMATION**SECTION 3.1 HEALTH**

When complying with the recommended risk management measures (RMMs) and operational conditions (OCs), exposure is not expected to exceed the DNELs and the risk characterisation ratio should be less than 1.

SECTION 3.2 ENVIRONMENT

When complying with the recommended risk management measures (RMMs) and operational conditions (OCs), exposure is not expected to exceed the PNECs and the risk characterisation ratio should be less than 1.

SECTION 4. GUIDELINES FOR THE DU TO VERIFY COMPLIANCE WITH THE EXPOSURE SCENARIO

SECTION 4.1 HEALTH

Confirm that the RMMs and OCs match the description or have equivalent efficiency.

SECTION 4.2 ENVIRONMENT

Confirm that the RMMs and OCs match the description or have equivalent efficiency.

As typically found in a waste water treatment plant, the required waste water removal efficiency is: 93.67%.

Scaling values

Further details on scaling and control technologies are provided in the SPERC sheet [DSU4].

Basis for scaling: Environment. Risk: Fresh water sediments MSafe 68871 kg/day after RMM.

Use of the site: 0.01 kt/year

On-site emission factors: Water - 93.67% efficiency. Air - 0% efficiency.

Dilution factors Fresh water 10. Marine water 100.

Initial fraction of release to water on-site (before RMMs): 1%.

Typical release to water after RMMs 1.50E-03 mg/l.

bis-[4-(2,3-epoxipropoxy)phenyl]propane

Substance identification

Chemical Name: bis-[4-(2,3-epoxipropoxy)phenyl]propane

CAS number: 1675-54-3

Date - Version: 29/12/2021 - 1.3

INDUSTRIAL USE - PROFESSIONAL USES: PUBLIC SECTOR (ADMINISTRATION, EDUCATION, ENTERTAINMENT, SERVICES, CRAFTS) (SU22).

1. TITLE SECTION

Exposure scenario name: Industrial use.

Structured short title: Professional uses: public sector (administration, education, entertainment, service, crafts) (SU22).

Substance: 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

EC number: 216-823-5

Registration number: 01-2119456619-26

ENVIRONMENT

SC 1: Use of non-reactive processing aid at industrial site (no inclusion in article) ERC4

WORKER

SC 2: Use as laboratory reagents PROC15

SC 3: Treatment of articles by dipping and pouring PROC13

SC 4: Tableting, compression, extrusion, pelletising, granulation PROC14

SC 5: General greasing/lubrication in high energy conditions PROC18

SC 6 Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8a

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. ENVIRONMENTAL EXPOSURE CONTROL: Use of non-reactive processing aid at industrial site (no inclusion in article) (ERC4)

Product features (article)

Physical form of the product: Liquid

Amount used (or contained in articles), frequency and duration of use/exposure

Daily amount per site: 0,6 ton/day

Annual amount per site: 20 ton/year

Conditions and measures related to sewage treatment plant

STP Type: Municipal wastewater treatment plant.

Learn more about STP: biological elimination.

STP sludge treatment: It may be landfilled when allowed by local regulations.

STP effluent: 2,000 m³/day

Other conditions affecting environmental exposure

Water flow on the receiving surface: 18,000 m³/day

Outdoor / Indoor Indoor use.

2.2. WORKERS EXPOSURE CONTROL: Use as laboratory reagents (PROC15)

Product features (article)

Covers the percentage of substance in the product up to 100%.

Physical form of the product: Liquid.

Temperature: < 40°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Assumes a good basic standard of occupational hygiene is implemented.

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 30%.

Conditions and measures for personal protection, hygiene and health assessment

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Temperature: < 40°C

2.3. WORKERS EXPOSURE CONTROL: Treatment of articles by dipping and pouring (PROC13)

Product features (article)

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

Temperature: < 70°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Assumes a good basic standard of occupational hygiene is implemented.

Provide a good standard of general ventilation (not less than 1 to 3 air changes per hour).

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 0%.

Conditions and measures for personal protection, hygiene and health assessment

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Wear suitable respirator.

Inhalation: minimum yield of 90%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Temperature: < 40°C

2.4. WORKERS EXPOSURE CONTROL: Tableting, compression, extrusion, pelletising, granulation (PROC14)

Product features (article)

Covers the percentage of substance in the product up to 100%.

Physical form of the product: Liquid.

Temperature: < 40°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Assumes a good basic standard of occupational hygiene is implemented.

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 30%.

Conditions and measures for personal protection, hygiene and health assessment

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Temperature: < 40°C

2.5. WORKERS EXPOSURE CONTROL: General greasing/lubrication in high energy conditions (PROC18)

Product features (article)

Covers concentrations up to 20%.

Physical form of the product: Liquid.

Temperature: ≤ 800°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Conditions and measures for personal protection, hygiene and health assessment

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Wear suitable respirator.

Inhalation: minimum yield of 90%.

Other conditions affecting worker exposure

Outdoor / Indoor Outside.

Industrial or professional environments: Professional use.

Temperature: ≤ 800°C

2.6. WORKERS EXPOSURE CONTROL: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities (PROC8a)

Product features (article)

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Conditions and measures for personal protection, hygiene and health assessment

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Other conditions affecting worker exposure

Outdoor / Indoor Outside.

Industrial or professional environments: Professional use.

Temperature: A process temperature of up to < 40°C is assumed.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion in article) (ERC4)

Route release	Release rate	Method for estimating for release
water	1.2E-10kg/day	FEICA SPERC 5.1 a.v1
air	3E-4kg/day	FEICA SPERC 5.1 a.v1
Soil	0%	FEICA SPERC 5.1 a.v1

Protection target	Estimated Exposure (EUSES v2.1)	RCR
Fresh water	3.76E-4mg/l	0.063
Fresh water sediments	0.018mg/l	0.053
Sea water	2.95E-5mg/kg dry weight	0.049
Marine sediment	1.42E-3mg/kg dry weight	0.042
Sewage treatment plant	5.68E-11mg/l	< 0.01
Farmland	2.88E-6mg/kg dry weight	< 0.01
Prey for predators (freshwater)	mg/kg wet weight (EUSES v2.1)	< 0.01
Prey for predators (marine water)	9.13E-4mg/kg wet weight	< 0.01
Main predator prey (marine water)	9.13E-4mg/kg wet weight	< 0.01
Prey for Predators (Terrestrial)	1.68E-4mg/kg wet weight	< 0.01
Man through the environment - inhalation	7.65E-9mg/m ³	< 0.01
Man through the environment - oral	3E-5mg/kgbw/day	< 0.01
Population exposed through the environment	-	< 0.01

3.2. Worker exposure: Use as laboratory reagents (PROC15)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.993mg/m ³	0.201
inhalation	local	Long-term	0.993mg/m ³	-
inhalation	local	Short term	0.993mg/m ³	-
dermal	systemic	Long-term	0.172mg/kg bw/day	0.045
dermal	local	Short term	9.92E-3mg/cm ²	-
combined routes	-	-	-	0.247

3.3. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.085mg/m ³	0.017
inhalation	local	Long-term	0.085mg/m ³	-
inhalation	local	Short term	0.085mg/m ³	-
dermal	systemic	Long-term	0.411mg/kgbw/day	0.548
dermal	local	Short term	0.06mg/cm ²	-
combined routes	-	-	-	0.566

3.4. Worker exposure: Tableting, compression, extrusion, pelletising, granulation (PROC14)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.993mg/m ³	0.201
inhalation	local	Long-term	0.993mg/m ³	-
inhalation	local	Short term	0.993mg/m ³	-
dermal	systemic	Long-term	0.172mg/kg bw/day	0.229
dermal	local	Short term	0.0025mg/cm ²	-
combined routes	-	-	-	0.43

3.5. Worker exposure: General greasing/lubrication in high energy conditions (PROC18)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.596mg/m ³	0.121
inhalation	local	Long-term	0.596mg/m ³	-
inhalation	local	Short term	0.596mg/m ³	-
dermal	systemic	Long-term	0.411mg/kgbw/day	0.548
dermal	local	Short term	0.03mg/cm ²	-
combined routes	-	-	-	0.669

3.6. Worker exposure: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.596mg/m ³	0.121
inhalation	local	Long-term	0.596mg/m ³	-
inhalation	local	Short term	0.596mg/m ³	-
dermal	systemic	Long-term	0.411mg/kgbw/day	0.548
dermal	local	Short term	0.03mg/cm ²	-
combined routes	-	-	-	0.669

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

PROFESSIONAL USE - PROFESSIONAL USES: PUBLIC SECTOR (ADMINISTRATION, EDUCATION, ENTERTAINMENT, SERVICES, CRAFTS) (SU22).

1. TITLE SECTION

Exposure scenario name: Professional.

Structured short title: Professional uses: public sector (administration, education, entertainment, service, crafts) (SU22).

Substance: 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

EC number: 216-823-5

Registration number: 01-2119456619-26

ENVIRONMENT

SC 1: Use at an industrial site leading to inclusion in article ERC5

WORKER

SC 2: Industrial spraying PROC7

SC 3 Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8a

SC 4: Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC8b

SC 5: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC9

SC 6: Application with rollers or brushes PROC10

SC 7: Non-industrial spraying PROC11

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. ENVIRONMENTAL EXPOSURE CONTROL: Use at an industrial site leading to inclusion in article (ERC5)

Product features (article)

Covers a percentage of substance in the product up to 100%.

Physical form of the product: Liquid

Amount used (or contained in articles), frequency and duration of use/exposure

Annual amount per site: 30,000 tons/year

Daily amount per site: 100 tons/day

Conditions and measures related to sewage treatment plant

STP Type: Municipal wastewater treatment plant.

Learn more about STP: biological elimination.

STP sludge treatment: It may be landfilled when allowed by local regulations.

STP effluent: 2,000 m³/day

Other conditions affecting environmental exposure

Water flow on the receiving surface: 18,000 m³/day

2.2. WORKERS EXPOSURE CONTROL: Industrial spraying (PROC7)

Product features (article)

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures for personal protection, hygiene and health assessment

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

If skin contamination is expected to extend to other parts of the body, these parts should also be protected with impermeable clothing equivalent to that described for the hands.

Wear suitable respirator.

Dermal: minimum efficiency of 99%.

Inhalation: minimum yield of 90%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Industrial or professional environments Professional use.

Temperature: Process temperature up to 70°C is assumed.

2.3. WORKERS EXPOSURE CONTROL: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities (PROC8a)

Product features (article)

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

Temperature: 70°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Provide a good standard of general ventilation (not less than 1 to 3 air changes per hour).

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 0%.

Conditions and measures for personal protection, hygiene and health assessment

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Industrial or professional environments Professional use.

Temperature: 70°C

2.4. WORKERS EXPOSURE CONTROL: Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at dedicated facilities. (PROC8b)

Product features (article)

Covers the percentage of substance in the product up to 100%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

Temperature: 70°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Assumes a good basic standard of occupational hygiene is implemented.

Provide a good standard of general ventilation (not less than 1 to 3 air changes per hour).

Conditions and measures for personal protection, hygiene and health assessment

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Wear suitable respirator.

Inhalation: minimum yield of 90%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Temperature: 70°C

2.5. WORKERS EXPOSURE CONTROL: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Product features (article)

Covers concentrations up to 100%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

Temperature: < 50°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Assumes a good basic standard of occupational hygiene is implemented.

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 30%.

Conditions and measures for personal protection, hygiene and health assessment

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Wear suitable respirator.

Inhalation: minimum yield of 90%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Temperature: < 50°C

2.6. WORKERS EXPOSURE CONTROL: Application with rollers or brushes (PROC10)

Product features (article)

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

Temperature: < 70°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Assumes a good basic standard of occupational hygiene is implemented.

Provide a good standard of general ventilation (not less than 1 to 3 air changes per hour).

Local exhaust ventilation.

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 90%.

Conditions and measures for personal protection, hygiene and health assessment

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 99%.

Inhalation: minimum yield of 0%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Temperature: < 70°C.

2.7. WORKERS EXPOSURE CONTROL: Non-industrial spraying (PROC11)

Product features (article)

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

Temperature: < 40°C

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours.

Organizational and technical measures and conditions

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures for personal protection, hygiene and health assessment

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

If skin contamination is expected to extend to other parts of the body, these parts should also be protected with impermeable clothing equivalent to that described for the hands.

Wear suitable respirator.

Dermal: minimum efficiency of 99%.

Inhalation: minimum yield of 90%.

Other conditions affecting worker exposure

Outdoor / Indoor Inside.

Temperature: < 40°C.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Environmental release and exposure: Use at an industrial site leading to inclusion in article (ERC5)

Route release	Release rate	Method for estimating for release
water	0.06 kg/day	FEICA SPERC 8c.1 b.v1
air	0 kg/day	FEICA SPERC 8c.1 b.v1
Soil	0%	FEICA SPERC 8c.1 b.v1

Protection target	Estimated Exposure (EUSES v2.1)	RCR
Fresh water	3.22E-3mg/l	0,536
Fresh water sediments	0.155mg/l	0,454
Sea water	3.14E-4mg/l	0,523
Marine sediment	0.015mg/kg dry weight	0,442
Sewage treatment plant	0.028mg/l	< 0.01
Farmland	0.05mg/kg dry weight	0,779
Prey for predators (freshwater)	0.048mg/kg wet weight	< 0.01
Prey for predators (marine water)	4.53E-3mg/kg wet weight	< 0.01
Main predator prey (marine water)	1.64E-3mg/kg wet weight	< 0.01
Prey for Predators (Terrestrial)	0.056mg/kg wet weight	< 0.01
Man through the environment - inhalation	Concentration in air: 3.45E-11 mg/m ³	< 0.01
Man through the environment - oral	1.47E-3mg/kg pc/giorno	< 0.01
Population exposed through the environment	-	< 0.01

3.2. Worker exposure: Industrial spraying (PROC7)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	0.34mg/m ³ (ART v1.5)	0.069
inhalation	local	Long-term	0.34mg/m ³ (ART v1.5)	-
inhalation	local	Short term	0.78mg/m ³ (ART v1.5)	-
dermal	systemic	Long-term	0.257mg/kgbw/day (ECETOC TRA worker v3)	0.343
dermal	local	Short term	0.012mg/cm ² (ECETOC TRA worker v3)	-
combined routes	-	-	-	0.412

3.3. Worker exposure: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.851mg/m ³	0.173
inhalation	local	Long-term	0.851mg/m ³	-
inhalation	local	Short term	0.851mg/m ³	-
dermal	systemic	Long-term	0.411mg/kgbw/day	0.548
dermal	local	Short term	0.03mg/cm ²	-
combined routes	-	-	-	0.721

3.4. Worker exposure: Transfer of a substance or a mixture (fill/discharge) at dedicated facilities (PROC8b)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.085mg/m ³	0.017
inhalation	local	Long-term	0.085mg/m ³	-
inhalation	local	Short term	0.0851mg/m ³	-
dermal	systemic	Long-term	0.411mg/kgbw/day	0.548
dermal	local	Short term	0.03mg/cm ²	-
combined routes	-	-	-	0.566

3.5. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.099mg/m ³	0.02
inhalation	local	Long-term	0.099mg/m ³	-
inhalation	local	Short term	0.993mg/m ³	-
dermal	systemic	Long-term	0.343mg/kgbw/day	0.457
dermal	local	Short term	0.05mg/cm ²	-
combined routes	-	-	-	0.659

3.6. Worker exposure: Application with rollers or brushes (PROC10)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.085mg/m ³	0.017
inhalation	local	Long-term	0.085mg/m ³	-
inhalation	local	Short term	0.085mg/m ³	-
dermal	systemic	Long-term	0.165mg/kgbw/day	0.219
dermal	local	Short term	0.012mg/cm ²	-
combined routes	-	-	-	0.237

3.7. Worker exposure: Non-industrial spraying (PROC11)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	0.34mg/m ³ (ART v1 .5)	0.069
inhalation	local	Long-term	0.34mg/m ³ (ART v1 .5)	-
inhalation	local	Short term	0.78mg/m ³ (ART v1 .5)	-
dermal	systemic	Long-term	0.643mg/kgbw/day (ECETOC TRA worker v3)	0.857
dermal	local	Short term	0.03mg/cm ² (ECETOC TRA worker v3)	-
combined routes	-	-	-	0.926

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

2-methoxy-1-methylethyl acetate

Substance identification

Chemical Name: 2-methoxy-1-methylethyl acetate

CAS number: 108-65-6

Date - Version: 02/08/2021 18.0

4. USE IN COATINGS. - USE IN INDUSTRIAL PLANTS

Short title of the exposure scenario: Use in coatings. - Use in industrial plants

SU3; ERC4; PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC4: Industrial use of processing aids not becoming part of articles.

Operating conditions

Yearly amount used in EU: 63,050,000 kg

Daily amount per site: 105.087 kg

Minimum continuous emission days per year: 300

Emission factor to air: 27%

Emission factor in water: 2%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Treat air emissions to provide a typical removal efficiency of 70%.

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.1338

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 79,180 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC1: Use in closed process, no likelihood of exposure.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 0.04 mg/m³

Risk Characterization Ratio (RCR): 0.0001

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure.
General exposure. Continuous process (closed system) with sample collection.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure.
Film formation - Fast drying.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Operation is carried out at elevated temperature (> 20°C above ambient temperature).

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.5

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC3: Use in batch process (synthesis or formulation). Mixing operations. General exposure (closed system).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 93.85 mg/m³

Risk Characterization Ratio (RCR): 0.25

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch process (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application. Mixing operations (open systems).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application. Spraying (automatic/robotic).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Carry out in a vented booth or extracted enclosure. Effectiveness: 95%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 46.93 mg/m³

Risk Characterization Ratio (RCR): 0.13

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 2.14 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.04

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application. Spraying (manual).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Effectiveness: 70%.

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 281.56 mg/m³

Risk Characterization Ratio (RCR): 0.76

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 8.57 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.17

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities. Material transfers. Non-dedicated system.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Material transfers. Dedicated plant.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Material transfers. Drum/batch transfers. Transfer from containers. Dedicated plant.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 5.49 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.11

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC14: Production of preparations or articles by tableting, compression, extrusion or pelletising. Production or preparation of articles by tableting, compression, extrusion.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 3.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.07

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC15: Use as laboratory reagent. Laboratory activities.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

5. USE IN COATINGS. - USE IN INDUSTRIAL PLANTS

Short title of the exposure scenario: Use in coatings. - Use in industrial plants

SU3; ERC4; PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC4: Industrial use of processing aids not becoming part of articles.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 430kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 140.104 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC1: Use in closed process, no likelihood of exposure (closed system). General exposure.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure.

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure. General exposure. Continuous process (closed system) with sample collection.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 7.51 mg/m³

Risk Characterization Ratio (RCR): 0.02

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure. Film formation - Fast drying.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Operation is carried out at elevated temperature ($> 20^\circ\text{C}$ above ambient temperature).

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC3: Use in batch process (synthesis or formulation). Mixing operations. General exposure (closed system).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 18.77 mg/m³

Risk Characterization Ratio (RCR): 0.05

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch process (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 15.02 mg/m³

Risk Characterization Ratio (RCR): 0.04

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application. Mixing operations (open systems).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application. Spraying (automatic/robotic). Spraying (manual)

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 8.57 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.17

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application. Spraying (manual).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities. Material transfers. Non-dedicated system.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Material transfers. Dedicated plant.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Material transfers. Drum/batch transfers. Transfer from containers. Dedicated plant.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 27.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.54

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC14: Production of preparations or articles by tableting, compression, extrusion or pelletising. Production or preparation of articles by tableting, compression, extrusion.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 3.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.07

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC15: Use as laboratory reagent. Laboratory activities.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 7.51 mg/m³

Risk Characterization Ratio (RCR): 0.02

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

7 USE IN COATINGS. - USE IN INDUSTRIAL PLANTS

Short title of the exposure scenario: Use in coatings. - Use in professional installations

SU22; ERC8a, ERC8d; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC8a: Wide dispersive indoor use of processing aids in open systems.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 433 kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 15,141 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC8d: Wide dispersive outdoor use of processing aids in open systems.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 433 kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 15,141 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC1: Use in closed process, no likelihood of exposure.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 0.04 mg/m³

Risk Characterization Ratio (RCR): 0.0001

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure.

Filling/Preparation of equipment required for drums and containers.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure.

The use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure.

General exposure. Use in confined systems (closed system). Filling/Preparation of equipment required for drums and containers.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Operation is carried out at elevated temperature ($> 20^\circ\text{C}$ above ambient temperature).

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC3: Use in batch process (synthesis or formulation). Preparation of material for application

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 93.85 mg/m³

Risk Characterization Ratio (RCR): 0.25

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch process (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch and other processes (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure.

The use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Alternatively: Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 269.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities. Material transfers. Drum/batch transfers. Non-dedicated system.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Material transfers. Drum/batch transfers Dedicated plant.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%

If there is no general ventilation, ensure that operations are carried out outdoors.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 5.49 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.11

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Wear suitable gloves compliant with EN ISO 374-1.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application. Spraying (manual).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Carry out in a vented booth or extracted enclosure. Effectiveness: 80%.

Wear a respirator conforming to EN140 with type A filter or better. Effectiveness: 90%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 2.14 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.04

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application. Spraying (manual).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally. Effectiveness: 30%.

Wear a respirator conforming to EN140 with type A filter or better. Effectiveness: 90%.

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 131.4 mg/m³

Risk Characterization Ratio (RCR): 0.36

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 21.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.42

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Alternatively: Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC15: Use as laboratory reagent. Laboratory activities.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact using only personal protective equipment. Hand application - fingerpaints, pastels, adhesives.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%.

If there is no general ventilation, ensure that operations are carried out outdoors.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 14.14 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.28

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact using only personal protective equipment. Hand application - fingerpaints, pastels, adhesives.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Wear chemically resistant gloves in combination with "basic" employee training.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

8. USE IN COATINGS. - USE IN INDUSTRIAL PLANTS

Short title of the exposure scenario: Use in coatings. - Use in professional installations

SU22; ERC8a, ERC8d; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC8a: Wide dispersive indoor use of processing aids in open systems.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 433 kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 15,141 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC8d: Wide dispersive outdoor use of processing aids in open systems.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 433 kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 15,141 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC1: Use in closed process, no likelihood of exposure. General exposure (closed system).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure. Filling/Preparation of equipment required for drums and containers.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure. General exposure. Use in confined systems (closed system). Filling/Preparation of equipment required for drums and containers.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Operation is carried out at elevated temperature ($> 20^\circ\text{C}$ above ambient temperature).

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 15.02 mg/m³

Risk Characterization Ratio (RCR): 0.4

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC3: Use in batch process (synthesis or formulation). Preparation of material for application

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 18.77 mg/m³

Risk Characterization Ratio (RCR): 0.05

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch and other processes (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch and other processes (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Indoor use.

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities. Material transfers. Drum/batch transfers. Non-dedicated system.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Material transfers. Drum/batch transfers Dedicated plant.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 27.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.54

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Indoor/Outdoor: Outdoor use.

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application. Spraying (manual).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%.

If there is no general ventilation, ensure that operations are carried out outdoors.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 10.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.21

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application. Spraying (manual).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Wear chemically resistant gloves in combination with "basic" employee training.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Indoor use.

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC15: Use as laboratory reagent. Laboratory activities.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 7.51 mg/m³

Risk Characterization Ratio (RCR): 0.02

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact using only personal protective equipment. Hand application - fingerpaints, pastels, adhesives.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 28.29 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.56

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact using only personal protective equipment. Hand application - fingerpaints, pastels, adhesives.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Outdoor use.

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

Xylene

Identification of the exposure scenario

Product name: Xylene

Reach registration number: 01-2119488216-32-XXXX

CAS number: 1330-20-7

EC number: 215-535-7

Review date: 14/02/2022 rev. 3.0

USE IN COATINGS - INDUSTRIAL USE

1. Title of the exposure scenario

Process purpose: Includes use in coatings (varnishes, inks, adhesives, etc.), including exposure during application (including material receipt, storage, bulk and semi-bulk preparation and transfer, application by spray, roller, manual spraying, dip, flow, fluid layers in production lines and in film formation) and system cleaning, maintenance and related laboratory activities.

Main sector: SU3 Industrial uses

Environment

Environmental Release Categories [ERC]: ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article).

Specific Environmental Release Category [SPERC]: ESVOC SPERC 4.3a.v1

Worker

Process categories:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC 3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions.

PROC4 Production of chemicals with the possibility of exposure.

PROC5 Mixing or blending in batch processes

PROC7 Industrial spraying.

PROC8a Transfer of a substance or preparation (charging/discharging) at non-dedicated facilities.

PROC8a Transfer of substance or mixture (charging/discharging) at non-dedicated facilities.

PROC10 Application with rollers or brushes.

PROC13 Treatment of articles by dipping and pouring.

PROC15 Use as laboratory reagent.

PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles.

2. Other conditions of use affecting exposure (Industrial - Environment 1)

Products features

Form: Liquid, vapor pressure 0.5 - 10 kPa at STP

Easily biodegradable.

Amounts used:

Annual amount per site: 2500 tonnes

Frequency and duration of use

Issue days: 300 days/year

Additional operating conditions relating to environmental exposure

Emission factor - air

Air release rate produced by the process (initial release prior to risk management measures): 0.98

Emission factor - water

Waste water release rate produced by the process (initial release prior to risk management measures): 0.007

Emission factor - soil

Soil release rate produced by the process (initial release prior to risk management measures): 0

Environmental factors that are not influenced by risk management

Dilution

Local fresh water dilution factor: 10

Local seawater dilution factor: 100

Risk management measures

Sewage Treatment Plant Data (STP)

Estimated substance removal from waste water via domestic sewage treatment: 95.8%

Assumed domestic sewage treatment plant flow: 2000 m³/day

Local technical conditions and measures to reduce and limit discharges and air emissions

Air:

Treat air emission to provide a typical removal efficiency of > 90%.

Water:

Avoid releasing the undiluted substance into local waste water or recover it on site. The typical on-site purification technique has a removal efficiency of 95.8%.

Ground:

Soil emission controls are not applicable as there is no direct release to soil.

Conditions and measures for external treatment of waste

Sludge treatment:

Do not spread industrial sludge on natural soils. Sewerage sludge should be burned, stored or regenerated.

Waste treatment:

No waste of the substance is formed during production.

2. Other conditions of use affecting exposure (Workers - Health 1)

Products features

Form:

Liquid, vapor pressure 0.5 - 10 kPa at STP

Concentration information: Includes concentrations up to 100%, unless otherwise indicated.

Quantities used

Not applicable.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other operational conditions affecting worker exposure

Temperature: (unless stated differently) assumes use at not more than 20°C above ambient temperature.

Ventilation Rate: Ensure a sufficient amount of controlled ventilation (10 to 15 air changes per hour). Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and process-level (source) measures to prevent releases

Technical protective measures:

Handle substance within a closed system. Provide supplementary ventilation to points where emissions occur. Ensure material transfers are managed using closed or air exhaust systems. Drain or remove substance from equipment before opening or servicing PROC7 Industrial spraying: spraying (automatic/robotic) should be carried out in a ventilated booth with laminar air flow.

Risk management measures:

PROC7 Industrial spraying.

Manual spraying.

Wear respiratory protection in accordance with EN 140 with filter type A or better.

3. Verification of exposure (Environment 1)

Environmental exposure:

Predicted exposures are not expected to exceed the specific risks (listed in chapter 8 of the safety datasheet), when the risk management measures/operational conditions outlined in section 2 are implemented.

Maximum allowable site tonnage (M_{safe}), based on release following total waste water treatment removal: 9874 kg/day

3. Exposure Verification (Health 1)

Exposure

Predicted workplace exposures are not expected to exceed the DNEL when risk identification measures are implemented.

4. Guidance to check compliance with the exposure scenario (Environment 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Required removal efficiency for waste water can be achieved using on-site/off-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

4. Guidance to check compliance with the exposure scenario (Health 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

USE IN COATINGS - PROFESSIONAL USE

1. Title of the exposure scenario

Process purpose: Includes use in coatings (varnishes, inks, adhesives, etc.), including exposure during application (including material receipt, storage, bulk and semi-bulk preparation and transfer, application by spray, roller, brush and manual spraying or similar processes and film formation) and system cleaning, maintenance and related laboratory activities.

Main sector: SU22 Professional uses

Environment

Environmental Release Categories [ERC]:

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).

ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).

ERC8c Widespread use leading to inclusion into/onto article (indoor).

ERC8f Widespread use leading to inclusion into/onto article (outdoor).

Specific Environmental Release Category [SPERC]: ESVOC SPERC 8.3b.v1

Worker

Process categories:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC 3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions.

PROC4 Production of chemicals with the possibility of exposure.

PROC5 Mixing or blending in batch processes

PROC8a Transfer of a substance or preparation (charging/discharging) at non-dedicated facilities.

PROC8a Transfer of substance or mixture (charging/discharging) at non-dedicated facilities.

PROC10 Application with rollers or brushes.

PROC11 Non-industrial spray application.

PROC13 Treatment of articles by dipping and pouring.

PROC15 Use as laboratory reagent.

PROC19 Manual activities with direct contact.

PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles.

2. Other conditions of use affecting exposure (Industrial - Environment 1)

Products features

Form: Liquid, vapor pressure 0.5 - 10 kPa at STP Easily biodegradable.

Quantities used

Annual amount per site: 10 tonnes

Frequency and duration of use

Issue days: 365 days/year

Additional operating conditions relating to environmental exposure

Emission factor - air

Air release rate produced by the process (initial release prior to risk management measures): 0.98

Emission factor - water

Waste water release rate produced by the process (initial release prior to risk management measures): 0.01

Emission factor - soil

Soil release rate produced by the process (initial release prior to risk management measures): 0.01

Environmental factors that are not influenced by risk management

Dilution

Local fresh water dilution factor: 10

Local seawater dilution factor: 100

Risk management measures

Sewage Treatment Plant Data (STP)

Estimated substance removal from waste water via domestic sewage treatment 95.8%

Assumed domestic sewage treatment plant flow: 2000 m³/day

Local technical conditions and measures to reduce and limit discharges and air emissions

Air: Treat air emission to provide a typical removal efficiency of 0%.

Water: The typical on-site purification technique has a removal efficiency of 95.8%.

Conditions and measures for external treatment of waste

Waste treatment: External treatment and disposal of waste should comply with applicable local and/or national regulations.

2. Other conditions of use affecting exposure (Workers - Health 1)

Products features

Form:

Liquid, vapor pressure 0.5 - 10 kPa at STP

Concentration information:

Includes concentrations up to 100%, unless otherwise indicated.

Quantities used

Not applicable.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other operational conditions affecting worker exposure

Temperature:

(unless stated differently) assumes use at not more than 20°C above ambient temperature.

Ventilation Rate:

Provide a good standard of controlled ventilation (10 to 15 air changes per hour) or ensure operation is undertaken outdoors.

Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and process-level (source) measures to prevent releases

Technical protective measures:

Handle substance within a closed system. Provide supplementary ventilation to points where emissions occur. Ensure material transfers are managed using closed or air exhaust systems. Clean/flush equipment prior to opening or maintenance. Transport on closed roads. PROC11 Non-industrial spray application. Indoor use. Perform in a laminar flow ventilated booth. PROC15 Use as laboratory reagents handle under fume hood or extract air.

Organizational measures to prevent/limit releases, dispersion and exposure

Organizational measures

Avoid activities with an exposure of more than 4 hours.

Hand Application - Finger Paints, Chalks, Stickers:

Limit the amount of substance in the mixture to 5%.

Risk management measures

Wear protective gloves according to EN 374, resistant to solvents.

PROC10 Application with rollers or brushes.

PROC11 Non-industrial spray application. Outdoor use.

PROC13 Treatment of articles by dipping and pouring. Outdoor use.

Wear respiratory protection in accordance with EN 140 with filter type A or better.

3. Verification of exposure (Environment 1)

Environmental exposure

Predicted exposures are not expected to exceed the specific risks (listed in chapter 8 of the safety datasheet), when the risk management measures/operational conditions outlined in section 2 are implemented.

Maximum allowable site tonnage (Msafe), based on release following total waste water treatment removal: 5969 kg/day

3. Exposure Verification (Health 1)

Exposure

Predicted workplace exposures are not expected to exceed the DNEL when risk identification measures are implemented.

4. Guidance to check compliance with the exposure scenario (Environment 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Required removal efficiency for waste water can be achieved using on-site/off-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

4. Guidance to check compliance with the exposure scenario (Health 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

FASSA EPOXY 300 COMP.B

Fișa cu date de securitate din data 21/05/2025 versiunea 3

SECȚIUNEA 1: Identificarea substanței/amestecului și a societății/întreprinderii

1.1. Identificator de produs

Identificarea preparatului:

Nume comercial: FASSA EPOXY 300 COMP.B

Cod comercial: 1223.B

UFI: N338-4HGK-Y30U-GJ0Q

1.2. Utilizări relevante identificate ale substanței sau ale amestecului și utilizări contraindicate

Utilizarea recomandată: Rășină epoxidică

Utilizări de evitat: Nu este destinat utilizării de către consumator

1.3. Detalii privind furnizorul fișei cu date de securitate

Compania: FASSA Srl

Via Lazzaris, 3 - 31027 Spresiano (TV) - ITALY

Tel. +39 0422 7222

Fax +39 0422 887509

Responsabil: laboratorio.spresiano@fassabortolo.it

1.4. Număr de telefon care poate fi apelat în caz de urgență

+40213183606

SECȚIUNEA 2: Identificarea pericolelor



2.1. Clasificarea substanței sau a amestecului

Regulamentul (CE) nr. 1272/2008 (CLP)

Skin Corr. 1B Provoacă arsuri grave ale pielii și lezarea ochilor.
Skin Sens. 1A Poate provoca o reacție alergică a pielii.
Repr. 2 Susceptibil de a dăuna fertilității. Susceptibil de a dăuna fătului.
STOT RE 2 Poate provoca daune organelor în caz de expunere îndelungată sau repetată prin inhalare și prin înghițire.
Aquatic Chronic 2 Toxic pentru mediul acvatic cu efecte pe termen lung.
Efecte fizico-chimice dăunătoare sănătății omului și mediului înconjurător:
Nici un alt risc

2.2. Elemente de etichetare

Regulamentul (CE) nr. 1272/2008 (CLP)

Pictograme de pericol și cuvânt de avertizare



Pericol

Fraze de pericol

H314 Provoacă arsuri grave ale pielii și lezarea ochilor.
H317 Poate provoca o reacție alergică a pielii.
H361fd Susceptibil de a dăuna fertilității. Susceptibil de a dăuna fătului.
H373 Poate provoca daune organelor în caz de expunere îndelungată sau repetată prin inhalare și prin înghițire.
H411 Toxic pentru mediul acvatic cu efecte pe termen lung.

Fraze de precauție

P260 Nu inspirați praful/fumul/gazul/ceața/vaporii/spray-ul.
P264 Spălați-vă cu apă după utilizare.
P280 Purtați mănuși/echipamente de protecție și protejați ochii/vederea.
P303+P361+P353 ÎN CAZ DE CONTACT CU PIELEA (sau cu părul): Scoateți imediat toată îmbrăcămintea contaminată. Clătiți pielea cu apă sau faceți duș.

P305+P351+P338 ÎN CAZ DE CONTACT CU OCHII: Clătiți cu atenție cu apă timp de mai multe minute. Scoateți lentilele de contact, dacă este cazul și dacă acest lucru se poate face cu ușurință. Continuați să clătiți.

P310 Sunați imediat la un CENTRU DE INFORMARE TOXICOLOGICĂ/un medic.

Conține:

tetraetilenopentamină
amine, polietilenepoli-,
trietilenotetramină fracție

2-piperazin-1-iletilamină

alcool benzilic

Acizi grași, C18-nesaturați, dimeri, produse
de reacție oligomeric cu acizi grași cu ulei
înalt și trietilenotetramină

12-hidroxi-N-[6-(12-
hidroxiocetadecanamido)hexil]
octadecanamidă

produși de reacțieformaldehidă și 4-
nonilfenol și trietilenotetramină și 2-
piperazin-1-iletilamină

Dispoziții speciale conform Anexei XVII (REACH) cu modificările și completările ulterioare:

Nici una

2.3. Alte pericole

Nu conține PBT, vPvB sau perturbatori endocrini
prezenți în concentrații >= 0,1%.

Nici un alt risc

SECȚIUNEA 3: Compoziție/informații privind componenții

3.1. Substanțe

N.A.

3.2. Amestecuri

Identificarea preparatului: FASSA EPOXY 300 COMP.B

Componente periculoase în sensul Regulamentului CLP și clasificarea corespunzătoare:

Cantitate	Nume	Nr. de Ident.	Clasificare	Număr de înregistrare:
≥50 - <80 %	Acizi grași, C18-nesaturați, dimeri, produse de reacție oligomeric cu acizi grași cu ulei înalt și trietilenotetramină	CAS:68082-29-1 EC:500-191-5	Skin Irrit. 2, H315; Eye Dam. 1, H318; Skin Sens. 1A, H317; Aquatic Chronic 2, H411	01-2119972320-44-xxxx
≥10 - <20 %	produși de reacțieformaldehidă și 4-nonilfenol și trietilenotetramină și 2-piperazin-1-iletilamină	EC:922-006-0	Eye Dam. 1, H318; Skin Sens. 1, H317; Skin Corr. 1B, H314	
≥10 - <20 %	alcool benzilic	CAS:100-51-6 EC:202-859-9 Index:603-057-00-5	Acute Tox. 4, H302 Eye Irrit. 2, H319 Skin Sens. 1B, H317 Toxicitate Acută Estimată: ATE - Oral: 1200mg/kg gc	01-2119492630-38-xxxx
≥3 - <5 %	2-piperazin-1-iletilamină	CAS:140-31-8 EC:205-411-0 Index:612-105-00-4	Acute Tox. 3, H311 Acute Tox. 4, H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT RE 1, H372 Aquatic Chronic 3, H412 Repr. 2, H361fd Toxicitate Acută Estimată: ATE - Oral: 500mg/kg gc	01-2119471486-30-xxxx
≥1 - <3 %	xilen	CAS:1330-20-7 EC:215-535-7 Index:601-022-00-9	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 STOT RE 2, H373 Asp. Tox. 1, H304 Toxicitate Acută Estimată:	01-2119488216-32-xxxx

			ATE - Dermică: 1100mg/kg gc ATE - Inhalare (Vapori): 11mg/l	
≥0.5 - <1 %	amine, polietilenepoli-, trietilenotetramină fracție	CAS:90640-67-8 EC:292-588-2	Acute Tox. 4, H312; Acute Tox. 4, H302; Skin Corr. 1B, H314; Eye Dam. 1, H318; Skin Sens. 1, H317; Aquatic Chronic 3, H412	01-2119487919-13-xxxx
≥0.5 - <1 %	tetraetilenopentamină	CAS:90640-66-7 EC:292-587-7	Acute Tox. 4, H312 Acute Tox. 4, H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 3, H412 Toxicitate Acută Estimată: ATE - Oral: 500mg/kg gc ATE - Dermică: 1100mg/kg gc	01-2119487290-37-xxxx
≥0.3 - <0.5 %	12-hidroxi-N-[6-(12-hidroxi-octadecanamido)hexil] octadecanamidă	EC:434-430-9	Skin Sens. 1, H317; Aquatic Chronic 4, H413	01-0000018057-71-xxxx
≥0.3 - <0.5 %	acetat de 2-metoxi-1-metiletil	CAS:108-65-6 EC:203-603-9 Index:607-195-00-7	Flam. Liq. 3, H226; STOT SE 3, H336	01-2119475791-29-xxxx
≥0.3 - <0.5 %	etilbenzen	CAS:100-41-4 EC:202-849-4 Index:601-023-00-4	Flam. Liq. 2, H225; Acute Tox. 4, H332; STOT RE 2, H373; Asp. Tox. 1, H304; Aquatic Chronic 3, H412	01-2119489370-35-xxxx
≥0.05 - <0.1 %	toluen	CAS:108-88-3 EC:203-625-9 Index:601-021-00-3	Flam. Liq. 2, H225; Repr. 2, H361d; Asp. Tox. 1, H304; STOT RE 2, H373; Skin Irrit. 2, H315; STOT SE 3, H336; Aquatic Chronic 3, H412	01-2119471310-51-xxxx
≥0.05 - <0.1 %	acetat de n-butil	CAS:123-86-4 EC:204-658-1 Index:607-025-00-1	Flam. Liq. 3, H226; STOT SE 3, H336, EUH066	01-2119485493-29-xxxx
≥0.05 - <0.1 %	xilen	CAS:1330-20-7 EC:215-535-7 Index:601-022-00-9	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Asp. Tox. 1, H304 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 STOT RE 2, H373 Aquatic Chronic 3, H412 Toxicitate Acută Estimată: ATE - Dermică: 1100mg/kg gc ATE - Inhalare (Vapori): 11mg/l	01-2119488216-32-xxxx
≥0.05 - <0.1 %	Silice cristalină, cuarț (fracție respirabilă)	CAS:14808-60-7 EC:238-878-4	STOT RE 1, H372	Scutit
≥0.05 - <0.1 %	etilbenzen	CAS:100-41-4 EC:202-849-4 Index:601-023-00-4	Flam. Liq. 2, H225; Acute Tox. 4, H332; STOT RE 2, H373; Asp. Tox. 1, H304	01-2119489370-35-xxxx
≥0.05 - <0.1 %	butanonă	CAS:78-93-3 EC:201-159-0 Index:606-002-00-3	Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336, EUH066	01-2119457290-43-xxxx

SECȚIUNEA 4: Măsuri de prim ajutor

4.1. Descrierea măsurilor de prim ajutor

În caz de contact cu pielea:

Îndepărtați imediat hainele contaminate și eliminați-l în mod sigur.

OBTINETI ASISTENTA MEDICALA IMEDIATA

În caz de contact cu ochii:

În caz de contact cu ochii, clătiți cu apă pentru un interval de timp corespunzător și țineți deschise pleoapele, după care consultați imediat un oftalmolog.

Protejați ochiul lezat.

În caz de ingerare:

Nu provocați vomitarea, adresați-vă unui medic arătând Fișa de Siguranță și eticheta produsului.

În caz de inhalare:

Conduceți accidentatul la aer liber și țineți-l la cald și în repaus.

În caz de respirație neregulată sau absentă, efectuați respirația artificială.

În caz de inhalare consultați de îndată un medic și arătați cutia sau eticheta.

4.2. Cele mai importante simptome și efecte, atât acute, cât și întârziate

Simptomele și efectele sunt cele preconizate în secțiunea 2 cu privire la pericole.

4.3. Indicații privind orice fel de asistență medicală imediată și tratamentele speciale necesare

În caz de accident sau stare proastă consultați imediat un medic (dacă este posibil arătați instrucțiunile de folosință sau fișa de siguranță).

SECȚIUNEA 5: Măsuri de combatere a incendiilor

5.1. Mijloace de stingere a incendiilor

Mijloace de stingere corespunzătoare:

CO₂, stingătoare cu pulbere, spumă, apă pulverizată.

Mijloace de stingere care nu trebuie să fie utilizate din motive de siguranță:

Jeturi de apă.

5.2. Pericole speciale cauzate de substanță sau de amestec

Combustia produce fum greu.

Nu inhalați gazele produse prin explozie și/sau prin combustie (monoxid de carbon, dioxid de carbon, oxizi de azot).

5.3. Recomandări destinate pompierilor

Folosiți dispozitive respiratorii corespunzătoare.

Strângeți separat apa contaminată folosită pentru stingerea incendiului. Nu o descărcați în rețeaua de canalizare.

Dacă este posibil din punct de vedere al siguranței, îndepărtați din zona de pericol imediat recipientele neafectate.

SECȚIUNEA 6: Măsuri împotriva pierderilor accidentale

6.1. Precauții personale, echipament de protecție și proceduri de urgență

Pentru personalul care nu este implicat în situații de urgență:

Îmbrăcați dispozitivele de protecție individuală.

În caz de expunere la vapori/pulberi/aerosoli folosiți dispozitive de respirat.

Asigurați o aerisire corespunzătoare.

Utilizați o protecție respiratorie corespunzătoare.

Citiți măsurile de protecție prezentate la punctele 7 și 8.

Pentru personalul care intervine în situații de urgență:

Îmbrăcați dispozitivele de protecție individuală.

6.2. Precauții pentru mediul înconjurător

Împiedicați penetrarea în sol/subsol. Împiedicați vărsarea în apele de suprafață sau în rețeaua de canalizare.

În caz de scurgere de gaz sau penetrare în cursuri de apă, sol sau sistemul de canalizare, informați autoritățile răspunzătoare.

6.3. Metode și material pentru izolarea incendiilor și pentru curățenie

Material corespunzător pentru colectare: material absorbant inert (de exemplu, nisip, vermiculit)

Dupa ce produsul a fost recuperat, clătiți suprafața și materialele folosite cu apă

Rețineți apa de spălat contaminată și eliminați-o.

6.4. Trimiteri către alte secțiuni

Vezi și paragrafele 8 și 13

SECȚIUNEA 7: Manipulare și depozitare

7.1. Precauții pentru manipularea în condiții de securitate

Evitați contactul cu pielea și ochii, precum și inhalarea vaporilor și a ceții.

Folosiți un sistem de ventilare localizat.

Nu folosiți recipiente goale înainte de a fi curățate.

Înainte operațiilor de transfer, asigurați-vă că în recipiente nu sunt materiale rezidue incompatibile.

Sfaturi privind igiena generală la locul de muncă:

Hainele contaminate trebuie înlocuite înainte de accesul la zona de prânz.

Nu mincați sau beți în timpul lucrului

Se face trimitere și la paragraful 8 pentru dispozitivele de protecție recomandate.

7.2. Condiții de depozitare în condiții de securitate, inclusiv eventuale incompatibilități

Păstrați recipientele bine închise într-un spațiu răcoros și bine ventilat, la distanță de surse de căldură.

Țineți departe de alimente, băuturi și hrană pentru animale.

Materiale incompatibile

Vezi pct. 10.5

Instrucțiuni privind spațiile de depozitare:

Spații ventilate adecvat

7.3. Utilizare (utilizări) finală (finale) specifică (specifice)

Recomandări

Vezi pct. 1.2

Soluții specifice pentru sectorul industrial

Nici o utilizare particulară

SECȚIUNEA 8: Controale ale expunerii/protecția personală

8.1. Parametri de control

Limitele de expunere profesională

alcool benzilic

CAS: 100-51-6	Tip OEL	MAK	Germania	Termen lung 22 mg/m ³ - 5 ppm; Termen scurt 44 mg/m ³ - 10 ppm Note: Inhalable fraction and vapour, Skin
	Tip OEL	TLV	Bulgaria	Termen lung 5 mg/m ³
	Tip OEL	TLV	Cehia	Termen lung 40 mg/m ³ - 8.88 ppm; Termen scurt 80 mg/m ³ - 17.76 ppm
	Tip OEL	SUVA	Elveția	Termen lung 22 mg/m ³ - 5 ppm
	Tip OEL	AGW	Germania	Termen lung 22 mg/m ³ - 5 ppm; Termen scurt 44 mg/m ³ - 10 ppm Note: Inhalable fraction and vapour
	Tip OEL	NDS	Polonia	Termen lung 240 mg/m ³
	Tip OEL	MV	Slovenia	Termen lung 22 mg/m ³ - 5 ppm; Termen scurt 44 mg/m ³ - 10 ppm Note: Skin
	Tip OEL	IPRV	Lituania	Termen lung 5 mg/m ³ Note: Skin

xilen

CAS: 1330-20-7	Tip OEL	UE		Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin
	Tip OEL	TLV	Cehia	Termen lung 200 mg/m ³ - 45.4 ppm; Termen scurt 400 mg/m ³ - 90.8 ppm Note: Skin
	Tip OEL	RV	Letonia	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm

acetat de 2-metoxi-1-metiletil

CAS: 108-65-6	Tip OEL	UE		Termen lung 275 mg/m ³ - 50 ppm; Termen scurt 550 mg/m ³ - 100 ppm Note: Skin
	Tip OEL	MAK	Austria	Termen lung 275 mg/m ³ - 50 ppm; Termen scurt 550 mg/m ³ - 100 ppm Note: Skin
	Tip OEL	MAK	Germania	Termen lung 270 mg/m ³ - 50 ppm; Termen scurt 270 mg/m ³ - 50 ppm
	Tip OEL	VLEP	Belgia	Termen lung 275 mg/m ³ - 50 ppm; Termen scurt 550 mg/m ³ - 100 ppm Note: Additional indication "D" means that the absorption of the agent through the skin, mucous membranes or eyes is an important part of the total exposure. It can be the result of both direct contact and its presence in the air.
	Tip OEL	VLEP	Franța	Termen lung 275 mg/m ³ - 50 ppm; Termen scurt 550 mg/m ³ - 100 ppm Note: Skin
	Tip OEL	VLEP	Italia	Termen lung 275 mg/m ³ - 50 ppm; Termen scurt 550 mg/m ³ - 100 ppm Note: Skin
	Tip OEL	VLEP	România	Termen lung 275 mg/m ³ - 50 ppm; Termen scurt 550 mg/m ³ - 100 ppm
	Tip OEL	TLV	Bulgaria	Termen lung 275 mg/m ³ - 50 ppm; Termen scurt 550 mg/m ³ - 100 ppm Note: Skin
	Tip OEL	TLV	Cehia	Termen lung 270 mg/m ³ - 49.14 ppm; Termen scurt 550 mg/m ³ - 10.01 ppm Note: Skin
	Tip OEL	VLA	Spania	Termen lung 275 mg/m ³ - 50 ppm; Termen scurt 550 mg/m ³ - 100 ppm Note: Skin
	Tip OEL	ÁK	Ungaria	Termen lung 275 mg/m ³ ; Termen scurt 550 mg/m ³
	Tip OEL	MAC	Olanda	Termen lung 550 mg/m ³ - 100 ppm
	Tip OEL	VLE	Portugalia	Termen lung 275 mg/m ³ - 50 ppm; Termen scurt 550 mg/m ³ - 100 ppm Note: Skin
	Tip OEL	SUVA	Elveția	Termen lung 275 mg/m ³ - 50 ppm; Termen scurt 275 mg/m ³ - 50 ppm

etilbenzen CAS: 100-41-4	Tip OEL	WEL	U.K.	Termen lung 274 mg/m3 - 50 ppm; Termen scurt 548 mg/m3 - 100 ppm Note: Skin
	Tip OEL	GVI	Croația	Termen lung 275 mg/m3 - 50 ppm; Termen scurt 550 mg/m3 - 100 ppm Note: Skin
	Tip OEL	AGW	Germania	Termen lung 270 mg/m3 - 50 ppm; Termen scurt 270 mg/m3 - 50 ppm
	Tip OEL	NDS	Polonia	Termen lung 260 mg/m3; Termen scurt 520 mg/m3 Note: Skin
	Tip OEL	MV	Slovenia	Termen lung 275 mg/m3 - 50 ppm; Termen scurt 550 mg/m3 - 100 ppm Note: Skin
	Tip OEL	IPRV	Lituania	Termen lung 250 mg/m3 - 50 ppm; Termen scurt 400 mg/m3 - 75 ppm Note: Skin
	Tip OEL	RV	Letonia	Termen lung 275 mg/m3 - 50 ppm; Termen scurt 550 mg/m3 - 100 ppm Note: Skin
	Tip OEL	ACGIH		Termen lung 20 ppm Note: A3, BEI - URT irr, kidney dam (nephropathy), cochlear impair
	Tip OEL	UE		Termen lung 442 mg/m3 - 100 ppm; Termen scurt 884 mg/m3 - 200 ppm Note: Skin
	Tip OEL	MAK	Austria	Termen lung 440 mg/m3 - 100 ppm; Termen scurt 880 mg/m3 - 200 ppm
	Tip OEL	MAK	Germania	Termen lung 88 mg/m3 - 20 ppm; Termen scurt 176 mg/m3 - 40 ppm Note: Skin
	Tip OEL	VLEP	Belgia	Termen lung 87 mg/m3 - 20 ppm; Termen scurt 551 mg/m3 - 125 ppm Note: Additional indication "D" means that the absorption of the agent through the skin, mucous membranes or eyes is an important part of the total exposure. It can be the result of both direct contact and its presence in the air.
	Tip OEL	VLEP	Franța	Termen lung 88.4 mg/m3 - 20 ppm; Termen scurt 442 mg/m3 - 100 ppm
	Tip OEL	VLEP	Italia	Termen lung 442 mg/m3 - 100 ppm; Termen scurt 884 mg/m3 - 200 ppm
	Tip OEL	VLEP	România	Termen lung 442 mg/m3 - 100 ppm; Termen scurt 884 mg/m3 - 200 ppm
	Tip OEL	TLV	Cehia	Termen lung 200 mg/m3 - 45.4 ppm; Termen scurt 500 mg/m3 - 113.5 ppm Note: Skin
	Tip OEL	VLA	Spania	Termen lung 441 mg/m3 - 100 ppm; Termen scurt 884 mg/m3 - 200 ppm Note: Skin
	Tip OEL	ÁK	Ungaria	Termen lung 442 mg/m3; Termen scurt 884 mg/m3
	Tip OEL	MAC	Olanda	Termen lung 215 mg/m3; Termen scurt 430 mg/m3
	Tip OEL	VLE	Portugalia	Termen lung 442 mg/m3 - 100 ppm; Termen scurt 884 mg/m3 - 200 ppm Note: Skin
toluen CAS: 108-88-3	Tip OEL	SUVA	Elveția	Termen lung 435 mg/m3 - 100 ppm; Termen scurt 435 mg/m3 - 100 ppm
	Tip OEL	WEL	U.K.	Termen lung 441 mg/m3 - 100 ppm; Termen scurt 552 mg/m3 - 125 ppm
	Tip OEL	GVI	Croația	Termen lung 442 mg/m3 - 100 ppm; Termen scurt 884 mg/m3 - 200 ppm Note: Skin
	Tip OEL	AGW	Germania	Termen lung 88 mg/m3 - 20 ppm; Termen scurt 176 mg/m3 - 40 ppm Note: Skin
	Tip OEL	NDS	Polonia	Termen lung 200 mg/m3; Termen scurt 400 mg/m3
	Tip OEL	MV	Slovenia	Termen lung 442 mg/m3 - 100 ppm; Termen scurt 884 mg/m3 - 200 ppm Note: Skin
	Tip OEL	ACGIH		Termen lung 20 ppm Note: A4, BEI - Visual impair, female repro, pregnancy loss
	Tip OEL	UE		Termen lung 192 mg/m3 - 50 ppm; Termen scurt 384 mg/m3 - 100 ppm Note: Skin
	Tip OEL	MAK	Austria	Termen lung 190 mg/m3 - 50 ppm; Termen scurt 380 mg/m3 - 100 ppm
	Tip OEL	MAK	Germania	Termen lung 190 mg/m3 - 50 ppm; Termen scurt 380 mg/m3 - 100 ppm Note: Skin
	Tip OEL	VLEP	Belgia	Termen lung 77 mg/m3 - 20 ppm; Termen scurt 384 mg/m3 - 100 ppm

Note: Additional indication "D" means that the absorption of the agent through the skin, mucous membranes or eyes is an important part of the total exposure. It can be the result of both direct contact and its presence in the air.

Tip OEL	VLEP	Franța	Termen lung 76.8 mg/m3 - 20 ppm; Termen scurt 384 mg/m3 - 100 ppm
Tip OEL	VLEP	Italia	Termen lung 192 mg/m3 - 50 ppm Note: Skin
Tip OEL	VLEP	România	Termen lung 192 mg/m3 - 50 ppm; Termen scurt 384 mg/m3 - 100 ppm
Tip OEL	TLV	Cehia	Termen lung 192 mg/m3 - 50.112 ppm; Termen scurt 384 mg/m3 - 100.224 ppm Note: Skin
Tip OEL	VLA	Spania	Termen lung 192 mg/m3 - 50 ppm; Termen scurt 384 mg/m3 - 100 ppm Note: Skin
Tip OEL	ÁK	Ungaria	Termen lung 190 mg/m3; Termen scurt 380 mg/m3
Tip OEL	MAC	Olanda	Termen lung 150 mg/m3; Termen scurt 384 mg/m3
Tip OEL	VLE	Portugalia	Termen lung 192 mg/m3 - 50 ppm; Termen scurt 384 mg/m3 - 100 ppm Note: Skin
Tip OEL	SUVA	Elveția	Termen lung 190 mg/m3 - 50 ppm; Termen scurt 760 mg/m3 - 200 ppm
Tip OEL	WEL	U.K.	Termen lung 191 mg/m3 - 50 ppm; Termen scurt 384 mg/m3 - 100 ppm
Tip OEL	GVI	Croația	Termen lung 192 mg/m3 - 50 ppm; Termen scurt 384 mg/m3 - 100 ppm Note: Skin
Tip OEL	AGW	Germania	Termen lung 190 mg/m3 - 50 ppm; Termen scurt 760 mg/m3 - 200 ppm
Tip OEL	NDS	Polonia	Termen lung 100 mg/m3; Termen scurt 200 mg/m3
Tip OEL	MV	Slovenia	Termen lung 192 mg/m3 - 50 ppm; Termen scurt 384 mg/m3 - 100 ppm Note: Skin

acetat de n-butil

CAS: 123-86-4

Tip OEL	ACGIH		Termen lung 50 ppm; Termen scurt 150 ppm Note: Eye and URT irr
Tip OEL	UE		Termen lung 241 mg/m3 - 50 ppm; Termen scurt 723 mg/m3 - 150 ppm
Tip OEL	MAK	Austria	Termen lung 241 mg/m3 - 50 ppm; Termen scurt 480 mg/m3 - 100 ppm
Tip OEL	MAK	Germania	Termen lung 480 mg/m3 - 100 ppm; Termen scurt 960 mg/m3 - 200 ppm
Tip OEL	VLEP	Belgia	Termen lung 238 mg/m3 - 50 ppm; Termen scurt 712 mg/m3 - 150 ppm Note: Butylacetates, all isomers
Tip OEL	VLEP	Franța	Termen lung 241 mg/m3 - 50 ppm; Termen scurt 723 mg/m3 - 150 ppm
Tip OEL	VLEP	Italia	Termen lung 241 mg/m3 - 50 ppm; Termen scurt 723 mg/m3 - 150 ppm
Tip OEL	VLEP	România	Termen lung 241 mg/m3 - 50 ppm; Termen scurt 723 mg/m3 - 150 ppm
Tip OEL	TLV	Bulgaria	Termen lung 241 mg/m3 - 50 ppm; Termen scurt 723 mg/m3 - 150 ppm
Tip OEL	TLV	Cehia	Termen lung 241 mg/m3 - 50 ppm; Termen scurt 723 mg/m3 - 150 ppm
Tip OEL	VLA	Spania	Termen lung 241 mg/m3 - 50 ppm; Termen scurt 723 mg/m3 - 150 ppm
Tip OEL	ÁK	Ungaria	Termen lung 241 mg/m3; Termen scurt 723 mg/m3
Tip OEL	MAC	Olanda	Termen lung 241 mg/m3 - 50 ppm; Termen scurt 723 mg/m3 - 150 ppm
Tip OEL	SUVA	Elveția	Termen lung 240 mg/m3 - 50 ppm; Termen scurt 720 mg/m3 - 150 ppm
Tip OEL	WEL	U.K.	Termen lung 724 mg/m3 - 150 ppm; Termen scurt 966 mg/m3 - 200 ppm
Tip OEL	GVI	Croația	Termen lung 724 mg/m3 - 150 ppm; Termen scurt 966 mg/m3 - 200 ppm
Tip OEL	AGW	Germania	Termen lung 300 mg/m3 - 62 ppm; Termen scurt 600 mg/m3 - 124 ppm
Tip OEL	NDS	Polonia	Termen lung 240 mg/m3; Termen scurt 720 mg/m3
Tip OEL	MV	Slovenia	Termen lung 300 mg/m3 - 62 ppm; Termen scurt 600 mg/m3 - 124 ppm

xilen

CAS: 1330-20-7

Tip OEL	ACGIH		Termen lung 20 ppm Note: A4, BEI - URT and eye irr, CNS impair
Tip OEL	UE		Termen lung 221 mg/m3 - 50 ppm; Termen scurt 442 mg/m3 - 100 ppm Note: Skin
Tip OEL	MAK	Austria	Termen lung 221 mg/m3 - 50 ppm; Termen scurt 442 mg/m3 - 100 ppm
Tip OEL	MAK	Germania	Termen lung 220 mg/m3 - 50 ppm; Termen scurt 440 mg/m3 - 100 ppm Note: Skin
Tip OEL	VLEP	Belgia	Termen lung 221 mg/m3 - 50 ppm; Termen scurt 442 mg/m3 - 100 ppm

Note: Additional indication "D" means that the absorption of the agent through the skin, mucous membranes or eyes is an important part of the total exposure. It can be the result of both direct contact and its presence in the air.

Tip OEL	VLEP	Franța	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin
Tip OEL	VLEP	Italia	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin
Tip OEL	VLEP	România	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm
Tip OEL	TLV	Bulgaria	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin
Tip OEL	TLV	Cehia	Termen lung 200 mg/m ³ - 45.4 ppm; Termen scurt 400 mg/m ³ - 90.8 ppm Note: Skin
Tip OEL	VLA	Spania	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm
Tip OEL	ÁK	Ungaria	Termen lung 221 mg/m ³ ; Termen scurt 442 mg/m ³ Note: Skin
Tip OEL	MAC	Olanda	Termen lung 210 mg/m ³ - 47.5 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin
Tip OEL	VLE	Portugalia	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin
Tip OEL	SUVA	Elveția	Termen lung 220 mg/m ³ - 50 ppm; Termen scurt 440 mg/m ³ - 100 ppm
Tip OEL	WEL	U.K.	Termen lung 220 mg/m ³ - 50 ppm; Termen scurt 441 mg/m ³ - 100 ppm Note: Skin
Tip OEL	GVI	Croația	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin
Tip OEL	AGW	Germania	Termen lung 220 mg/m ³ - 50 ppm; Termen scurt 440 mg/m ³ - 100 ppm Note: Skin
Tip OEL	NDS	Polonia	Termen lung 100 mg/m ³ ; Termen scurt 200 mg/m ³ Note: Skin
Tip OEL	MV	Slovenia	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin
Tip OEL	IPRV	Lituania	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin
Tip OEL	RV	Letonia	Termen lung 221 mg/m ³ - 50 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin

Silice cristalină, cuarț (fracție respirabilă)

CAS: 14808-60-7

Tip OEL	ACGIH		Termen lung 0.025 mg/m ³ Note: (R), A2 - Pulm fibrosis, lung cancer
Tip OEL	UE		Termen lung 0.1 mg/m ³ Note: Respirable dust particles
Tip OEL	MAK	Austria	Termen lung 0.05 mg/m ³ Note: Respirable fraction
Tip OEL	VLEP	Belgia	Termen lung 0.1 mg/m ³ Note: Respirable dust; Additional indication "C" means that the agent falls within the scope of Title 2 concerning carcinogenic, mutagenic and reprotoxic agents of Book VI of the Codex on well-being at work.
Tip OEL	VLEP	Franța	Termen lung 0.1 mg/m ³ Note: Respirable fraction
Tip OEL	VLEP	Italia	Termen lung 0.1 mg/m ³ Note: Respirable dust particles
Tip OEL	VLA	Spania	Termen lung 0.05 mg/m ³ Note: Respirable fraction
Tip OEL	ÁK	Ungaria	Termen lung 0.1 mg/m ³ Note: Respirable fraction
Tip OEL	MAC	Olanda	Termen lung 0.075 mg/m ³ Note: Respirable fraction

etilbenzen CAS: 100-41-4	Tip OEL	SUVA	Elveția	Termen lung 0.15 mg/m ³ Note: Respirable aerosol
	Tip OEL	GVI	Croația	Termen lung 0.1 mg/m ³
	Tip OEL	AGW	Germania	Termen lung 0.05 mg/m ³ ; Termen scurt 0.4 mg/m ³ Note: Respirable fraction
	Tip OEL	NDS	Polonia	Termen lung 0.1 mg/m ³ Note: Respirable fraction
	Tip OEL	MV	Slovenia	Termen lung 0.15 mg/m ³
	Tip OEL	IPRV	Lituania	Termen lung 0.1 mg/m ³
	Tip OEL	NGV/KG V	Suedia	Termen lung 0.1 mg/m ³ Note: Respirable fraction
	Tip OEL	ACGIH		Termen lung 20 ppm Note: A3, BEI - URT irr, kidney dam (nephropathy), cochlear impair
	Tip OEL	UE		Termen lung 442 mg/m ³ - 100 ppm; Termen scurt 884 mg/m ³ - 200 ppm Note: Skin
	Tip OEL	MAK	Austria	Termen lung 440 mg/m ³ - 100 ppm; Termen scurt 880 mg/m ³ - 200 ppm Note: Skin
	Tip OEL	MAK	Germania	Termen lung 88 mg/m ³ - 20 ppm; Termen scurt 176 mg/m ³ - 40 ppm Note: Skin
	Tip OEL	VLEP	Belgia	Termen lung 87 mg/m ³ - 20 ppm; Termen scurt 551 mg/m ³ - 125 ppm Note: Additional indication "D" means that the absorption of the agent through the skin, mucous membranes or eyes is an important part of the total exposure. It can be the result of both direct contact and its presence in the air.
	Tip OEL	VLEP	Franța	Termen lung 88.4 mg/m ³ - 20 ppm; Termen scurt 442 mg/m ³ - 100 ppm Note: Skin
	Tip OEL	VLEP	Italia	Termen lung 442 mg/m ³ - 100 ppm; Termen scurt 884 mg/m ³ - 200 ppm Note: Skin
	Tip OEL	VLEP	România	Termen lung 442 mg/m ³ - 100 ppm; Termen scurt 884 mg/m ³ - 200 ppm
butanonă	Tip OEL	TLV	Bulgaria	Termen lung 435 mg/m ³ ; Termen scurt 535 mg/m ³ Note: Skin
	Tip OEL	TLV	Cehia	Termen lung 200 mg/m ³ - 45.4 ppm; Termen scurt 500 mg/m ³ - 113.5 ppm Note: Skin
	Tip OEL	VLA	Spania	Termen lung 441 mg/m ³ - 100 ppm; Termen scurt 884 mg/m ³ - 200 ppm
	Tip OEL	ÁK	Ungaria	Termen lung 442 mg/m ³ ; Termen scurt 884 mg/m ³ Note: Skin
	Tip OEL	MAC	Olanda	Termen lung 215 mg/m ³ - 48.6 ppm; Termen scurt 430 mg/m ³ - 97.3 ppm Note: Skin
	Tip OEL	VLE	Portugalia	Termen lung 442 mg/m ³ - 100 ppm; Termen scurt 884 mg/m ³ - 200 ppm Note: Skin
	Tip OEL	SUVA	Elveția	Termen lung 435 mg/m ³ - 100 ppm; Termen scurt 435 mg/m ³ - 100 ppm
	Tip OEL	WEL	U.K.	Termen lung 441 mg/m ³ - 100 ppm; Termen scurt 552 mg/m ³ - 125 ppm Note: Skin
	Tip OEL	GVI	Croația	Termen lung 442 mg/m ³ - 100 ppm; Termen scurt 884 mg/m ³ - 200 ppm Note: Skin
	Tip OEL	AGW	Germania	Termen lung 88 mg/m ³ - 20 ppm; Termen scurt 176 mg/m ³ - 40 ppm Note: Skin
	Tip OEL	NDS	Polonia	Termen lung 200 mg/m ³ ; Termen scurt 400 mg/m ³ Note: Skin
	Tip OEL	MV	Slovenia	Termen lung 442 mg/m ³ - 100 ppm; Termen scurt 884 mg/m ³ - 200 ppm Note: Skin
	Tip OEL	IPRV	Lituania	Termen lung 442 mg/m ³ - 100 ppm; Termen scurt 884 mg/m ³ - 200 ppm Note: Skin

CAS: 78-93-3	Tip OEL	ACGIH		Termen lung 75 ppm; Termen scurt 150 ppm Note: BEI Skin - URT irr, CNS and PNS impair
	Tip OEL	UE		Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
	Tip OEL	MAK	Austria	Termen lung 295 mg/m3 - 100 ppm; Termen scurt 590 mg/m3 - 200 ppm Note: Skin
	Tip OEL	MAK	Germania	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 600 mg/m3 - 200 ppm Note: Skin
	Tip OEL	VLEP	Belgia	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
	Tip OEL	VLEP	Franța	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
	Tip OEL	VLEP	Italia	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
	Tip OEL	VLEP	România	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
	Tip OEL	TLV	Bulgaria	Termen lung 590 mg/m3; Termen scurt 885 mg/m3
	Tip OEL	TLV	Cehia	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
	Tip OEL	VLA	Spania	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
	Tip OEL	ÁK	Ungaria	Termen lung 600 mg/m3; Termen scurt 900 mg/m3 Note: Skin
	Tip OEL	MAC	Olanda	Termen lung 590 mg/m3 - 197 ppm; Termen scurt 900 mg/m3 - 300 ppm Note: Skin
	Tip OEL	VLE	Portugalia	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
	Tip OEL	SUVA	Elveția	Termen lung 590 mg/m3 - 200 ppm; Termen scurt 590 mg/m3 - 200 ppm
	Tip OEL	WEL	U.K.	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 899 mg/m3 - 300 ppm Note: Skin
	Tip OEL	GVI	Croația	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm
	Tip OEL	AGW	Germania	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 600 mg/m3 - 200 ppm Note: Skin 15
	Tip OEL	NDS	Polonia	Termen lung 450 mg/m3; Termen scurt 900 mg/m3 Note: Skin
	Tip OEL	MV	Slovenia	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3 - 300 ppm Note: Skin
	Tip OEL	IPRV	Lituania	Termen lung 600 mg/m3 - 200 ppm; Termen scurt 900 mg/m3

Valori limită de expunere PNEC

Acizi grași, C18-nesaturați, dimeri, produse de reacție oligomeric cu acizi grași cu ulei înalt și trietilenotetramină

CAS: 68082-29-1 Cale de expunere: Apă sărată; PNEC Limită: 0 mg/l
Cale de expunere: Apă dulce; PNEC Limită: 0.004 mg/l
Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 3.84 mg/l
Cale de expunere: Sedimente în apă sărată; PNEC Limită: 43.4 mg/kg
Cale de expunere: Sedimente în apă dulce; PNEC Limită: 434.02 mg/kg
Cale de expunere: Sol; PNEC Limită: 86.78 mg/kg

alcool benzilic

CAS: 100-51-6 Cale de expunere: Apă dulce; PNEC Limită: 1 mg/l
Cale de expunere: Apă sărată; PNEC Limită: 0.1 mg/l
Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 39 mg/l
Cale de expunere: Sedimente în apă dulce; PNEC Limită: 5.27 mg/kg
Cale de expunere: Sedimente în apă sărată; PNEC Limită: 0.527 mg/kg
Cale de expunere: Sol (agricol); PNEC Limită: 0.456 mg/kg

2-piperazin-1-iletilamină

CAS: 140-31-8 Cale de expunere: Apă dulce; PNEC Limită: 0.058 mg/l
Cale de expunere: Apă sărată; PNEC Limită: 5.8 µg/l
Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 250 mg/l
Cale de expunere: Sedimente în apă dulce; PNEC Limită: 215 mg/kg
Cale de expunere: Sedimente în apă sărată; PNEC Limită: 21.5 mg/kg
Cale de expunere: Sol; PNEC Limită: 1 mg/kg

amine, polietilenepoli-, trietilenotetramină fracție

CAS: 90640-67-8 Cale de expunere: Apă dulce; PNEC Limită: 0.027 mg/l
Cale de expunere: Apă sărată; PNEC Limită: 0.003 mg/l
Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 0.13 mg/l
Cale de expunere: Sedimente în apă dulce; PNEC Limită: 8.572 mg/kg
Cale de expunere: Sedimente în apă sărată; PNEC Limită: 0.857 mg/kg
Cale de expunere: Sol (agricol); PNEC Limită: 1.25 mg/kg

acetat de 2-metoxi-1-metiletil

CAS: 108-65-6 Cale de expunere: Apă dulce; PNEC Limită: 0.635 mg/l
Cale de expunere: Apă sărată; PNEC Limită: 0.064 mg/l
Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 100 mg/l
Cale de expunere: Sedimente în apă dulce; PNEC Limită: 3.29 mg/kg
Cale de expunere: Sedimente în apă sărată; PNEC Limită: 0.329 mg/kg
Cale de expunere: Sol (agricol); PNEC Limită: 0.29 mg/kg

etilbenzen

CAS: 100-41-4 Cale de expunere: Apă dulce; PNEC Limită: 0.1 mg/l
Cale de expunere: Apă sărată; PNEC Limită: 0.01 mg/l
Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 9.6 mg/l
Cale de expunere: Sedimente în apă dulce; PNEC Limită: 13.7 mg/kg
Cale de expunere: Sedimente în apă sărată; PNEC Limită: 1.37 mg/kg
Cale de expunere: Sol (agricol); PNEC Limită: 2.68 mg/kg

toluen

CAS: 108-88-3 Cale de expunere: Apă sărată; PNEC Limită: 0.68 mg/l
Cale de expunere: Apă dulce; PNEC Limită: 0.68 mg/l
Cale de expunere: Sedimente în apă sărată; PNEC Limită: 16.39 mg/kg
Cale de expunere: Sedimente în apă dulce; PNEC Limită: 16.39 mg/kg
Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 13.61 mg/l
Cale de expunere: Sol (agricol); PNEC Limită: 2.89 mg/kg

acetat de n-butil

CAS: 123-86-4 Cale de expunere: Apă sărată; PNEC Limită: 0.018 mg/l
Cale de expunere: Apă dulce; PNEC Limită: 0.18 mg/l
Cale de expunere: Sedimente în apă sărată; PNEC Limită: 0.098 mg/kg
Cale de expunere: Sedimente în apă dulce; PNEC Limită: 0.981 mg/kg
Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 35.6 mg/l
Cale de expunere: Sol (agricol); PNEC Limită: 0.09 mg/kg

xilen

CAS: 1330-20-7 Cale de expunere: Apă sărată; PNEC Limită: 0.327 mg/l
Cale de expunere: Apă dulce; PNEC Limită: 0.327 mg/l
Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 6.58 mg/l
Cale de expunere: Sedimente în apă sărată; PNEC Limită: 12.46 mg/kg
Cale de expunere: Sedimente în apă dulce; PNEC Limită: 12.46 mg/kg
Cale de expunere: Sol (agricol); PNEC Limită: 2.31 mg/kg

etilbenzen

CAS: 100-41-4 Cale de expunere: Apă dulce; PNEC Limită: 0.1 mg/l
Cale de expunere: Apă sărată; PNEC Limită: 0.01 mg/l
Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 9.6 mg/l
Cale de expunere: Sedimente în apă dulce; PNEC Limită: 13.7 mg/kg
Cale de expunere: Sedimente în apă sărată; PNEC Limită: 1.37 mg/kg
Cale de expunere: Sol (agricol); PNEC Limită: 2.68 mg/kg

butanonă

CAS: 78-93-3 Cale de expunere: Apă dulce; PNEC Limită: 55.8 mg/l
Cale de expunere: Apă sărată; PNEC Limită: 55.8 mg/l

Cale de expunere: Sedimente în apă dulce; PNEC Limită: 284.74 mg/kg
Cale de expunere: Microorganisme în tratamente de epurare; PNEC Limită: 709 mg/l
Cale de expunere: Lanț alimentar; PNEC Limită: 1000 mg/kg
Cale de expunere: Sol (agricol); PNEC Limită: 22.5 mg/kg

Nivel Derivat Fără Efect (DNEL)

Acizi grași, C18-nesaturați, dimeri, produse de reacție oligomeric cu acizi grași cu ulei înalt și trietilenotetramină

CAS: 68082-29-1 Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 3.9 mg/m³; Consumator: 0.97 mg/m³

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 1.1 mg/kg; Consumator: 0.56 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Consumator: 0.56 mg/kg

alcool benzilic

CAS: 100-51-6 Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte sistemice
Lucrător profesionist: 110 mg/m³; Consumator: 27 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 22 mg/m³; Consumator: 5.4 mg/m³

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen scurt, efecte sistemice
Lucrător profesionist: 40 mg/kg; Consumator: 20 mg/kg

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 8 mg/kg; Consumator: 4 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen scurt, efecte sistemice
Consumator: 20 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Consumator: 4 mg/kg

2-piperazin-1-iletilamină

CAS: 140-31-8 Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte sistemice
Lucrător profesionist: 10.6 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 10.6 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte locale
Lucrător profesionist: 0.015 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte locale
Lucrător profesionist: 0.08 mg/m³

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 3.33 mg/kg

amine, polietilenepoli-, trietilenotetramină fracție

CAS: 90640-67-8 Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 0.54 mg/m³; Consumator: 0.096 mg/m³

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 0.14 mg/kg

acetat de 2-metoxi-1-metiletil

CAS: 108-65-6 Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 796 mg/kg; Consumator: 320 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Consumator: 36 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen scurt, efecte sistemice
Consumator: 500 mg/kg

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 275 mg/m³; Consumator: 33 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte locale
Lucrător profesionist: 550 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte locale
Consumator: 33 mg/m³

etilbenzen

CAS: 100-41-4 Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 77 mg/m³; Consumator: 15 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte locale
Lucrător profesionist: 293 mg/m³

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 180 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Consumator: 1.6 mg/kg

toluen

CAS: 108-88-3 Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 192 mg/m³; Consumator: 56.5 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte sistemice
Lucrător profesionist: 384 mg/m³; Consumator: 226 mg/m³

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 384 mg/kg; Consumator: 226 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Consumator: 8.13 mg/kg

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte locale
Lucrător profesionist: 192 mg/m³; Consumator: 56.5 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte locale
Lucrător profesionist: 384 mg/m³; Consumator: 226 mg/m³

acetat de n-butil

CAS: 123-86-4 Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 300 mg/m³; Consumator: 35.7 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte sistemice
Lucrător profesionist: 600 mg/m³; Consumator: 300 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte locale
Lucrător profesionist: 300 mg/m³; Consumator: 35.7 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte locale
Lucrător profesionist: 600 mg/m³; Consumator: 300 mg/m³

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 11 mg/kg; Consumator: 6 mg/kg

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen scurt, efecte sistemice
Lucrător profesionist: 11 mg/kg; Consumator: 6 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen scurt, efecte sistemice
Consumator: 2 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Consumator: 2 mg/kg

xilen

CAS: 1330-20-7 Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 221 mg/m³; Consumator: 65.3 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte sistemice
Lucrător profesionist: 442 mg/m³; Consumator: 260 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen scurt, efecte locale
Lucrător profesionist: 442 mg/m³; Consumator: 260 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte locale
Lucrător profesionist: 221 mg/m³; Consumator: 65.3 mg/m³

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 212 mg/kg; Consumator: 125 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice

Consumator: 12.5 mg/kg

etilbenzen

CAS: 100-41-4 Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 77 mg/m³; Consumator: 15 mg/m³

Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte locale
Lucrător profesionist: 293 mg/m³

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 180 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Consumator: 1.6 mg/kg

butanonă

CAS: 78-93-3 Cale de expunere: Prin inhalare umană; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 600 mg/m³; Consumator: 106 mg/m³

Cale de expunere: Epidermic uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Lucrător profesionist: 1161 mg/kg; Consumator: 412 mg/kg

Cale de expunere: Oral uman; Frecvență de expunere: Pe termen lung, efecte sistemice
Consumator: 31 mg/kg

8.2. Controale ale expunerii

Asigurați o ventilație adecvată. Atunci când este rezonabil posibil, aceasta se poate obține prin utilizarea de ventilație de schimb și a unei aspirații generale bune.

Protecția ochilor

Ochelari cu protecție laterală (EN 166).

Protecția pielii

Utilizați îmbrăcăminte corespunzătoare pentru protecția completă a pielii, în funcție de activitate și expunere (EN 14605/EN 13982), de exemplu salopetă de lucru, șorț, încălțăminte de siguranță, îmbrăcăminte corespunzătoare.

Protecția mainilor

Nu există niciun material sau combinație de materiale pentru mănuși care să poată garanta o rezistență nelimitată la orice produs chimic sau combinație de produse.

Pentru manipulare prelungită sau repetată, utilizați mănuși rezistente la produse chimice.

Tipul de mănuși adecvate (EN 374/EN 16523); FKM (fluor cauciuc): grosime ≥ 0.4 mm; timp de penetrare ≥ 480 min. NBR (cauciuc nitrilic): grosime ≥ 0.4 mm; timp de penetrare ≥ 480 min

Alegerea mănușilor potrivite nu depinde numai de material, ci și de alte caracteristici de calitate care variază de la un producător la altul, precum și de metodele și timpii de utilizare a amestecului.

Protecție respiratorie

Dacă lucrătorii sunt expuși la concentrații mai mari decât limitele de expunere, trebuie să poarte aparate respiratorii certificate.

Filtru amestec (EN 14387): mască cu filtru A-P2.

Controale de expunere ambientală:

Vezi pct. 6.2

Măsurile de igienă și tehnice

Vezi alineatul 7.

SECȚIUNEA 9: Proprietățile fizice și chimice

9.1. Informații privind proprietățile fizice și chimice de bază

Stare fizică: Lichid

Aspect: Lichid

Culoare: negru

Miros: amină

Punctul de topire/punctul de înghețare: N.D.

Punctul de fierbere sau punctul inițial de fierbere și intervalul de fierbere: N.D.

Inflamabilitatea: N.A.

Limita inferioară și superioară de explozie: N.D.

Punctul de aprindere: $> 93^{\circ}\text{C}$

Temperatura de autoaprindere: N.D.

Temperatura de descompunere: N.D.

pH: $\geq 10.50 \leq 11.50$ (Metoda internă)

Viscozitatea cinematică: N.A.

Densitatea și/sau densitatea relativă: 1.04 kg/l (Metoda internă)

Densitatea relativă a vaporilor: N.D.

Presiunea vaporilor: N.D.

Solubilitatea în apă: N.A.
Solubilitate în ulei: N.A.
Coeficientul de partiție n-octanol/apă (valoarea log): N.A.

Caracteristicile particulei:

Dimensiunea particulei: N.A.

9.2. Alte informații

Conductivitatea: N.D.
Proprietati explozive: N.A. (Evaluare internă)
Proprietati oxidante: N.A. (Evaluare internă)

SECȚIUNEA 10: Stabilitate și reactivitate

10.1. Reactivitate

Stabilă în condiții normale

10.2. Stabilitate chimică

Stabilă în condiții normale

10.3. Posibilitatea de reacții periculoase

Se poate aprinde în contact cu agenți puternic oxidanți
Din cauza efectului căldurii sau în caz de incendiu, se pot elibera oxizi de carbon și vapori care pot fi dăunători pentru sănătate.

10.4. Condiții de evitat

Evitați apropierea de surse de căldură.

10.5. Materiale incompatibile

Agenți de oxidare puternici, agenți de reducere puternici, amine alifactice și aromatice.
Vezi pct. 10.3

10.6. Prođuși de descompunere periculoși

În cazul depozitării și manipulării adecvate, nu există produse de descompunere periculoase.
Vezi pct. 5.2

SECȚIUNEA 11: Informații toxicologice

11.1. Informații privind clasele de pericol definite în Regulamentul (CE) nr. 1272/2008

Informații toxicologice ale produsului:

a) toxicitate acută	Neclasificat Pe baza datelor disponibile, criteriile de clasificare nu sunt îndeplinite.
b) corodarea/iritarea pielii	Produsul este clasificat: Skin Corr. 1B(H314)
c) lezarea gravă/iritarea ochilor	Neclasificat Pe baza datelor disponibile, criteriile de clasificare nu sunt îndeplinite.
d) sensibilizarea căilor respiratorii sau a pielii	Produsul este clasificat: Skin Sens. 1A(H317)
e) mutagenitatea celulelor germinative	Neclasificat Pe baza datelor disponibile, criteriile de clasificare nu sunt îndeplinite.
f) cancerogenitatea	Neclasificat Pe baza datelor disponibile, criteriile de clasificare nu sunt îndeplinite.
g) toxicitatea pentru reproducere	Produsul este clasificat: Repr. 2(H361)
h) STOT (toxicitate asupra organelor țintă specifice) - expunere unică	Neclasificat Pe baza datelor disponibile, criteriile de clasificare nu sunt îndeplinite.
i) STOT (toxicitate asupra organelor țintă specifice) - expunere repetată	Produsul este clasificat: STOT RE 2(H373)
j) pericol prin aspirare	Neclasificat Pe baza datelor disponibile, criteriile de clasificare nu sunt îndeplinite.

Informații toxicologice referitoare la substanțele principale găsite în acest produs:

Acizi grași, C18-nesaturați, dimeri, produse de reacție oligomeric cu acizi grași cu ulei înalt și trietilenotetramină

CAS: 68082-29-1 a) toxicitate acută LD50 Oral Șobolan > 2000 mg/kg
LD50 Piele Șobolan > 2000 mg/kg

alcool benzilic

CAS: 100-51-6	a) toxicitate acută	ATE - Oral: 1200 mg/kg gc LD50 Oral Șobolan 1620 mg/kg
2-piperazin-1-iletilamină		
CAS: 140-31-8	a) toxicitate acută	ATE - Oral: 500 mg/kg gc LD50 Piele Iepure 866 mg/kg
xilen		
CAS: 1330-20-7	a) toxicitate acută	ATE - Dermică: 1100 mg/kg gc ATE - Inhalare (Vapori): 11 mg/l
amine, polietilenepoli-, trietilenotetramină fracție		
CAS: 90640-67-8	a) toxicitate acută	LD50 Oral Șobolan 1716 mg/kg LD50 Piele Iepure 1465 mg/kg
tetraetilenopentamină		
CAS: 90640-66-7	a) toxicitate acută	ATE - Oral: 500 mg/kg gc ATE - Dermică: 1100 mg/kg gc
acetat de 2-metoxi-1-metiletil		
CAS: 108-65-6	a) toxicitate acută	LD50 Oral Șobolan > 5000 mg/kg LD50 Piele Iepure > 5000 mg/kg LC0 Vapori de inhalare Șobolan > 4345 ppm 6h
etilbenzen		
CAS: 100-41-4	a) toxicitate acută	LD50 Oral Șobolan 3500 mg/kg LD50 Piele Iepure 15400 mg/kg LC50 Inhalare Șobolan 17629 mg/m3 4h
toluen		
CAS: 108-88-3	a) toxicitate acută	LD50 Oral Șobolan 5000 mg/kg LD50 Piele Iepure 12267 mg/kg LC50 Vapori de inhalare Șobolan 25.7 mg/l 4h
acetat de n-butil		
CAS: 123-86-4	a) toxicitate acută	LD50 Oral Șobolan 10760 mg/kg LD50 Piele Iepure 14112 mg/kg LC50 Vapori de inhalare Șobolan > 21.1 mg/l 4h
xilen		
CAS: 1330-20-7	a) toxicitate acută	ATE - Dermică: 1100 mg/kg gc ATE - Inhalare (Vapori): 11 mg/l LD50 Oral Șobolan 3523 mg/kg
etilbenzen		
CAS: 100-41-4	a) toxicitate acută	LD50 Oral Șobolan 3500 mg/kg LD50 Piele Iepure 15400 mg/kg LC50 Inhalare Șobolan 17629 mg/m3 4h
butanonă		
CAS: 78-93-3	a) toxicitate acută	LD50 Oral Șobolan > 2193 mg/kg LD50 Piele Iepure > 5000 mg/kg

11.2. Informații privind alte pericole

Proprietăți de perturbator endocrin:

Nu conține perturbatori endocrini prezenți în concentrații $\geq 0,1\%$

SECȚIUNEA 12: Informații ecologice

A se adopta bune practici de producție astfel încât produsul să nu fie eliberat în mediu

12.1. Toxicitate

Informații Ecotoxicologice:

Toxic pentru mediul acvatic cu efecte pe termen lung.

Lista proprietăților Eco-toxicologice ale produsului

Lista componentelor cu proprietăți ecotoxice

Acizi grași, C18-nesaturați, dimeri, produse de reacție oligomerică cu acizi grași cu ulei înalt și trietilenotetramină

- CAS: 68082-29-1 a) Toxicitate acvatică acută: LC50 Pește 7.07 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia 7.07 mg/l 48h
a) Toxicitate acvatică acută: EC50 Alge 4.34 mg/l 72h

alcool benzilic

- CAS: 100-51-6 a) Toxicitate acvatică acută: LC50 Pește 460 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia 230 mg/l 48h
a) Toxicitate acvatică acută: EC50 Alge 770 mg/l 72h
b) Toxicitatea acvatică cronică: NOEC Daphnia 51 mg/l 21d
b) Toxicitatea acvatică cronică: NOEC Alge 310 mg/l 72h

2-piperazin-1-iletilamină

- CAS: 140-31-8 a) Toxicitate acvatică acută: LC50 Pește 2190 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia 58 mg/l 48h
a) Toxicitate acvatică acută: EC50 Alge > 1000 mg/l 72h

amine, polietilenepoli-, trietilenotetramină fracție

- CAS: 90640-67-8 a) Toxicitate acvatică acută: LC50 Pește 330 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia 31.1 mg/l 48h
a) Toxicitate acvatică acută: EC50 Alge 20 mg/l 72h

tetraetilenopentamină

- CAS: 90640-66-7 a) Toxicitate acvatică acută: LC50 Pește 420 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia 24.1 mg/l 48h

acetat de 2-metoxi-1-metiletil

- CAS: 108-65-6 a) Toxicitate acvatică acută: LC50 Pește 134 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia 408 mg/l 48h
a) Toxicitate acvatică acută: EC50 Alge > 1000 mg/l 96h
b) Toxicitatea acvatică cronică: NOEC Pește 47.5 mg/l - 14 d

etilbenzen

- CAS: 100-41-4 a) Toxicitate acvatică acută: LC50 Pește 4.2 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia 1.8 mg/l 48h
a) Toxicitate acvatică acută: EC50 Alge 3.6 mg/l 96h
b) Toxicitatea acvatică cronică: NOEC Daphnia 1 mg/l - 7d

toluen

- CAS: 108-88-3 a) Toxicitate acvatică acută: LC50 Pește 5.5 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia 3.78 mg/l 48h

acetat de n-butil

- CAS: 123-86-4 a) Toxicitate acvatică acută: LC50 Pește 18 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia 44 mg/l 48h
a) Toxicitate acvatică acută: EC50 Alge 675 mg/l 72h
b) Toxicitatea acvatică cronică: NOEC Daphnia 23 mg/l - 21d

etilbenzen

- CAS: 100-41-4 a) Toxicitate acvatică acută: LC50 Pește 4.2 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia 1.8 mg/l 48h
a) Toxicitate acvatică acută: EC50 Alge 3.6 mg/l 96h
b) Toxicitatea acvatică cronică: NOEC Daphnia 1 mg/l - 7d

butanonă

- CAS: 78-93-3 a) Toxicitate acvatică acută: LC50 Pește 2973 mg/l 96h
a) Toxicitate acvatică acută: EC50 Daphnia 308 mg/l 48h
a) Toxicitate acvatică acută: EC50 Alge 1229 mg/l 96h

12.2. Persistență și degradabilitate

Acizi grași, C18-nesaturați, dimeri, produse de reacție oligomeric cu acizi grași cu ulei înalt și trietilenotetramină

CAS: 68082-29-1 Degradabil în mod lent

alcool benzilic

CAS: 100-51-6 Degradabil în mod rapid

amine, polietilenepoli-, trietilenotetramină fracție

CAS: 90640-67-8 Degradabil în mod lent

acetat de 2-metoxi-1-metiletil

CAS: 108-65-6 Degradabil în mod rapid

etilbenzen

CAS: 100-41-4 Degradabil în mod rapid

toluen

CAS: 108-88-3 Degradabil în mod rapid

acetat de n-butyl

CAS: 123-86-4 Degradabil în mod rapid

xilen

CAS: 1330-20-7 Degradabil în mod rapid

etilbenzen

CAS: 100-41-4 Degradabil în mod rapid

butanonă

CAS: 78-93-3 Degradabil în mod rapid

12.3. Potențial de bioacumulare

xilen

CAS: 1330-20-7 Nu este supus
bioacumulării

12.4. Mobilitate în sol

xilen

CAS: 1330-20-7 Mobil

12.5. Rezultatele evaluărilor PBT și vPvB

În baza datelor disponibile, produsul nu conține substanțe PBT/vPvB în procentaj \geq de 0.1%.

12.6. Proprietăți de perturbator endocrin

Nu conține perturbatori endocrini prezenți în concentrații \geq 0,1%

12.7. Alte efecte adverse

N.A.

SECȚIUNEA 13: Considerații privind eliminarea

13.1. Metode de tratare a deșeurilor

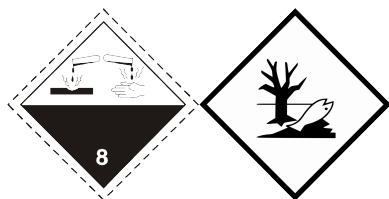
A se recupera, dacă este posibil. A se trimite către punctele de depozitare sau de incinerare, în condiții controlate. A se respecta regulamentele locale în vigoare

Nu permiteți pătrunderea produsului în sistemul de canalizare sau în cursurile de apă.

Recipientele contaminate cu produs, în conformitate cu dispozițiile legale locale sau naționale.

Odată ce produsul a expirat, acesta trebuie eliminat în conformitate cu reglementările în vigoare.

SECȚIUNEA 14: Informații referitoare la transport



14.1. Numărul ONU sau numărul de identificare

1760

14.2. Denumirea corectă ONU pentru expediție

ADR-Nume transport îmbarcare: LICHID COROZIV N.A.S (produși de reacțieformaldehidă și 4-nonilfenol și trietilenotetramină și 2-piperazin-1-iletilamină - 2-piperazin-1-iletilamină)

IATA-Nume transport îmbarcare: CORROSIVE LIQUID, N.O.S. (produși de reacțieformaldehidă și 4-nonilfenol și trietilenotetramină și 2-piperazin-1-iletilamină - 2-piperazin-1-iletilamină)

IMDG-Nume transport îmbarcare: CORROSIVE LIQUID, N.O.S. (produși de reacțieformaldehidă și 4-nonilfenol și trietilenotetramină și 2-piperazin-1-iletilamină - 2-piperazin-1-iletilamină)

14.3. Clasa (clasele) de pericol pentru transport

ADR-clasa: 8

IATA-Clasa: 8

IMDG-Clasa: 8

14.4. Grupul de ambalare

ADR-Grup Ambalare: II

IATA-Grup Ambalare: II

IMDG-Grup Ambalare: II

14.5. Pericole pentru mediul înconjurător

Poluant marin: Da

Poluant ambiental: Da

IMDG-EMS: F-A, S-B

14.6. Precauții speciale pentru utilizatori

Drumuri și Căi Ferate (ADR-RID):

ADR-Etichetă: 8

ADR - Număr de identificare a pericolului: 80

ADR-Dispoziții Speciale: 274

ADR-Cod de restricție în tunel:

Aer (IATA):

IATA-Aeronavă de pasagerit: 851

IATA-Aeronavă de marfă: 855

IATA-Etichetă: 8

IATA-Riscul secundar: -

IATA-Erg: 8L

IATA-Dispoziții Speciale: A3 A803

Mare (IMDG):

IMDG-Depozitare și manipulare: Category B SW2

IMDG-Segregare: -

IMDG-Riscul secundar: -

IMDG-Dispoziții Speciale: 274

14.7. Transportul maritim în vrac în conformitate cu instrumentele OMI

N.A.

SECȚIUNEA 15: Informații de reglementare

15.1. Regulamente/legislație în domeniul securității, al sănătății și al mediului specifice (specifică) pentru substanța sau amestecul în cauză

Directiva 98/24/CE (Riscuri în legătură cu agenții chimici la locul de muncă)

Directiva 2000/39/CE (Valori limită a expunerii profesionale)

Directiva 2010/75/UE

Regulamentul (CE) nr. 1907/2006 (REACH)

Regulamentul (CE) nr. 1272/2008 (CLP)

Regulamentul (CE) nr. 790/2009 (ATP 1 CLP) și (EU) nr. 758/2013

Regulamentul (EU) nr. 2020/878

Regulamentul (EU) nr. 286/2011 (ATP 2 CLP)

Regulamentul (EU) nr. 618/2012 (ATP 3 CLP)

Regulamentul (EU) nr. 487/2013 (ATP 4 CLP)

Regulamentul (EU) nr. 944/2013 (ATP 5 CLP)

Regulamentul (EU) nr. 605/2014 (ATP 6 CLP)

Regulamentul (EU) nr. 2015/1221 (ATP 7 CLP)

Regulamentul (EU) nr. 2016/918 (ATP 8 CLP)

Regulamentul (EU) nr. 2016/1179 (ATP 9 CLP)

Regulamentul (EU) nr. 2017/776 (ATP 10 CLP)

Regulamentul (EU) nr. 2018/669 (ATP 11 CLP)

Regulamentul (EU) nr. 2018/1480 (ATP 13 CLP)

Regulamentul (EU) nr. 2019/521 (ATP 12 CLP)

Regulamentul (EU) nr. 2020/217 (ATP 14 CLP)
Regulamentul (EU) nr. 2020/1182 (ATP 15 CLP)
Regulamentul (EU) nr. 2021/643 (ATP 16 CLP)
Regulamentul (EU) nr. 2021/849 (ATP 17 CLP)
Regulamentul (EU) nr. 2022/692 (ATP 18 CLP)
Regulamentul (UE) nr. 2023/707
Regulamentul (EU) nr. 2023/1434 (ATP 19 CLP)
Regulamentul (EU) nr. 2023/1435 (ATP 20 CLP)
Regulamentul (EU) nr. 2024/197 (ATP 21 CLP)

Restricții referitoare la produsele sau substanțele conținute de acestea conform Anexei XVII Regulamentul (CE) 1907/2006 (REACH) cu modificările ulterioare:

Restricții referitoare la produs: 3

Restricții referitoare la substanțele continute: 40, 48, 75

Dispoziții în legătură cu directiva EU 2012/18 (Seveso III):

Categoria Seveso III conform Anexei 1, partea 1	Limită nivel inferior (tone)	Limită nivel superior (tone)
Produsul face parte din categoria: E2	200	500

Regulamentul (UE) nr. 649/2012 (Regulamentul PIC)

Nu există substanțe menționate

Clasa Germană a Periculozității Apei

Clasa 3: foarte periculos.

Substante SVHC:

În baza datelor disponibile, produsul nu conține substanțe SVHC în procentaj \geq de 0.1%.

15.2. Evaluarea securității chimice

A fost efectuată o Evaluare de Securitate Chimică pentru amestecul

SECTIUNEA 16: Alte informatii

Cod	Descriere
EUH066	Expunerea repetată poate provoca uscarea sau crăparea pielii.
H225	Lichid și vapori foarte inflamabili.
H226	Lichid și vapori inflamabili.
H302	Nociv în caz de înghițire.
H304	Poate fi mortal în caz de înghițire și de pătrundere în căile respiratorii.
H311	Toxic în contact cu pielea.
H312	Nociv în contact cu pielea.
H314	Provoacă arsuri grave ale pielii și lezarea ochilor.
H315	Provoacă iritarea pielii.
H317	Poate provoca o reacție alergică a pielii.
H318	Provoacă leziuni oculare grave.
H319	Provoacă o iritare gravă a ochilor.
H332	Nociv în caz de inhalare.
H335	Poate provoca iritarea căilor respiratorii.
H336	Poate provoca somnolență sau amețeală.
H361d	Susceptibil de a dăuna fătului.
H361fd	Susceptibil de a dăuna fertilității. Susceptibil de a dăuna fătului.
H372	Provoacă daune organelor în caz de expunere îndelungată sau repetată prin inhalare.
H373	Poate provoca leziuni ale organelor în caz de expunere prelungită sau repetată.
H373	Poate provoca daune organelor în caz de expunere îndelungată sau repetată prin inhalare și prin inghițire.
H411	Toxic pentru mediul acvatic cu efecte pe termen lung.
H412	Nociv pentru mediul acvatic cu efecte pe termen lung.
H413	Poate provoca efecte nocive pe termen lung asupra mediului acvatic.
Cod	Clasa de pericol și categoria de pericol Descriere
2.6/2	Flam. Liq. 2 Lichid inflamabil, Categoria 2
2.6/3	Flam. Liq. 3 Lichid inflamabil, Categoria 3

3.1/3/Dermal	Acute Tox. 3	Toxicitate acută (dermică), Categoria 3
3.1/4/Dermal	Acute Tox. 4	Toxicitate acută (dermică), Categoria 4
3.1/4/Inhal	Acute Tox. 4	Toxicitate acută (inhalație), Categoria 4
3.1/4/Oral	Acute Tox. 4	Toxicitate acută (orală), Categoria 4
3.10/1	Asp. Tox. 1	Pericol prin aspirație, Categoria 1
3.2/1B	Skin Corr. 1B	Corodarea pielii, Categoria 1B
3.2/2	Skin Irrit. 2	Iritarea pielii, Categoria 2
3.3/1	Eye Dam. 1	Lezarea gravă a ochilor, Categoria 1
3.3/2	Eye Irrit. 2	Iritarea ochilor, Categoria 2
3.4.2/1	Skin Sens. 1	Sensibilizarea pielii, Categoria 1
3.4.2/1A	Skin Sens. 1A	Sensibilizarea pielii, Categoria 1A
3.4.2/1B	Skin Sens. 1B	Sensibilizarea pielii, Categoria 1B
3.7/2	Repr. 2	Toxicitate pentru reproducere, Categoria 2
3.8/3	STOT SE 3	Toxicitate asupra unui organ țintă specific – o singură expunere, Categoria 3
3.9/1	STOT RE 1	Toxicitate asupra unui organ țintă specific – expunere repetată, Categoria 1
3.9/2	STOT RE 2	Toxicitate asupra unui organ țintă specific – expunere repetată, Categoria 2
4.1/C2	Aquatic Chronic 2	Pericol cronic (pe termen lung) pentru mediul acvatic, Categoria 2
4.1/C3	Aquatic Chronic 3	Pericol cronic (pe termen lung) pentru mediul acvatic, Categoria 3
4.1/C4	Aquatic Chronic 4	Pericol cronic (pe termen lung) pentru mediul acvatic, Categoria 4

Clasificarea și procedura utilizate pentru realizarea clasificării pentru amestecuri în conformitate cu Regulamentul (CE) nr. 1272/2008 [CLP]:

Clasificare conform Regulamentului (CE) nr. 1272/2008	Procedura de clasificare
Skin Corr. 1B, H314	Metoda de calcul
Skin Sens. 1A, H317	Metoda de calcul
Repr. 2, H361fd	Metoda de calcul
STOT RE 2, H373	Metoda de calcul
Aquatic Chronic 2, H411	Metoda de calcul

Acest document a fost întocmit de un tehnician competent în domeniul SDS și care este pregătit în mod corespunzător.

Principalele surse bibliografice:

ECDIN - Rețeaua de date și informații de mediu privind produsele chimice - Centrul comun de cercetare, Comisia Comunităților Europene
SAX PROPRIETĂȚI PERICULOASE ALE MATERIALELOR INDUSTRIALE - Ediția a opta - Van Nostrand Reinold
Fișe tehnice de securitate ale furnizorilor de materii prime.

Aceste informații se bazează pe cunoștințele deținute la data menționată mai sus. Se referă numai la produsul menționat și nu constituie o garanție a calității pentru cazurile particulare

Este de datoria utilizatorului să se asigure că aceste informații sunt adecvate și corespund domeniului specific de utilizare

Această FTS anulează și înlocuiește pe cele emise anterior.

Legenda cu abrevierile și acronimele folosite în fișa cu date de securitate

ACGIH: Conferința Americană a Igieniştilor Industriali Guvernamentali
ADR: Acordul European referitor la Încărcătura Internațională de Bunuri Periculoase pe Drumuri
ATE: Toxicitate Acută Estimată
ATEmix: Estimarea toxicității acute (Amestecuri)
BEI: Index de Expunere Biologică
CAS: Chemical Abstracts Service (departament al Societății Americane de Chimie)
CAV: Centrul de Otrăvuri
CE: Comunitatea Europeană
CLP: Clasificare, Etichetare, Ambalare
CMR: Cancerigene, Mutagene și Toxice pentru reproducere
COV: Compus Organic Volatil
CSA: Evaluarea Securității Chimice
CSR: Raportul Securității Chimice
DNEL: Nivel Derivat Fără Efect
EC50: Jumătate din Concentrația Efectivă Maximă
ECHA: Agenția Europeană pentru Produse Chimice

EINECS: Inventarul European al Substanțelor Chimice Existente pe piață
ES: Scenariul de Expunere
GefStoffVO: Ordonanță în legătură cu Substanțele Periculoase, Germania
GHS: Sistemul Mondial Armonizat de Clasificare și Etichetare a Produselor Chimice
IARC: Agenția Internațională pentru Cercetare în Domeniul Cancerului
IATA: Asociația Internațională de Transport Aerian
IC50: jumătate din concentrația inhibitorie maximă
IMDG: Coduri Maritime Internaționale pentru Bunurile Periculoase
LC50: Concentrația letală pentru un procent de 50% din populația test
LD50: Doza letală pentru un procent de 50% din populația test
LDLo: Doză Letală Scăzută
N.A.: Nu se aplică
N/A: Nu se aplică
N/D: Nedefinit/Nu este disponibil
N.D.: Nu este disponibil
NIOSH: Institutul Național pentru Securitate și Sănătate în Muncă
NOAEL: Nu există un Nivel al Efectelor Adverse Observat
OSHA: Administrația Securității și Sănătății în Muncă.
PBT: Persistente, Bioacumulative și Toxice
PGK: Instrucțiuni de ambalare
PNEC: Concentrația Fără Efect Prevăzută
PSG: Pasageri
RID: Regulamentul Referitor la Transportul Internațional de Bunuri Periculoase pe Calea Ferată
STEL: Limita de Expunere pe Termen Scurt
STOT: Toxicitatea pentru Organul Țintă Specific
TLV: Valoarea Limită a Pragului
TLV-TWA: Valoarea Limită a Pragului pentru Durata Ponderată Medie 8 ore pe zi (Standard ACGIH)
vPvB: Foarte Persistent, Foarte Bioacumulativ.
WGK: Clasa Germană a Periculozității Apei

Paragrafe modificate de la ultima revizuire:

- SECȚIUNEA 1: Identificarea substanței/amestecului și a societății/întreprinderii
- SECȚIUNEA 8: Controale ale expunerii/protecția personală
- SECȚIUNEA 9: Proprietățile fizice și chimice
- SECȚIUNEA 15: Informații de reglementare

n-butyl acetate

Substance identification

Chemical Name: n-butyl acetate

CAS number: 123-86-4

Date - Version: 07/06/2017 10.0

1. USE IN COATINGS. USE IN PAINTS. USE IN PRINTING INKS. USE IN ADHESIVES.

Short title of the exposure scenario: Use in coatings. Use in paints. Use in printing inks. Use in adhesives.

SU3; ERC4; PROC7, PROC10, PROC13

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: CEPE SPERC4.1a.v1

Operating conditions

Yearly amount used in EU: 5,000,000 kgs

Minimum emission days per year: 225

Emission factor to air: 0.8%

Emission factor in water: 2%

Emission factor in soil: 0%

Receiving surface water (flow rate): 18,000 m³/day

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Suitable measures to reduce emissions to air can be: Exhaust gas treatment with thermal oxidation.

Type of treatment plant: Municipal sewage treatment plant.

Assumed sewage treatment plant flow: 2,000 m³/day

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Environment

Risk Characterization Ratio (RCR): 0.925355

Risk from environmental exposure is driven by soil.

Maximum safe use amount: 1080.7 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥0 - ≤100%

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Daily general cleaning of equipment and work area.

Regular inspection and maintenance of equipment and machinery.

Ensure that the activity is performed outside the operator's respiratory zone (head-product distance greater than 1m).

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Avoid splashes.

Make sure the spray booth is used.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 4.2857 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.38961

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 0.0001 mg/m³

Risk Characterization Ratio (RCR): 0.000001

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation. Effectiveness: 90%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 2.7429 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.249351

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 24.1996 mg/m³

Risk Characterization Ratio (RCR): 0.080665

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping and pouring

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation. Effectiveness: 90%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 1.3714 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.124675

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 24.1996 mg/m³

Risk Characterization Ratio (RCR): 0.080665

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

2. USE IN COATINGS. USE IN PAINTS. USE IN PRINTING INKS. USE IN ADHESIVES.

Short title of the exposure scenario: Use in coatings. Use in paints. Use in printing inks. Use in adhesives.
SU3; ERC4; PROC7, PROC10, PROC13

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: CEPE SPERC4.1a.v1

Operating conditions

Yearly amount used in EU: 43,000,000 kgs

Minimum emission days per year: 225

Emission factor to air: 0.8%

Emission factor in water: 2%

Emission factor in soil: 0%

Receiving surface water (flow rate): 18,000 m³/day

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Suitable measures to reduce emissions to air can be: Exhaust gas treatment with thermal oxidation.

Type of treatment plant: Municipal sewage treatment plant.

Assumed sewage treatment plant flow: 2,000 m³/day

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Environment

Risk Characterization Ratio (RCR): 0.925355

Risk from environmental exposure is driven by soil.

Maximum safe use amount: 1080.7 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥0 - ≤100%

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Daily general cleaning of equipment and work area.

Regular inspection and maintenance of equipment and machinery.

Ensure that the activity is performed outside the operator's respiratory zone (head-product distance greater than 1m).

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Avoid splashes.

Make sure the spray booth is used.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 4.2857 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.38961

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.
Exposure estimation: 0.0001 mg/m³
Risk Characterization Ratio (RCR): 0.000001

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥0 - ≤100%

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation. Effectiveness: 90%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 2.7429 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.249351

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 24.1996 mg/m³

Risk Characterization Ratio (RCR): 0.080665

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping and pouring

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥0 - ≤100%

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation. Effectiveness: 90%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 1.3714 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.124675

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 24.1996 mg/m³

Risk Characterization Ratio (RCR): 0.080665

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

3. USE IN COATINGS. USE IN PAINTS. USE IN PRINTING INKS. USE IN ADHESIVES.

Short title of the exposure scenario: Use in coatings. Use in paints. Use in printing inks. Use in adhesives.
SU22; ERC8a, ERC8d; PROC10, PROC11, PROC13, PROC19

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: CEPE SPERC 8a.2a.v1

Operating conditions

Yearly amount used in EU: 2,000,000 kgs

Minimum emission days per year: 225

Emission factor to air: 99%

Emission factor in water: 1%

Emission factor in soil: 0%

Receiving surface water (flow rate): 18,000 m³/day

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

The wastewater treatment measures considered suitable are, for example, wastewater or sewage treatment plant.

Type of treatment plant: Municipal sewage treatment plant.

Assumed sewage treatment plant flow: 2,000 m³/day

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Environment

Risk Characterization Ratio (RCR): 0.012923

Risk from environmental exposure is driven by freshwater sediment.

Maximum safe use amount: 1934.6 kg/giorno

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: CEPE SPERC 8d.3a.v1

Operating conditions

Yearly amount used in EU: 2,000,000 kgs

Minimum emission days per year: 225

Emission factor to air: 98%

Emission factor in water: 2%

Emission factor in soil: 0%

Receiving surface water (flow rate): 18,000 m³/day

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Type of treatment plant: Municipal sewage treatment plant.

Assumed sewage treatment plant flow: 2,000 m³/day

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Environment

Risk Characterization Ratio (RCR): 0.092422

Risk from environmental exposure is driven by soil.

Maximum safe use amount: 1082 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour). Effectiveness: 70%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 2.7429 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.249351

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 145.1979 mg/m³

Risk Characterization Ratio (RCR): 0.483993

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 45\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Daily general cleaning of equipment and work area.

Regular inspection and maintenance of equipment and machinery.

Ensure that the activity is performed outside the operator's respiratory zone (head-product distance greater than 1m).

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Avoid splashes.

Make sure the spray booth is used.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 10.7143 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.974026

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 0.0001 mg/m³

Risk Characterization Ratio (RCR): 0.000001

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 45\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Daily general cleaning of equipment and work area.

Regular control and maintenance of equipment and machinery.

Make sure doors and windows are open (general ventilation).

Avoid splashes.

Use an adequately effective local ventilation system.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker, modified version. The concentration of the substance has been considered using a linear approach. Worker - dermal, long-term - systemic.

Exposure estimation: 4.8214 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.438312

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker, modified version. Operator - inhalation, long-term - local.

Exposure estimation: 153 mg/m³

Risk Characterization Ratio (RCR): 0.51

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Daily general cleaning of equipment and work area.

Regular inspection and maintenance of equipment and machinery.

Avoid splashes.

Make sure doors and windows are open (general ventilation).

Wear a half face mask with a P2L filter or better.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker, modified version. The concentration of the substance has been considered using a linear approach. Worker - dermal, long-term - systemic.

Exposure estimation: 4.8214 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.438312

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker, modified version. Operator - inhalation, long-term - local.

Exposure estimation: 116 mg/m³

Risk Characterization Ratio (RCR): 0.386667

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping and pouring

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour). Effectiveness: 70%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 1.3714 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.124675

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 145.1979 mg/m³

Risk Characterization Ratio (RCR): 0.483993

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact with the only use of personal protective equipment

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 240 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation: Effectiveness: 80%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Ensure a good standard of general or controlled ventilation (no less than 3-5 air changes per hour). Effectiveness: 30%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 8.4857 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.771429

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 67.759 mg/m³

Risk Characterization Ratio (RCR): 0.225863

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact with the only use of personal protective equipment

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 60 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour). Effectiveness: 70%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 2.8286 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.257143

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 145.1979 mg/m³

Risk Characterization Ratio (RCR): 0.483993

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

Toluene

Identification of the exposure scenario

Product name: Toluene

CAS number: 108-88-3

EC number: 203-625-9

Review date: 02/03/2017

2 - INDUSTRIAL USES

Identified industrial uses of toluene and generic exposure scenario.

Table 1 lists the industrial uses identified for toluene.

If DUs wish to verify compliance with the ES, they should start with summary table 1 and, based on the textual description of the exposure scenarios, determine their own identified use, the PROC and the ERC associated with their specific activity.

DUs may identify the specific scenarios of their interest in section 2.2.1 for the environment, 2.2.2 for workers and 2.2.3 for consumers and verify the exposure and risk characterisation for the environment and for workers in section 2.3. The operating conditions described in each specific scenario do not necessarily apply to all sites. It may therefore be necessary to apply the graduated scaling method (appropriate adaptation to the actual conditions on site), in order to identify compliance with the conditions described in the exposure scenarios.

Table 1. Industrial contributing exposure scenarios identified for toluene

Identifier use: ES1 Manufacturing

Description: Manufacture of the substance or use as an intermediate, or as a process chemical or extraction agent. Includes recycling/recovery activities, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including on vessels/barges, tank wagons or tank trucks and large IBCs).

Sector of use (SU): 3, 8, 9

Process categories (PROC): 1, 2, 3, 4, 8a, 8b, 15

Environmental Release Categories (ERC): 1

Identifier use: ES2 Distribution

Description: Loading (including on vessel/barges, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its distribution and associated laboratory activities.

Sector of use (SU): 3, 8, 9

Process categories (PROC): 1, 2, 3, 4, 8a, 8b, 9, 15

Environmental Release Categories (ERC): 1 (load) - 2 (repacking)

Identifier use: ES3 Use as an intermediate

Description: Use as an intermediate

Sector of use (SU): 3, 8, 9

Process categories (PROC): 1, 2, 3, 4, 8a, 8b, 15

Environmental Release Categories (ERC): 6a

Identifier use: ES5 Use in cleaning agents

Description: Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

Sector of use (SU): 3, 10

Process categories (PROC): 2, 3, 4, 7, 8a, 8b, 10, 13

Environmental Release Categories (ERC): 4

Identifier use: ES7 Use as fuel

Description: Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Sector of use (SU): 3, 10

Process categories (PROC): 1, 2, 3, 4, 8a, 8b, 16

Environmental Release Categories (ERC): 7

Identifier use: ES10 Use in coatings

Description: Covers use in coatings (paints, inks, adhesives, etc.), including exposures during use (including materials receipt, storage, preparation and bulk and semi-bulk transfer, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

Sector of use (SU): 3, 10

Process categories (PROC): 1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15

Environmental Release Categories (ERC): 4

Identifier use: ES13 Use in oil field drilling and production operations

Description: Well drilling activities in oil and production fields (including drilling muds and well cleaning), including material transfers, on-site formulation, also wellhead operations, shaker room activities and related maintenance.

Sector of use (SU): 3, 10

Process categories (PROC): 1, 2, 3, 4, 8a, 8b

Environmental Release Categories (ERC): 4

Identifier use: ES14 Use in binders and release agents

Description: Covers the use as binders and release agents, including material transfers, mixing, application (including spraying and brushing), mould forming and casting and handling of waste.

Sector of use (SU): 3, 8, 9

Process categories (PROC): 1, 2, 3, 4, 6, 7, 8b, 10, 14

Environmental Release Categories (ERC): 5

Identifier use: ES16 Use as laboratory reagent

Description: Use of the substance within laboratory settings, including material transfers and equipment cleaning.

Sector of use (SU): 3, 10

Process categories (PROC): 10, 15

Environmental Release Categories (ERC): 2, 4

Identifier use: ES18 Use in functional fluids

Description: Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.

Sector of use (SU): 3, 8, 9

Process categories (PROC): 1, 2, 3, 4, 8a, 8b, 9

Environmental Release Categories (ERC): 7

Identifier use: ES20 Use in rubber production and processing

Description: Manufacture of tyres and general rubber articles, including processing of raw (cured) rubber, handling and mixing of rubber additives, vulcanising, cooling and finishing.

Sector of use (SU): 10

Process categories (PROC): 1, 2, 3, 4, 5, 6, 7, 8a, 8b, 14, 15

Environmental Release Categories (ERC): 4, 6d

Identifier use: ES21 Formulation

Description: Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, material transfers, mixing, large and small scale packing, maintenance and associated laboratory activities.

Sector of use (SU): 3, 10

Process categories (PROC): 1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15

Environmental Release Categories (ERC): 2

2.1 INDUSTRIAL USES OF TOLUENE AND TOLUENE-CONTAINING PRODUCTS

Title: Industrial uses of toluene and toluene-containing products

Sectors of use: 3, 8, 9, 10

Process categories: 1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 13, 14, 15

Environmental Release Categories: 1, 2, 4, 5, 6a, 6d, 7

Scope of the process: Industrial processes relevant to toluene and toluene-containing products

2.2 OPERATING CONDITIONS AND RISK MANAGEMENT MEASURES

2.2.1. Contributing scenario controlling exposure for the environment

Method used for evaluation: EUSES 2.1.1 with use of predefined ESVOC SpERC release fractions (see Table 3 for the specific versions of each scenario).

Operating conditions

Product features: Toluene is a liquid of medium volatility. The water solubility of this category is 573 mg/l; the vapour pressure is 4030 Pa at 20°C; the log Kow is 2.73. Toluene is readily biodegradable.

Frequency and duration of use: Issue days: 300 days/year

Quantity used: See table 2.

Environmental factors not influenced by risk management: See table 2.

Other given operational conditions affecting environmental exposure: See table 2.

Risk Management Measures

Local technical conditions and measures to reduce and limit discharges, air emissions and soil release:

Treat air emission to provide a typical removal efficiency of [TCR7]; for each scenario, see Table 2 Typical onsite wastewater treatment technology provides removal efficiency of 93.3% [TCR11]. (unless otherwise specified).

ES5, ES7, ES10, ES14: Soil emission controls are not applicable as there is no direct release to soil [TCR4].

Organizational measures to prevent/limit release from site:

ES1, ES2, ES3, ES5, ES7, ES10, ES14, ES16, ES18, ES20, ES21: Do not apply industrial sludge to natural soils [OMS2].

ES3: Sewage sludge should be incinerated, contained or reclaimed [OMS3].

ES13: Prevent environmental discharge consistent with regulatory requirements.

Conditions and measures for the domestic sewage treatment plan:

Estimated substance removal from wastewater via municipal sewage treatment 93.3 (%) [STP3]. (unless otherwise specified).

Assumed domestic sewage treatment plant flow 2000 (m³/g) [STP5]. (unless otherwise specified).

Conditions and measures for external treatment of waste for disposal:

ES1: No waste of the substance is generated during production. [ETW4].

ES2, ES5, ES10, ES13, ES14, ES16, ES18, ES20, ES21: External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].

ES3, ES7: This substance is consumed during use and no waste of the substance is generated [ETW5].

Conditions and measures for external recovery of waste:

ES1: No waste related to the substance [ERW2] is generated during production.

ES2, ES10, ES13, ES14, ES16, ES18, ES20, ES21: External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].

ES3, ES5, ES7: This substance is consumed during use and no waste of the substance is generated [ERW3].

2.2.2 Contributing scenario controlling exposure for workers

Product features: Liquid, vapour pressure 0.5 - 10 kPa [OC4].

Concentration of the substance in the product: Covers a percentage substance in the product up to 100% (unless otherwise stated) [G13].

Frequency and duration of use/exposure: Covers a daily exposure up to 8 hours (unless otherwise specified) [G2].

Human factors not influenced by risk management: Not applicable.

Other given operating conditions affecting employee exposure:

Assumes use of the product at not more than 20°C above ambient temperature, unless otherwise specified [G15].

Assumes a good basic standard of occupational hygiene has been implemented [G1].

Users are advised to consider national Occupational Exposure Limits or other equivalent values [G38].

Operational conditions and risk management measures affecting worker exposure

General measures (skin irritants) (G19):

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear suitable gloves (tested to EN374) if hand contact with substance is likely. Remove impurities/product spills as they occur. Immediately remove any contamination with skin. Provide basic staff training so that exposure is minimised and any skin problems are reported (E3).

In addition (where there is potential for further significant aerosol exposure): Other skin protection measures, such as impermeable overalls and visors, will be necessary during activities involving high dispersion with the possible release of aerosols.

General measures for assessing the inhalation risk - qualitative assessment:

Do not swallow. Implement a good basic standard of occupational hygiene. Avoid contact with contaminated tools and objects. Management/supervision in place to check that the RMMs implemented are being used correctly and OCs followed. Staff training on good practices. Adequate standard of personal hygiene.

For the operational conditions and risk management measures for each scenario, see Table 3.

2.2.3 Contributing scenario controlling consumer exposure

There is no consumer exposure for this scenario.

2.3 EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

2.3.1 Contributing scenario for estimating environmental exposure

Tool used for evaluation: EUSES 2.1.1 with use of predefined ESVO SpERC release fractions (see Table 3 for the specific versions of each scenario).

When complying with the recommended risk management measures (RMMs) and operating conditions (OCs), exposure is not expected to exceed the PNECs and the risk characterisation ratios should be less than 1, as shown in table 2.

2.3.2 Contributing scenario for estimating worker exposure

Tool used for evaluation ECETOC TRA v2 (www.ecetoc.org/tra)

General parameters used:

Environment type: industrial

Dustiness: low (liquid substance)

Duration of exposure: > 4 hours/day, unless otherwise stated in the RMMs

Ventilation use: none, unless otherwise stated in the RMMs

Use of respiratory protection: none, unless otherwise stated in the RMMs

Use of skin protection: none, unless otherwise stated in the RMMs

Concentration in preparations: > 25%

When complying with the recommended risk management measures (RMMs) and operating conditions (OCs), exposure is not expected to exceed the DNELs and the risk characterisation ratios should be less than 1, as shown in table 3.

2.3.3 Contributing scenario for estimating consumer exposure

There is no consumer exposure for this scenario.

2.4. GUIDELINES FOR THE DU TO VERIFY COMPLIANCE WITH THE EXPOSURE SCENARIO

2.4.1 Guidelines for DU to verify compliance with the environmental exposure scenario

Confirm that the RMMs and OCs are as described or have equivalent efficiency.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1].

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2].

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination [DSU3].

Further details on scaling and control technologies are provided in SPERC factsheet.

2.4.2 Guidelines for DU to verify compliance with the contributing scenario for worker exposure estimation

Predicted exposures are not expected to exceed the DNEL when the RMMs and OCs outlined in Table 3 are implemented [G22].

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Risk characterisation ratios (RCRs) are calculated by comparing the estimated exposure levels with the corresponding DNELs ($RCR = \text{exposure level}/\text{DNEL}$).

Table 2.

identifiers			Operating Conditions and Risk Management Measures						Risk characterization					
		Quantity used	Dilution factors		RMM to be implemented									
	ERC/ SpERC	Tonnage per site t/ year	Fresh water	Sea water	Water treatment efficiency %	Air abatement efficiency %	Waste treatment total removal %	Domestic wastewater treatment flow m³/d	RCR fresh water	RCR marine water	RCR freshwater sediments	RCR marine water sediments	RCR soil	RCR STP extension
ES1	ESVOC SpERC 1.1.v1 for air and soil	300000	40	100	>93.3%	90%	93.3%	2000	0.125	0.0495	0.125	0.0494	0.029	0.246
ES2	ESVOC SpERC 1.1b.v1	300000	10	100	>93.3%	90%	93.3%	2000	5.14E-02	5.11E-03	5.14E-02	5.11E-03	7.37E-02	2.46E-02
ES3	ESVOC SpERC 6.1a.v1	12000	10	100	>93.3%	80%	93.3%	2000	5.93E-01	5.93E-02	5.93E-01	5.93E-02	8.77E-01	2.95E-01
ES5	ESVOC SpERC 4.4a.v1	1500	10	100	>93.3%	70%	93.3%	2000	2.79E-03	2.52E-04	2.79E-03	2.52E-04	1.96E-03	3.59E-04
ES7	ESVOC SpERC 7.12a.v1	15000	10	100	>93.3%	95%	93.3%	2000	4.47E-03	4.20E-04	4.46E-03	4.19E-04	4.31E-03	1.20E-03
ES10	ESVOC SpERC 4.3a.v1	4500	10	100	>93.3%	90%	93.3%	2000	5.05E-01	5.05E-02	5.05E-01	5.05E-02	7.55E-01	2.52E-01
ES13	Discharge into the aquatic environment is restricted by law and industry prohibits it: OSPAR Commission 2009. Discharges, Spills and Emissions from Offshore Oil and Gas installations in 2007, including the assessment of data reported in 2006 and 2007.													
ES14	ESVOC SpERC 4.10a.v1	1500	10	100	>93.3%	80%	93.3%	2000	2.79E-03	2.52E-04	2.79E-03	2.52E-04	6.71E-03	3.59E-04
ES16	SPERC proposes evaluation using ERC	1500	10	100	>93.3%	0%	93.3%	2000	4.81E-01	4.81E-02	4.81E-01	4.81E-02	7.12E-01	2.40E-01
ES18	ESVOC SpERC 7.13a.v1	1500	10	100	>93.3%	0%	93.3%	2000	9.26E-03	8.99E-04	9.26E-03	8.99E-04	1.10E-02	3.59E-03
ES20	ESVOC SpERC 4.19.v1	6000	10	100	>93.3%	0%	93.3%	2000	2.90E-01	2.89E-02	2.90E-01	2.89E-02	4.28E-01	1.44E-01
ES21	ESVOC SpERC 2.2.v1	15000	10	100	>93.3%	0%	93.3%	2000	4.95E-01	4.95E-02	4.95E-01	4.94E-02	7.38E-01	2.46E-01

Table 3. OC, RMM, Risk Characterization - Workers - Industrial uses

Identifier: ES1 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Continuous; daily; 15 mins - 1 hour; Product temp. Outside. Process closed.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES2 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. With sample collection [CS56]. Product sampling [CS137].

OC and typical RMMs: Continuous; daily; 15 mins - 1 hour; Product temp. Outdoor Process included. Outdoor placement. Closed/semi-closed sampling point.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES1 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. Use in contained batch processes [CS37].

OC and typical RMMs: Batch process; daily; 15 mins - 1 hour; Product temp. Indoor/Outdoor. Closed equipment, sample point included or with venting.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES1 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Indoor/Outdoor Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES1 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: In-Process Sampling [CS2].

OC and typical RMMs: Daily; <15 mins; Product temp. Indoor/Outdoor. Closed or ventilated sample points.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11] Wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.02

RCR (all ways): 0.31

Identifier: ES1 PROC15

Operating Conditions and Risk Management Measures

Contributing scenario: Laboratory activity [CS36].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Indoor; hood. PPE.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES1 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14]. (open systems) [CS108]. With potential for aerosol generation [CS138].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Indoor/Outdoor Transfers included. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Operate away from sources of emission or release of the substance. [E77]. If technical measures are not practical [G16], wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.02

RCR (all ways): 0.31

Identifier: ES1 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14]. (closed systems) [CS107].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Indoor/Outdoor. Transfers included. Transfer points with vents. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Operate activity away from sources of substance emission or release [E77]. If technical measures are not practical [G16], wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.02

RCR (all ways): 0.31

Identifier: ES1 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Equipment cleaning and maintenance [CS39]

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Collection of line waste in containers. Indoor/Outdoor. Lines included. Retain drain downs in sealed storage pending disposal, use as a recycled material in subsequent formulations, or recycle. PPE.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.20 Additional exposure modifier: 0.2. Assumes LEV efficiency equivalent to SOP for drainage etc. before maintenance; additional LEV 80%.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.01.

RCR (all ways): 0.20

Identifier: ES2 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; 8 hours; Product temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES2 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Continuous; Daily; 15 mins - 1 hour; Product temp. Process closed. No exposure.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES2 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. With sample collection [CS56]. Product sampling [CS137].

OC and typical RMMs: Continuous; Daily; 15 mins - 1 hour; Product temp. Outside. Process included. Closed/semi-closed sampling point.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES2 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. Use in contained batch processes [CS37].

OC and typical RMMs: batch process; Daily; 15 mins - 1 hour; Product at temp. environment. Outside. Closed equipment, sample point included or with venting.

RMM to be implemented: No specific provision identified [E118]

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES2 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Indoor/Outdoor. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific provision identified [E118]

Risk characteristics

RCR Inhalation: 0.39.

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES2 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: In-Process Sampling [CS2].

OC and typical RMMs: Daily; <15 mins; Product at temp. environment. Outside. Closed or ventilated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES2 PROC15

Operating Conditions and Risk Management Measures

Contributing scenario: Laboratory activity [CS36].

OC and typical RMMs: Continuous; Daily; 15 mins - 1 hour; Product at temp. environment. Inside. Hood. PPE

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES2 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14]. (closed systems) [CS107]

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Outside. Potential exposure during interruption of connections. Transfers included. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES2 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14]. (open systems) [CS108]

OC and typical RMMs: Daily; 1 - 4 hours; Product at temp. environment. Outdoor Potential exposure due to emission of vapours from opening tanks. Transfers included. Submerged load through tank opening. Collection of drops from loading arm. May require LEV and/or RPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Operate activity away from sources of substance emission or release [E77]. If technical measures are not practical [G16], wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES2 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Drum and small package filling [CS6].

OC and typical RMMs: Continuous; Daily; 8 hours; Product temp. Outside. Transfers included. Transfer points with vents. Dedicated filling lines.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.69. Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES2 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Collection of line residues in a container. Lines included. Retain washes in sealed storage awaiting disposal or use as a recycled material in subsequent formulations. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.10 Additional exposure modifier 0.01. Assumes LEV efficiency equivalent to SOP for drainage etc. before maintenance.

Dermal RCR: 0.04

RCR (all ways): 0.13

Identifier: ES2 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; 8 hours; Product temp. Outside. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES3

Human health assessment is not required for this use, use as an intermediate is included in the toluene production.

Identifier: ES5 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14]. (open systems) [CS108]

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Collection of line residues in a container. Transfers included. Transfer points with vents. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES5 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Automated process with (semi) closed systems [CS93]. Use in contained systems [CS38].

OC and typical RMMs: Daily; 8 hours. Process included. closed/semi-closed.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES5 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Automated process with (semi) closed systems [CS93]. Use in contained systems [CS38]. Kegs/Batch Transfers [CS8].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Process included. closed/semi-closed.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES5 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Application of cleaning products in closed systems [CS101].

OC and typical RMMs: Daily; 8 hours. Process included. closed/semi-closed.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES5 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Filling of equipment from drums or containers [CS45]. Dedicated system [CS81].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Pumping from drums to equipment.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. If technical measures are not practical [G16], wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.69

Identifier: ES5 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Use in contained batch processes [CS37]. Heating treatment [OC129].

OC and typical RMMs: Daily; 1 - 4 hours. Temperature above boiling point. Outdood Equipment closed. Transfer points included or with vent.

RMM to be implemented: Provide extract ventilation in points where emissions occur [E54].

Risk characteristics

RCR Inhalation: 0.20 TRA LEV efficiency 90%.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.20

Identifier: ES5 PROC13

Operating Conditions and Risk Management Measures

Contributing scenario: Degreasing small objects in cleaning station [CS41].

OC and typical RMMs: Daily; >4 hours; Environment. Local aspiration on open surfaces; eliminate leaks as soon as they occur. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69. Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES5 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning with low-pressure washers [CS42].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Specific training of workers. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69

Dermal RCR: 0.07

RCR (all ways): 0.76

Identifier: ES5 PROC7

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning with high pressure washers [CS44].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Specific training of workers. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 10 to 15 air changes per hour) [E40]. Limit substance content in the product to 5 % [OC17].

Risk characteristics

RCR Inhalation: 0.15 Ventilation dilution efficiency 70%. TRA factor RPE half mask.

Dermal RCR: 0.11

RCR (all ways): 0.26

Identifier: ES5 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Manual cleaning of surfaces. No spraying [CS60].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Collection of waste and cleaning cloths in a container.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.07

RCR (all ways): 0.76

Identifier: ES5 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; 15 mins -1 hour; Product temp. Collection of line waste in containers. Indoor/Outdoor. Lines included. Retain drain downs in sealed storage pending disposal, use as a recycled material in subsequent formulations, or recycle. PPE.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.20 Additional exposure modifier: 0.2. Efficiency of LEVs equivalent to drainage SOP etc. is assumed. before maintenance; additional LEV (80%).

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.20

Identifier: ES5 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; <15 mins. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES7 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES7 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Drum/Batch Transfers [CS8].

OC and typical RMMs: Daily; 1 -4 hours; Room temp. Pumping from drums to equipment.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES7 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Daily; >4 hours. Inside. Closed equipment; designed for easy maintenance. PPE.

No specific measure identified

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES7 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. Product sampling [CS137].

OC and typical RMMs: Daily; >4 hours. Inside. Closed equipment; designed for easy maintenance. PPE.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES7 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. Batch process [CS55].

OC and typical RMMs: Daily; >4 hours. Inside. Closed equipment; designed for easy maintenance. PPE.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES7 PROC16

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16]. (closed systems) [CS107].

OC and typical RMMs: Daily; >4 hours, 100%. Equipment closed.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.10

Dermal RCR: 0.00

RCR (all ways): 0.10

Identifier: ES7 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16]. (closed systems) [CS107]. Batch process [CS55].

OC and typical RMMs: Daily; >4 hours, 100%. Equipment closed.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.4

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES7 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Equipment Maintenance [CS5].

OC and typical RMMs: Daily; >4 hours, 100%. Operator training.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E55]. Wear coveralls to prevent skin exposure [PPE27].

Risk characteristics

RCR Inhalation: 0.20 Additional exposure modifier: 0.2. It is assumed that the SOPs reduce both inhalation and dermal exposure by up to 80%. (x0.2)

Dermal RCR: 0.01 TRA dermal exposure LEV reduction factor 0.2.

RCR (all ways): 0.20

Identifier: ES7 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning of containers and vessels [CS103].

OC and typical RMMs: Infrequent; >4 hours. Procedures for entry into containers. Store drainage liquids in sealed containers pending disposal. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES7 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES7 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES10 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Continuous; Daily; 8 hours. Process included. Closed/semi-closed sampling point.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES10 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. With sample collection [CS56]. Use in contained systems [CS38].

OC and typical RMMs: Continuous; Daily; 8 hours. Process included; closed/semi-closed sampling point.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES10 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Film formation. Forced drying (50-100°C). Stoving (>100°C). UV / EB radiation finish [CS94].

OC and typical RMMs: Process included.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES10 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Mixing operations (closed systems) [CS29]. General exposures (closed systems) [CS15].

OC and typical RMMs: -

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES10 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Film formation - air drying [CS95].

OC and typical RMMs: -

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES10 PROC5

Operating Conditions and Risk Management Measures

Contributing scenario: Preparation of material for application [CS96]. Mixing operations (open systems) [CS30].

OC and typical RMMs: Liquid/powder products - batch. Indoor/Outdoor.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES10 PROC7

Operating Conditions and Risk Management Measures

Contributing scenario: Spray application (automatic/robotic) [CS97].

OC and typical RMMs: Daily; >4 hours; Product temp. Spray booth with vents. Specific training of operators. PPE.

RMM to be implemented: Carry out in a vented booth or extracted enclosure [E57].

Risk characteristics

RCR Inhalation: 0.05 TRA LEV: 99% efficiency.

Dermal RCR: 0.01 TRA dermal exposure LEV reduction factor 0.05.

RCR (all ways): 0.05

Identifier: ES10 PROC7

Operating Conditions and Risk Management Measures

Contributing scenario: Manual spray application.

OC and typical RMMs: Outside. Air mask/respirator.

RMM to be implemented: Carry out in a vented booth or extracted enclosure [E57]. Oppure, Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.1 Ventilation dilution efficiency 70%. TRA factor RPE half mask.

Dermal RCR: 0.011

RCR (all ways): 0.26

Identifier: ES10 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Non-dedicated facility [CS82].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Collection of line waste in containers. Outdoor/Indoor. Transfers included. Transfer points with vents. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES10 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Dedicated system [CS81].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Collection of line waste in containers. Outdoor/Indoor. Transfers included. Transfer points with vents. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES10 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Application by roller, spatula, flux [CS98].

OC and typical RMMs: Daily; >4 hours; Product at temp. environment. Range from 2-3% up to 40-50%. Aspiration localized to the rollers. Eliminate leaks as they occur. PPE. Large scale (open equipment).

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.07

RCR (all ways): 0.76

Identifier: ES10 PROC13

Operating Conditions and Risk Management Measures

Contributing scenario: Immersion, dipping and pouring [CS4].

OC and typical RMMs: Daily; >4 hours; Environment. Local aspiration on open surfaces. Eliminate leaks as they occur. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES10 PROC15

Operating Conditions and Risk Management Measures

Contributing scenario: Laboratory activity [CS36].

OC and typical RMMs: Small-scale business. Small amounts. Daily 15 min.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES10 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Kegs/Batch Transfers [CS8]. Transfer from / pour from containers [CS22].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Use goggles gloves.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES10 PROC14

Operating Conditions and Risk Management Measures

Contributing scenario: Production of preparations or articles by tableting, compression, extrusion, pelettisation [CS100].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Use protective goggles and gloves.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.01

RCR (all ways): 0.70

Identifier: ES10 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Collection of line waste in containers. Indoor/Outdoor. Lines included. Retain drain downs in sealed storage pending disposal, use as a recycled material in subsequent formulations, or recycle. PPE.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.20 Additional exposure modifier: 0.2. Efficiency of LEVs equivalent to drainage SOP etc. is assumed. before maintenance; additional LEV (80%).

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.01.

RCR (all ways): 0.20

Identifier: ES10 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; <15 mins; Product at temp. environment. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES10 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Transfers included. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Oppure, Operate activity away from sources of substance emission or release [E77]. If technical measures are not feasible [G16]. Wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES10 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Filling of equipment from drums or containers [CS45].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Pumping from drums to equipment.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES13 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Ground drilling operations [CS116].

OC and typical RMMs: Daily; 1 - 4 hours; Product at temp. environment. Inside. Closed equipment, sample point included or with venting.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES13 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Ground drilling operations [CS116].

OC and typical RMMs: Daily; 1 - 4 hours; Product at temp. environment. Outside.

RMM to be implemented: Make sure the operation is done outdoors [E69]

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES13 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Solid filtering operations - steam exposures [CS118].

OC and typical RMMs: Daily; >4 hours. Inside. Product temperature approx. 60°C. LEV.

RMM to be implemented: Ensure material transfers are under containment or extract ventilation [E66].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES13 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Solid filtering operations - aerosol exposures [CS119].

OC and typical RMMs: Daily; >4 hours. Inside. Product temperature approx. 60°C. LEV.

RMM to be implemented: Ensure material transfers are under containment or extract ventilation [E66].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES13 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Filtering operations of solids [CS117].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Localized aspiration.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES13 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Treatment and disposal of filtered solids [CS121].

OC and typical RMMs: Daily; 1 - 4 hours; Product at temp. environment. Outside. Base oil content 1-5%. Localized aspiration.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES13 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: In-Process Sampling [CS2].

OC and typical RMMs: Daily; <15 mins; Product at temp. environment. Indoor or outdoor Sample point enclosed or vented.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES13 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Daily; >4 hours; Product at temp. environment. Outside.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES13 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Pouring from small containers [CS9].

OC and typical RMMs: Daily; <15 mins; Product at temp. environment. Indoor or outdoor

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Wear suitable gloves tested to EN374 [PPE15].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES13 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16].

OC and typical RMMs: Daily; >4 hours; Product at temp. environment. Localized or external aspiration.

RMM to be implemented: Make sure the operation is performed outdoors [E69].

Risk characteristics

RCR Inhalation: 0.27 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.29

Identifier: ES13 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Collection of line waste in containers. Lines included. Retain washes in sealed storage pending disposal or use as a recycled material in subsequent formulations. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Wear suitable gloves tested to EN374 [PPE15].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES13 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Batch process [CS55].

OC and typical RMMs: Continuous; Daily; 8 hours. Process included. Closed/semi-closed sampling point.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES13 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Batch process [CS55]. Product sampling [CS137].

OC and typical RMMs: Continuous; Daily; 8 hours. Process included. Closed/semi-closed sampling point.

RMM to be implemented: Provide extract ventilation in points where emissions occur [E54].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES14 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES14 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Product sampling [CS137].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES14 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Batch process [CS55]. (closed systems) [CS107].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES14 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Kegs/Batch Transfers [CS8].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Pumping from drums to equipment.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.02

RCR (all ways): 0.31

Identifier: ES14 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Mixing operations (closed systems) [CS29].

OC and typical RMMs: Daily; >4 hours. Mixers included or vented.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES14 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Mixing operations (open systems) [CS30].

OC and typical RMMs: Daily; >4 hours. Improved general ventilation.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES14 PROC14

Operating Conditions and Risk Management Measures

Contributing scenario: Stamping forming [CS31].

OC and typical RMMs: Daily; >4 hours; Room temp. PPE.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.01

RCR (all ways): 0.30

Identifier: ES14 PROC6

Operating Conditions and Risk Management Measures

Contributing scenario: Casting operations [CS32].

OC and typical RMMs: Daily; 1 - 4 hours. High temperature, sufficient to create fumes. Improved general ventilation. PPE.

RMM to be implemented: Provide extract ventilation in points where emissions occur [E54].

Risk characteristics

RCR Inhalation: 0.49 TRA LEV: 90% efficiency

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.05.

RCR (all ways): 0.49

Identifier: ES14 PROC7

Operating Conditions and Risk Management Measures

Contributing scenario: Machine spraying.

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Production line included or ventilated. Automation.

RMM to be implemented: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60].

Risk characteristics

RCR Inhalation: 0.25 TRA LEV: 95% efficiency.

Dermal RCR: 0.01 TRA dermal exposure LEV reduction factor 0.05.

RCR (all ways): 0.25

Identifier: ES14 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Manual application by roller or brush [CS13].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. PPE.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.07

RCR (all ways): 0.37

Identifier: ES14 PROC7

Operating Conditions and Risk Management Measures

Contributing scenario: Manual spraying

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. PPE, mask.

RMM to be implemented: Carry out in a vented booth or extracted enclosure [E57].

Risk characteristics

RCR Inhalation: 0.05 TRA LEV: 99% efficiency.

Dermal RCR: 0.11

RCR (all ways): 0.16

Identifier: ES14 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES14 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. With occasional controlled exposure [CS137]

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES16 PROC15

Operating Conditions and Risk Management Measures

Contributing scenario: Laboratory [CS36]. On a small scale [CS61]. Handling of small amounts (<1000ml) for more than 4 hours/day - under hood.

OC and typical RMMs: Continuous; Daily; >4 hours; Room temp. Hood or ventilated glove box Selected disposable gloves.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.20

Identifier: ES16 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning [CS47]. Application by roller, brush [CS51]. Cleaning of containers and vessels [CS103]. Cleaning of equipment, glass etc. under general ventilation for 15 min - 1 hour/day.

OC and typical RMMs: Continuous; Daily; 15min - 1 hour/day; Room temp. Controlled general ventilation (10 air changes per hour). Selected disposable gloves.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.07

RCR (all ways): 0.37

Identifier: ES18 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk transfer [CS14]

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES18 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14]. Product sampling [CS137].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES18 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14]. Batch process [CS55].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES18 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk transfer [CS14]

OC and typical RMMs: Daily; 15min - 1 hour; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES18 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Kegs/Batch Transfers [CS8]. Dedicated system [CS81].

OC and typical RMMs: Continuous; Daily; 15min - 1 hour; Room temp. Pumping from drums to tanks.

RMM to be implemented: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60].

Risk characteristics

RCR Inhalation: 0.03 TRA LEV: 97% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.03

Identifier: ES18 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Pelletizing [CS53]. (closed systems) [CS107].

OC and typical RMMs: Daily; >4 hours; Room temp. Operations included. Size of openings minimized.

RMM to be implemented: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60].

Risk characteristics

RCR Inhalation: 0.10 TRA LEV: 90% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.10

Identifier: ES18 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Filling of equipment from drums or containers [CS45].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Pour carefully. Worker training.

RMM to be implemented: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60].

Risk characteristics

RCR Inhalation: 0.10 TRA LEV: 90% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.10

Identifier: ES18 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Daily; >4 hours; Room temp.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.209

Identifier: ES18 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16].

OC and typical RMMs: Daily; >4 hours; Room temp. Ventilated area.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES18 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16].

OC and typical RMMs: Daily; >4 hours. (product at 80°C)

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES18 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Rework rejected items [CS19].

OC and typical RMMs: Daily; >4 hours; Room temp. Working methods. Empty before the activity. Keep spills.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.20 Additional exposure modifier: 0.2. Discharging SOPs are equal to an 80% reduction in LEVs (x0.2).

Dermal RCR: 0.02

RCR (all ways): 0.21

Identifier: ES18 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Equipment Maintenance [CS5].

OC and typical RMMs: Daily; 1 - 4 hours; Product temp. environment. Working methods. Empty before the activity. Keep spills. Gloves.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.20 Additional exposure modifier: 0.2. Discharging SOPs are equal to an 80% reduction in LEVs (x0.2).

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES18 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67].

OC and typical RMMs: Daily; 8 hours; Product temp. environment. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES18 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES20 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES20 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Product sampling [CS137].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES20 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Dedicated system [CS81].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. General ventilation. Minimize spills.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES20 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk weighing [CS91].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Activity included.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES20 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk weighing [CS91]. Product sampling [CS137].
OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Activity included.
RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20
Dermal RCR: 0.00
RCR (all ways): 0.20

Identifier: ES20 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Small Scale Weighing [CS90].
OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. LEV. Minimize spills. Operator training.
RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.
Dermal RCR: 0.02
RCR (all ways): 0.70

Identifier: ES20 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Additive premixes [CS92].
OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. LEV. Minimize spills.
RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49
Dermal RCR: 0.00
RCR (all ways): 0.49

Identifier: ES20 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Additive premixes [CS92].
OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. LEV. Minimize spills.
RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.39
Dermal RCR: 0.02
RCR (all ways): 0.41

Identifier: ES20 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Dedicated system [CS81].
OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Activity included.
RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.
Dermal RCR: 0.02
RCR (all ways): 0.70

Identifier: ES20 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3].
OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Activity included.
RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.
Dermal RCR: 0.02
RCR (all ways): 0.72

Identifier: ES20 PROC5

Operating Conditions and Risk Management Measures

Contributing scenario: Additive premixes [CS92]. Batch process [CS55].
OC and typical RMMs: Daily; 1 - 4 hours; Room temp. LEV. Minimize spills.
RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.
Dermal RCR: 0.04
RCR (all ways): 0.72

Identifier: ES20 PROC6

Operating Conditions and Risk Management Measures

Contributing scenario: Calendering (including Banburys) [CS64].

OC and typical RMMs: Daily; >4 hours; High temperatures. LEV. Minimize area/size of openings.

RMM to be implemented: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60].

Risk characteristics

RCR Inhalation: 0.49 TRA LEV: 90% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.05.

RCR (all ways): 0.49

Identifier: ES20 PROC6

Operating Conditions and Risk Management Measures

Contributing scenario: Calendering (including Banburys) [CS64].

OC and typical RMMs: Daily; >4 hours. High temperatures. LEV. Minimize area/size of openings.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.07

RCR (all ways): 0.76

Identifier: ES20 PROC14

Operating Conditions and Risk Management Measures

Contributing scenario: Pressing uncured rubber blanks [CS73].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Good general ventilation

RMM to be implemented: Provide a good standard of general ventilation (not less than 10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.01

RCR (all ways): 0.30

Identifier: ES20 PROC6

Operating Conditions and Risk Management Measures

Contributing scenario: Vulcanization [CS70].

OC and typical RMMs: Daily; > 4 hours. High temperatures. LEV at the points of issue. Minimize area/size of openings. Good general ventilation.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.07

RCR (all ways): 0.66

Identifier: ES20 PROC6

Operating Conditions and Risk Management Measures

Contributing scenario: Cooling cured articles [CS71].

OC and typical RMMs: Daily; > 4 hours; Room temp. LEV. Aspiration / hood.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.07

RCR (all ways): 0.76

Identifier: ES20 PROC15

Operating Conditions and Risk Management Measures

Contributing scenario: Laboratory activity [CS36]

OC and typical RMMs: Daily; >15 mins; Room temp. Localized aspiration at the filling point. PPE.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES20 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Equipment Maintenance [CS5].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Collection of line waste in containers. Lines included. Retain washes in sealed storage pending disposal or use as a recycled material in subsequent formulations. PPE.

RMM to be implemented: Drain or remove substance from equipment prior to break-in or maintenance [E81]

Risk characteristics

RCR Inhalation: 0.10 Additional exposure modifier: 0.1. Ninety percent LEV efficiency is assumed equivalent to the SOPs for drainage etc. before maintenance (0.1).

Dermal RCR: 0.04

RCR (all ways): 0.13

Identifier: ES21 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Processes closed.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES21 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. With sample collection [CS56]. Product sampling [CS137].

OC and typical RMMs: Continuous; Daily; 15 mins - 1 hour. Process included. Closed/semi-closed sampling point.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES21 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. Use in contained batch processes [CS37].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Batch process. Equipment closed. Sample point enclosed or vented.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES21 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. With potential for aerosol generation [CS138].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Inside. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES21 PROC5

Operating Conditions and Risk Management Measures

Contributing scenario: Batch processes at elevated temperatures [CS136].

OC and typical RMMs: Daily; 15 mins - 1 hour. High product temp. Equipment closed. Sample point enclosed or vented.

RMM to be implemented: Ensure material transfers are under containment or extract ventilation [E66]. Provide extract ventilation in points where emissions occur [E54].

Risk characteristics

RCR Inhalation: 0.20 TRA LEV: 90% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.20

Identifier: ES21 PROC6

Operating Conditions and Risk Management Measures

Contributing scenario: In-Process Sampling [CS2].

OC and typical RMMs: Daily; <15 mins; Product temp. Closed or ventilated sample points.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES21 PROC15

Operating Conditions and Risk Management Measures

Contributing scenario: Laboratory activity [CS36].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Inside. Hood. PPE.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES21 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Collection of line waste in containers. Transfers included. Transfer points with vents. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES21 PROC5

Operating Conditions and Risk Management Measures

Contributing scenario: Mixing operations (open systems) [CS30]. With potential for aerosol generation [CS138].

OC and typical RMMs: Daily; 8 hours; Product at temp. environment. Inside. Batch process. LEV, PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES21 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Transfer from / pour from containers [CS22]. manual [CS34].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Inside. Manual transfers. LEV, PPE, RPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES21 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Kegs/Batch Transfers [CS8].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Inside. Pumps for drums or dedicated drum handling equipment.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES21 PROC14

Operating Conditions and Risk Management Measures

Contributing scenario: Production of preparations or articles by tableting, compression, extrusion, pelettisation [CS100].

OC and typical RMMs: Daily; 8 hours; Product at temp. environment. Inside. LEV, PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.01

RCR (all ways): 0.70

Identifier: ES21 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Drum and small package filling [CS6].

OC and typical RMMs: Continuous; Daily; 8 hours; Product at temp. environment. Inside. Transfers included. Transfer points with vents.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES21 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; 1 - 4 hours; Product at temp. environment. Inside. Collection of line waste in containers. Lines included. Retain drain downs in sealed storage pending disposal, use as a recycled material in subsequent formulations, or recycle. PPE.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance. [E55]

Risk characteristics

RCR Inhalation: 0.10 Additional exposure modifier: 0.1. Assumes LEV efficiency equivalent to SOP for drainage etc. before maintenance. RPE (0.1x).

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.10

Identifier: ES21 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67] With occasional controlled exposure [CS137]

OC and typical RMMs: Daily; <15 mins; Product at temp. environment. Samples collected at dedicated sample points.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

3 - PROFESSIONAL USES

Identified professional uses of Toluene and generic exposure scenario.

Table 4 lists the professional uses identified for toluene.

If DUs wish to verify compliance with the ES, they should start with summary table 4 and, based on the textual description of the exposure scenarios, determine their own identified use, the PROC and the ERC associated with their specific activity.

DU can identify the specific scenarios of their interest in section 3.2.1 for the environment, for workers 3.2.2 and 3.2.3 for the consumer, check in section 3.3 the exposure and risk characterization for the environment and for the workers. The operating conditions described in each specific scenario do not necessarily apply to all sites. It may therefore be necessary to apply the graduated scaling method (appropriate adaptation to the actual conditions on site), in order to identify compliance with the conditions described in the exposure scenarios.

Table 1. Contributing occupational exposure scenarios identified for toluene

Identifier use: ES4 Use in roads and construction

Description: Application of surface coatings and binders in road and construction activities, including paving, manual road surfacing and in the application of roofing and water-proofing membranes.

Sector of use (SU): 22

Process categories (PROC): 1, 2, 8a, 8b, 9, 10, 11, 13

Environmental Release Categories (ERC): 8d, 8f

Identifier use: ES6 Use in cleaning agents

Description: Covers the use as a component of cleaning products including transfer and unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase of cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand).

Sector of use (SU): 22

Process categories (PROC): 1, 2, 3, 4, 8a, 8b, 10, 11, 13

Environmental Release Categories (ERC): 8a, 8d

Identifier use: ES8 Use as fuel

Description: Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Sector of use (SU): 22

Process categories (PROC): 1, 2, 3, 4, 8a, 8b, 16

Environmental Release Categories (ERC): 9a, 9b

Identifier use: ES11 Use in coatings

Description: Covers the use in coatings (paints, inks, adhesives, etc.), including exposures during use (including materials receipt, storage, preparation and bulk and semi-bulk transfer, application by spray, roller, spreader and similar methods and film formation) and equipment cleaning, maintenance and associated laboratory activities.

Sector of use (SU): 22

Process categories (PROC): 1, 2, 3, 4, 5, 8a, 8b, 10, 11, 13, 15, 19

Environmental Release Categories (ERC): 8a, 8d

Identifier use: ES15 Use in binding and release agents

Description: Covers the use as binders and release agents, including material transfers, mixing, application by spraying and brushing and handling of waste.

Sector of use (SU): 22

Process categories (PROC): 1, 2, 3, 4, 6, 8a, 8b, 10, 11, 14

Environmental Release Categories (ERC): 8a, 8b, 8c, 8d, 8e, 8f

Identifier use: ES17 Use as laboratory reagent

Description: Use of the substance within laboratory settings, including material transfers and equipment cleaning.

Sector of use (SU): 22

Process categories (PROC): 10, 15

Environmental Release Categories (ERC): 8a

Identifier use: ES19 Use in functional fluids

Description: Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment, including maintenance and related material transfers.

Sector of use (SU): 22

Process categories (PROC): 1, 2, 3, 8a, 9, 20

Environmental Release Categories (ERC): 9a, 9b

3.1 PROFESSIONAL USE OF TOLUENE AND PRODUCTS CONTAINING TOLUENE

Title: Professional uses of toluene and products containing toluene

Sectors of use: Professional (SU22)

Process categories: 1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 11, 13, 14, 15, 19, 20

Environmental Release Categories: 8a, 8b, 8c, 8d, 8e, 8f, 9a, 9b

Scope of the process: Professional processes relevant to toluene and toluene-containing products

3.2 OPERATING CONDITIONS AND RISK MANAGEMENT MEASURES

3.2.1. Contributing scenario controlling exposure for the environment

Method used for evaluation: EUSES 2.1.1 with use of predefined ESVOc SpERC release fractions (see Table 5 for the specific versions of each scenario).

Operating conditions

Product features: Toluene is a liquid of medium volatility. The water solubility of this category is 573 mg/l; the vapour pressure is 4030 Pa at 20°C; the log K_{ow} is 2.73. Toluene is readily biodegradable.

Frequency and duration of use: Issue days: 365 days/year

Quantity used: See table 5.

Environmental factors not influenced by risk management: See table 5.

Other given operational conditions affecting environmental exposure: See table 5.

Risk Management Measures

Local technical conditions and measures to reduce and limit discharges, air emissions and soil release:

Treat air emission to provide a typical removal efficiency of >0% [TCR7]. Typical onsite wastewater treatment technology provides removal efficiency of 93.3% [TCR11]. ES6, ES8, ES17, ES19: Soil emission controls are not applicable as there is no direct release to soil [TCR4].

Organizational measures to prevent/limit release from site:

ES4, ES6, ES8, ES11, ES17, ES19: Do not apply industrial sludge to natural soils [OMS2].

ES15: Not applicable.

Conditions and measures for the domestic sewage treatment plan:

Estimated substance removal from wastewater via municipal sewage treatment 93.3 (%) [STP3].

Assumed domestic sewage treatment plant flow 2000 (m³/g) [STP5].

Conditions and measures for external treatment of waste for disposal:

ES4, ES6, ES11, ES15, ES17, ES19: External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].

ES8: This substance is consumed during use and no waste of the substance is generated [ETW5].

Conditions and measures for external recovery of waste:

ES4, ES6, ES11, ES15, ES17, ES19: External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].

ES8: This substance is consumed during use and no waste of the substance is generated [EWR3].

3.2.2 Contributing scenario controlling exposure for workers

Product features: Liquid, vapour pressure 0.5 - 10 kPa [OC4].

Concentration of the substance in the product: Covers a percentage substance in the product up to 100% (unless otherwise stated) [G13].

Frequency and duration of use/exposure: Covers a daily exposure up to 8 hours (unless otherwise specified) [G2].

Human factors not influenced by risk management: Not applicable.

Other given operating conditions affecting employee exposure:

Assumes use of the product at not more than 20°C above ambient temperature, unless otherwise specified [G15].

Assumes a good basic standard of occupational hygiene has been implemented [G1].

Users are advised to consider national Occupational Exposure Limits or other equivalent values [G38].

Operational conditions and risk management measures affecting worker exposure

General measures (skin irritants) (G19):

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear suitable gloves (tested to EN374) if hand contact with substance is likely. Remove impurities/product spills as they occur. Immediately remove any contamination with skin. Provide basic staff training so that exposure is minimised and any skin problems are reported (E3).

In addition (where there is potential for further significant aerosol exposure): Other skin protection measures, such as impermeable overalls and visors, will be necessary during activities involving high dispersion with the possible release of aerosols.

General measures for assessing the inhalation risk - qualitative assessment:

Do not swallow. Implement a good basic standard of occupational hygiene. Avoid contact with contaminated tools and objects. Management/supervision in place to check that the RMMs implemented are being used correctly and OCs followed. Staff training on good practices. Adequate standard of personal hygiene.

For the operational conditions and risk management measures for each scenario, see Table 6.

3.2.3 Contributing scenario controlling consumer exposure

There is no consumer exposure for this scenario.

3.3 EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.3.1 Contributing scenario for estimating environmental exposure

Tool used for evaluation: EUSES 2.1.1 with use of predefined ESVOc SpERC release fractions (see Table 5 for the specific versions of each scenario).

When complying with the recommended risk management measures (RMMs) and operating conditions (OCs), exposure is not expected to exceed the PNECs and the risk characterisation ratios should be less than 1, as shown in Table 5.

3.3.2 Contributing scenario for estimating worker exposure

Tool used for evaluation ECETOC TRA v2 (www.ecetoc.org/tra)

General parameters used:

Environment type: professional

Dustiness: low (liquid substance)

Duration of exposure: > 4 hours/day, unless otherwise stated in the RMMs

Ventilation use: none, unless otherwise stated in the RMMs

Use of respiratory protection: none, unless otherwise stated in the RMMs

Use of skin protection: none, unless otherwise stated in the RMMs

Concentration in preparations: > 25%

When complying with the recommended risk management measures (RMMs) and operating conditions (OCs), exposure is not expected to exceed the DNELs and the risk characterisation ratios should be less than 1, as shown in table 6.

3.3.3 Contributing scenario for estimating consumer exposure

There is no consumer exposure for this scenario.

3.4. GUIDELINES FOR THE DU TO VERIFY COMPLIANCE WITH THE EXPOSURE SCENARIO

3.4.1 Guidelines for DU to verify compliance with the environmental exposure scenario

Confirm that the RMMs and OCs are as described or have equivalent efficiency.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1].

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2].

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination [DSU3].

Further details on scaling and control technologies are provided in SPERC factsheet.

3.4.2 Guidelines for DU to verify compliance with the contributing scenario for worker exposure estimation

Predicted exposures are not expected to exceed the DNEL when the RMMs and OCs outlined in Table 3 are implemented (G22).

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Risk characterisation ratios (RCRs) are calculated by comparing the estimated exposure levels with the corresponding DNELs (RCR = exposure level/DNEL).

Table 2.

identifiers			Operating Conditions and Risk Management Measures						Risk characterization					
		Quantity used	Dilution factors		RMM to be implemented									
	ERC/ SpERC	Tonnage per site t/ year	Fresh water	Sea water	Water treatment efficiency %	Air abatement efficiency %	Waste treatment total removal %	Domestic wastewater treatment flow m³/d	RCR fresh water	RCR marine water	RCR freshwater sediments	RCR marine water sediments	RCR soil	RCR STP extension
ES4	ESVOC SpERC 8.15.v1	6	10	100	>93.3%	>0%	93.3%	2000	2.86E-03	2.59E-04	2.86E-03	2.59E-04	1.33E-03	3.94E-04
ES6	ESVOC SpERC 8.4b.v1	3	10	100	>93.3%	>0%	93.3%	2000	2.07E-03	1.80E-04	2.07E-03	1.80E-04	6.42E-05	1.97E-06
ES8	ESVOC SpERC 9.12b.v1	30	10	100	>93.3%	>0%	93.3%	2000	2.07E-03	1.80E-04	2.07E-03	1.80E-04	6.36E-05	1.97E-06
ES11	ESVOC SpERC 8.3b.v1	30	10	100	>93.3%	>0%	93.3%	2000	6.01E-03	5.74E-04	6.01E-03	5.74E-04	6.45E-03	1.97E-03
ES15	ESVOC SpERC 8.10b.v1	3	10	100	>93.3%	>0%	93.3%	2000	3.05E-03	2.78E-04	3.05E-03	2.78E-04	1.57E-03	4.92E-04
ES17	ESVOC SpERC 8.17.v1	3	10	100	>93.3%	>0%	93.3%	2000	2.18E-02	2.15E-03	2.18E-02	2.15E-03	2.93E-02	9.85E-03
ES19	ESVOC SpERC 9.13b.v1	3	10	100	>93.3%	>0%	93.3%	2000	3.05E-03	2.78E-04	3.05E-03	2.78E-04	1.52E-03	4.92E-04

Table 6. OC, RMM, Risk Characterization - Workers - Professional use.

Identifier: ES4 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Kegs/Batch Transfers [CS8]. Non-dedicated facility [CS82].

OC and typical RMMs: Daily; > 4 hours; Product at temp. environment. Product transfer - non-dedicated systems.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.00

RCR (all ways): 0.59

Identifier: ES4 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Kegs/Batch Transfers [CS8]. Dedicated system [CS81].

OC and typical RMMs: Daily; > 4 hours. High product temperature. Product transfer - dedicated systems.

RMM to be implemented: Ensure material transfers are under containment or extract ventilation [E66].

Risk characteristics

RCR Inhalation: 0.49 TRA LEV: 90% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.49

Identifier: ES4 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Manual application by roller or brush [CS13].

OC and typical RMMs: Daily; >4 hours; Product at temp. environment. Outside.

RMM to be implemented: Make sure the operation is performed outdoors [E69].

Risk characteristics

RCR Inhalation: 0.14 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.07

RCR (all ways): 0.21

Identifier: ES4 PROC11

Operating Conditions and Risk Management Measures

Contributing scenario: Spraying, machine mist application [CS25].

OC and typical RMMs: Daily; > 4 hours; Product at temp. environment. Outside. Mixed at 50% with diesel. Enclosed equipment, operator far from spraying point. PPE.

RMM to be implemented: Make sure the operation is performed outdoors [E69]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.14 TRA LEV: 80% efficiency. Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.01 TRA dermal exposure LEV reduction factor 0.02.

RCR (all ways): 0.14

Identifier: ES4 PROC13

Operating Conditions and Risk Management Measures

Contributing scenario: Immersion, dipping and pouring [CS4].

OC and typical RMMs: Daily; > 4 hours; Product at temp. environment. Outside.

RMM to be implemented: Make sure the operation is performed outdoors [E69].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.04

RCR (all ways): 0.62

Identifier: ES4 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Collection of line waste in sealed containers pending disposal. PPE.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40]. Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENV4].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.04

RCR (all ways): 0.62

Identifier: ES4 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES4 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; 8 hours; Product temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.39

Identifier: ES6 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Filling of equipment from drums or containers [CS45]. Dedicated system [CS81].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. (<10%) Manual transfer from small packs to equipment for application.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.02

RCR (all ways): 0.31

Identifier: ES6 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Automated process with (semi) closed systems [CS93]. Use in contained systems [CS38].

OC and typical RMMs: Daily; 8 hours. Process included; closed.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.40

Identifier: ES6 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Automated process with (semi) closed systems [CS93]. Use in contained systems [CS38]. Kegs/Batch Transfers [CS8].

OC and typical RMMs: Daily; 15 mins - 1 hour. Process included; closed.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES6 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Semi-automated process. (e.g.: semi-automatic application of floor care and maintenance products) [CS76].

OC and typical RMMs: Daily; 8 hours. Semi-included process; closed.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES6 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Filling of equipment from drums or containers [CS45]. Outdoor [OC9].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Outside. Manual transfer from small packs to equipment for application.

RMM to be implemented: Make sure the operation is performed outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].

Risk characteristics

RCR Inhalation: 0.82 Ventilation dilution effectiveness 30%. TRA duration factor 1-4 hours.

Dermal RCR: 0.04

RCR (all ways): 0.86

Identifier: ES6 PROC13

Operating Conditions and Risk Management Measures

Contributing scenario: Manual cleaning of surfaces. Immersion, dipping and pouring [CS4].

OC and typical RMMs: Daily; >4 hours; Room temp. No local aspiration on open surfaces; eliminate leaks as soon as they occur. PPE.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.04

RCR (all ways): 0.62

Identifier: ES6 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning with low-pressure washers [CS42]. Application by roller, brush [CS51]. No spraying [CS60].

OC and typical RMMs: Daily; >4 hours; Room temp. Blends at 5% max. Specific training of workers. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.14 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.07

RCR (all ways): 0.21

Identifier: ES6 PROC11

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning with high pressure washers [CS44]. Spray application [CS10]. Indoor [OC8].

OC and typical RMMs: Daily; 8 hours; Room temp. Inside. Blends at 0.5% max. Specific training of workers. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.28

RCR (all ways): 0.97

Identifier: ES6 PROC11

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning with high pressure washers [CS44]. Spray application [CS10]. Outdoor [OC9].

OC and typical RMMs: Continuous; Daily; 8 hours; Room temp. Outside. Blends at 0.5% max. Specific training of workers. PPE.

RMM to be implemented: Make sure the operation is performed outdoors [E69]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.28

RCR (all ways): 0.97

Identifier: ES6 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Manual cleaning of surfaces. Spraying [CS10].

OC and typical RMMs: Daily; >4 hours; Room temp. Blends at 10% max. Waste is washed together with the wastewater, keep cleaning cloths in a container.

RMM to be implemented: Provide a basic standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan [E1]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.14 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.07

RCR (all ways): 0.21

Identifier: ES6 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Ad-hoc manual application via trigger sprays, dipping, etc. [CS27]. Application by roller, brush [CS51].

OC and typical RMMs: Daily; >4 hours; Room temp. In a workshop (with LEV). Waste is washed together with the wastewater, keep cleaning cloths in a container.

RMM to be implemented: Provide extract ventilation in points where emissions occur [E54].

Risk characteristics

RCR Inhalation: 0.39. TRA LEV: 80% efficiency.

Dermal RCR: 0.00 TRA dermal exposure. LEV reduction factor 0.05.

RCR (all ways): 0.40

Identifier: ES6 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Ad-hoc manual application via trigger sprays, dipping, etc. [CS27]. Application by roller, brush [CS51].

OC and typical RMMs: Daily; <1 hour; Room temp. Occasional use. Waste is washed together with the wastewater, keep cleaning cloths in a container.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.14 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.07

RCR (all ways): 0.21

Identifier: ES6 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Application of cleaning products in closed systems [CS101]. Outdoor [OC9].

OC and typical RMMs: Daily; 8 hours. Process included. closed/semi-closed.

RMM to be implemented: Make sure the operation is performed outdoors [E69].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES6 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning of medical devices [CS74].

OC and typical RMMs: Daily; 8 hours; Room temp. Process included. closed/semi-closed.

RMM to be implemented: Provide extract ventilation in points where emissions occur [E54].

Risk characteristics

RCR Inhalation: 0.20 TRA LEV: 80% efficiency.

Dermal RCR: 0.00 TRA dermal exposure. LEV reduction factor 0.1.

RCR (all ways): 0.20

Identifier: ES6 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Collection of line waste in containers. Indoor/Outdoor. Lines included. Retain drain downs in sealed storage pending disposal, use as a recycled material in subsequent formulations, or recycle. PPE.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2. Assumes LEV efficiency equivalent to SOP for drainage etc. before maintenance. Additional LEV 80%.

Dermal RCR: 0.04.

RCR (all ways): 0.43

Identifier: ES6 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; <15 mins; Product temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.40

Identifier: ES8 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.02

RCR (all ways): 0.31

Identifier: ES8 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Kegs/Batch Transfers [CS8].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Pumping from drums to equipment.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.01

RCR (all ways): 0.70

Identifier: ES8 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Immersion, dipping and pouring [CS4].

OC and typical RMMs: Daily; >4 hours. At 100%. Pumping to the vehicle.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.01

RCR (all ways): 0.70

Identifier: ES8 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Daily; >4 hours. Equipment closed.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES8 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: (closed systems) [CS15]. Product sampling [CS137].

OC and typical RMMs: Daily; > 4 hours. Equipment closed.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.39

Identifier: ES8 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16]. (closed systems) [CS107]. Batch process [CS55].

OC and typical RMMs: Daily; >4 hours. Blends up to 100%. Mixers included or vented.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES8 PROC16

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16]. (closed systems) [CS107].

OC and typical RMMs: Daily; >4 hours. At 100%. Equipment included.

RMM to be implemented: Handle substance within a closed system [E47]. No other specific measures identified [E120].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES8 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; >4 hours. At 100%. PPE. Operator training.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E55].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2. Eighty percent LEV efficiency is assumed equivalent to the SOPs for drainage etc. before maintenance (x0.2).

Dermal RCR: 0.04

RCR (all ways): 0.43

Identifier: ES8 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning of containers and vessels [CS103].

OC and typical RMMs: Daily; >4 hours. At 100%. Procedures for entry into containers. Retain washes in sealed storage pending disposal. PPE.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2 Eighty percent LEV efficiency is assumed equivalent to the SOPs for drainage etc. before maintenance.

Additional LEV 80% (x0.2).

Dermal RCR: 0.04

RCR (all ways): 0.43

Identifier: ES8 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: Store substance in a closed system [E84].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES11 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Continuous; Daily; 8 hours. Closed.

RMM to be implemented: No specific provision identified [E18]

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES11 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Filling of equipment from drums or containers [CS45].

OC and typical RMMs: Continuous. Closed.

RMM to be implemented: No specific provision identified [E18]

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.40

Identifier: ES11 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. Use in contained systems [CS38].

OC and typical RMMs: Continuous; Daily; 8 hours. Process included. Closed/semi-closed sampling point.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.40

Identifier: ES11 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Preparation of material for application [CS96].

OC and typical RMMs: Continuous. Closed.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES11 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Film formation - air drying [CS95]. Outdoor [OC9].

OC and typical RMMs: Outdoor

RMM to be implemented: Make sure the operation is performed outdoors [E69].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES11 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Film formation - air drying [CS95]. Indoor [OC8].

OC and typical RMMs: Daily; >4 hours; Product at temp. environment. Inside. Good general ventilation (equivalent to outdoor activity) with added LEV.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.02

RCR (all ways): 0.31

Identifier: ES11 PROC5

Operating Conditions and Risk Management Measures

Contributing scenario: Preparation of material for application [CS96]. Indoor [OC8].

OC and typical RMMs: Discontinuous Inside. Wit/without LEV.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.04

RCR (all ways): 0.62

Identifier: ES11 PROC5

Operating Conditions and Risk Management Measures

Contributing scenario: Preparation of material for application [CS96]. Outdoor [OC9].

OC and typical RMMs: Outside.

RMM to be implemented: Make sure the operation is performed outdoors [E69].

Risk characteristics

RCR Inhalation: 0.82 Ventilation dilution effectiveness 30%. TRA duration factor 1-4 hours.

Dermal RCR: 0.04

RCR (all ways): 0.86

Identifier: ES11 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Kegs/Batch Transfers [CS8].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Inside. Outside. Pumping from drums to equipment. With and without LEV.

RMM to be implemented: Use drum pumps or carefully pour from container [E64].

Risk characteristics

RCR Inhalation: 0.39 TRA LEV: 80% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.40

Identifier: ES11 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Drum/Batch Transfers [CS8].

OC and typical RMMs: Daily; 15 min - 1 hour; Product at temp. environment. Inside. Pumping from drums to equipment. With LEV.

RMM to be implemented: Use drum pumps or carefully pour from container [E64].

Risk characteristics

RCR Inhalation: 0.20 TRA LEV: 80% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.20

Identifier: ES11 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Application by roller, spatula, flux [CS98]. Indoor [OC8].

OC and typical RMMs: Inside.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.07

RCR (all ways): 0.66

Identifier: ES11 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Application by roller, spatula, flux [CS98]. Outdoor. [OC9].

OC and typical RMMs: Outside. PPE.

RMM to be implemented: Make sure the operation is performed outdoors [E69].

Risk characteristics

RCR Inhalation: 0.14 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.07

RCR (all ways): 0.21

Identifier: ES11 PROC11

Operating Conditions and Risk Management Measures

Contributing scenario: Manual [CS34]. Spray application [CS10]. Indoor [OC8].

OC and typical RMMs: Daily; >4 hours; Environment. Inside. Spray booth with vents Specific training of operators. PPE.

RMM to be implemented: Carry out in a vented booth or extracted enclosure [E57].

Risk characteristics

RCR Inhalation: 0.98 TRA LEV: 90% efficiency.

Dermal RCR: 0.01 TRA dermal exposure LEV reduction factor 0.02.

RCR (all ways): 0.99

Identifier: ES11 PROC11

Operating Conditions and Risk Management Measures

Contributing scenario: Manual [CS34]. Spray application [CS10]. Outdoor. [OC9].

OC and typical RMMs: Outside. 4 hours. PPE.

RMM to be implemented: Make sure the operation is performed outdoors [E69]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.28

RCR (all ways): 0.97

Identifier: ES11 PROC13

Operating Conditions and Risk Management Measures

Contributing scenario: Immersion, dipping and pouring [CS4]. Indoor [OC8].

OC and typical RMMs: Daily; >4 hours; Environment. Local aspiration on open surfaces. Eliminate leaks as they occur. PPE.

RMM to be implemented: Provide extract ventilation in points where emissions occur [E54].

Risk characteristics

RCR Inhalation: 0.39 TRA LEV: 80% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.05.

RCR (all ways): 0.39

Identifier: ES11 PROC13

Operating Conditions and Risk Management Measures

Contributing scenario: Immersion, dipping and pouring [CS4]. Outdoor [OC9].

OC and typical RMMs: Daily; >4 hours; Environment. Outside. PPE.

RMM to be implemented: Make sure the operation is performed outdoors [E69]. Wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.14 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.04

RCR (all ways): 0.17

Identifier: ES11 PROC15

Operating Conditions and Risk Management Measures

Contributing scenario: Laboratory activity [CS36].

OC and typical RMMs: Daily; >4 hours; Environment.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES11 PROC19

Operating Conditions and Risk Management Measures

Contributing scenario: Hand application - finger paints, pastels, adhesives [CS72]. Indoor [OC8].

OC and typical RMMs: Daily; >4 hours. Environment. Inside.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40]. Make sure doors and windows are open [E72].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.37

RCR (all ways): 0.96

Identifier: ES11 PROC19

Operating Conditions and Risk Management Measures

Contributing scenario: Hand application - finger paints, pastels, adhesives [CS72]. Outdoor [OC9].

OC and typical RMMs: 15 min. Environment. Outside. PPE.

RMM to be implemented: Make sure the operation is performed outdoors [E69]. Wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.14 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.37

RCR (all ways): 0.51

Identifier: ES11 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Collection of line waste in containers. Indoor/Outdoor. Lines included. Retain washes in sealed storage pending disposal or use as a recycled material in subsequent formulations. PPE.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2. Eighty percent LEV efficiency is assumed equivalent to the SOPs for drainage etc. before maintenance. Additional LEV 80%.

Dermal RCR: 0.04

RCR (all ways): 0.43

Identifier: ES11 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; <15 mins; Product at temp. environment. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.40

Identifier: ES15 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. (closed systems) [CS107].

OC and typical RMMs: Daily; 1 - 4 hours; Ambient temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES15 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. (closed systems) [CS107]. Product sampling [CS137].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.40

Identifier: ES15 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. (closed systems) [CS107]. Batch process [CS55].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES15 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Drum/batch transfers [CS8]

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Pumping from drums to equipment.

RMM to be implemented: Transfer materials directly to mixing vessels [E45].

Risk characteristics

RCR Inhalation: 0.59 Additional exposure modifier: 0.6. Direct transfers assume to provide a reduction of 0.6x.

Dermal RCR: 0.02

RCR (all ways): 0.61

Identifier: ES15 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Mixing operations (closed systems) [CS29].

OC and typical RMMs: Daily; > 4 hours. Mixers included or vented.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES15 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Mixing operations (open systems) [CS30].

OC and typical RMMs: Daily; > 4 hours.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES15 PROC14

Operating Conditions and Risk Management Measures

Contributing scenario: Stamping forming [CS31].

OC and typical RMMs: Daily; >4 hours; Room temp. PPE.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.01

RCR (all ways): 0.60

Identifier: ES15 PROC6

Operating Conditions and Risk Management Measures

Contributing scenario: Casting operations [CS32]. (open systems) [CS108].

OC and typical RMMs: Daily; 1 - 4 hours. Temp. high enough to create fumes. Improved general ventilation. PPE.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.07

RCR (all ways): 0.66

Identifier: ES15 PROC11

Operating Conditions and Risk Management Measures

Contributing scenario: Manual [CS34]. Spray application [CS10].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Ventilated environment.

RMM to be implemented: Carry out in a vented booth or extracted enclosure [E57]. Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%. TRA LEV: 80% efficiency.

Dermal RCR: 0.01 TRA dermal exposure LEV reduction factor 0.02.

RCR (all ways): 0.59

Identifier: ES15 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Manual application by roller or brush [CS13].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. PPE.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.07

RCR (all ways): 0.66

Identifier: ES15 PROC11

Operating Conditions and Risk Management Measures

Contributing scenario: Manual [CS34]. Spray application [CS10].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. PPE. Facial mask.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.28

RCR (all ways): 0.97

Identifier: ES15 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES15 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.39

Identifier: ES17 PROC15

Operating Conditions and Risk Management Measures

Contributing scenario: Laboratory activity [CS36]. On a small scale [CS61]. Handling of small amounts (<1000ml) for more than 4 hours/day - under hood.

OC and typical RMMs: Continuous; Daily; >4 hours; Room temp. Under hood or in ventilated glove box. Use disposable gloves.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.01.

RCR (all ways): 0.20

Identifier: ES17 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning [CS47]. Application by roller, brush [CS51]. Cleaning of containers and vessels [CS103]. Cleaning of equipment, glass etc. under general ventilation for 15 min - 1 hour/day.

OC and typical RMMs: Continuous; Daily; 15 min - 1 hour/day; Room temp. Controlled general ventilation (10 air changes per hour). Use disposable gloves.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.07

RCR (all ways): 0.66

Identifier: ES19 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Drum/Batch Transfers [CS8]. Non-dedicated facility [CS82].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Pumping from drums to equipment.

RMM to be implemented: Use drum pumps or carefully pour from container [E64].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2. Use of drum pumps equals 80% (x0.2).

Dermal RCR: 0.04

RCR (all ways): 0.43

Identifier: ES19 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Transfer from / pour from containers [CS22].

OC and typical RMMs: Daily; >4 hours. Environment. Operations included. Size of openings minimized. LEV at the points of issue.

RMM to be implemented: Use drum pumps or carefully pour from container [E64].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2. Use of drum pumps equals 80% (x0.2).

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES19 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Filling of equipment from drums or containers [CS45].

OC and typical RMMs: Daily; 1 - 4 hours. Environment. Pumping from drums to item/machinery.

RMM to be implemented: Use drum pumps or carefully pour from container [E64].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2. Use of drum pumps equals 80% (x0.2).

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES19 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Daily; > 4 hours. Environment.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES19 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. Product sampling [CS137].

OC and typical RMMs: Daily; > 4 hours. Environment.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.39 Handle substance within a predominantly closed system provided with extract ventilation [E49].

Dermal RCR: 0.00

RCR (all ways): 0.40

Identifier: ES19 PROC20

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16]. At high temperatures (product at 80°C).

OC and typical RMMs: Daily; >4 hours. Environment. (product at 80°C).

RMM to be implemented: Handle substance within a predominantly closed system provided with extract ventilation [E49].

Risk characteristics

RCR Inhalation: 0.20 TRA LEV: 80% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.20

Identifier: ES19 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Remanufacture of reject articles [CS19].

OC and typical RMMs: Daily; 1 - 4 hours. Environment. Working methods. Empty before operation. Keep spills.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2. Drainage SOPs are equivalent to a reduction of 80% (x0.2).

Dermal RCR: 0.00

RCR (all ways): 0.39

Identifier: ES19 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Equipment Maintenance [CS5]. Non-dedicated facility [CS82].

OC and typical RMMs: Daily; 1 -4 hours. Environment. Working methods. Empty before operation. Keep spills. Use gloves.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2. Drainage SOPs are equivalent to a reduction of 80% (x0.2).

Dermal RCR: 0.00

RCR (all ways): 0.39

Identifier: ES19 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES19 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.39

Xylene

Identification of the exposure scenario

Product name: Xylene

Reach registration number: 01-2119488216-32-XXXX

CAS number: 1330-20-7

EC number: 215-535-7

Review date: 14/02/2022 rev. 3.0

USE IN COATINGS - INDUSTRIAL USE

1. Title of the exposure scenario

Process purpose: Includes use in coatings (varnishes, inks, adhesives, etc.), including exposure during application (including material receipt, storage, bulk and semi-bulk preparation and transfer, application by spray, roller, manual spraying, dip, flow, fluid layers in production lines and in film formation) and system cleaning, maintenance and related laboratory activities.

Main sector: SU3 Industrial uses

Environment

Environmental Release Categories [ERC]: ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article).

Specific Environmental Release Category [SPERC]: ESVOC SPERC 4.3a.v1

Worker

Process categories:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC 3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions.

PROC4 Production of chemicals with the possibility of exposure.

PROC5 Mixing or blending in batch processes

PROC7 Industrial spraying.

PROC8a Transfer of a substance or preparation (charging/discharging) at non-dedicated facilities.

PROC8a Transfer of substance or mixture (charging/discharging) at non-dedicated facilities.

PROC10 Application with rollers or brushes.

PROC13 Treatment of articles by dipping and pouring.

PROC15 Use as laboratory reagent.

PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles.

2. Other conditions of use affecting exposure (Industrial - Environment 1)

Products features

Form: Liquid, vapor pressure 0.5 - 10 kPa at STP

Easily biodegradable.

Amounts used:

Annual amount per site: 2500 tonnes

Frequency and duration of use

Issue days: 300 days/year

Additional operating conditions relating to environmental exposure

Emission factor - air

Air release rate produced by the process (initial release prior to risk management measures): 0.98

Emission factor - water

Waste water release rate produced by the process (initial release prior to risk management measures): 0.007

Emission factor - soil

Soil release rate produced by the process (initial release prior to risk management measures): 0

Environmental factors that are not influenced by risk management

Dilution

Local fresh water dilution factor: 10

Local seawater dilution factor: 100

Risk management measures

Sewage Treatment Plant Data (STP)

Estimated substance removal from waste water via domestic sewage treatment: 95.8%

Assumed domestic sewage treatment plant flow: 2000 m³/day

Local technical conditions and measures to reduce and limit discharges and air emissions

Air:

Treat air emission to provide a typical removal efficiency of > 90%.

Water:

Avoid releasing the undiluted substance into local waste water or recover it on site. The typical on-site purification technique has a removal efficiency of 95.8%.

Ground:

Soil emission controls are not applicable as there is no direct release to soil.

Conditions and measures for external treatment of waste

Sludge treatment:

Do not spread industrial sludge on natural soils. Sewerage sludge should be burned, stored or regenerated.

Waste treatment:

No waste of the substance is formed during production.

2. Other conditions of use affecting exposure (Workers - Health 1)

Products features

Form:

Liquid, vapor pressure 0.5 - 10 kPa at STP

Concentration information: Includes concentrations up to 100%, unless otherwise indicated.

Quantities used

Not applicable.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other operational conditions affecting worker exposure

Temperature: (unless stated differently) assumes use at not more than 20°C above ambient temperature.

Ventilation Rate: Ensure a sufficient amount of controlled ventilation (10 to 15 air changes per hour). Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and process-level (source) measures to prevent releases

Technical protective measures:

Handle substance within a closed system. Provide supplementary ventilation to points where emissions occur. Ensure material transfers are managed using closed or air exhaust systems. Drain or remove substance from equipment before opening or servicing PROC7 Industrial spraying: spraying (automatic/robotic) should be carried out in a ventilated booth with laminar air flow.

Risk management measures:

PROC7 Industrial spraying.

Manual spraying.

Wear respiratory protection in accordance with EN 140 with filter type A or better.

3. Verification of exposure (Environment 1)

Environmental exposure:

Predicted exposures are not expected to exceed the specific risks (listed in chapter 8 of the safety datasheet), when the risk management measures/operational conditions outlined in section 2 are implemented.

Maximum allowable site tonnage (M_{safe}), based on release following total waste water treatment removal: 9874 kg/day

3. Exposure Verification (Health 1)

Exposure

Predicted workplace exposures are not expected to exceed the DNEL when risk identification measures are implemented.

4. Guidance to check compliance with the exposure scenario (Environment 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Required removal efficiency for waste water can be achieved using on-site/off-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

4. Guidance to check compliance with the exposure scenario (Health 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

USE IN COATINGS - PROFESSIONAL USE

1. Title of the exposure scenario

Process purpose: Includes use in coatings (varnishes, inks, adhesives, etc.), including exposure during application (including material receipt, storage, bulk and semi-bulk preparation and transfer, application by spray, roller, brush and manual spraying or similar processes and film formation) and system cleaning, maintenance and related laboratory activities.

Main sector: SU22 Professional uses

Environment

Environmental Release Categories [ERC]:

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).

ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).

ERC8c Widespread use leading to inclusion into/onto article (indoor).

ERC8f Widespread use leading to inclusion into/onto article (outdoor).

Specific Environmental Release Category [SPERC]: ESVOC SPERC 8.3b.v1

Worker

Process categories:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC 3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions.

PROC4 Production of chemicals with the possibility of exposure.

PROC5 Mixing or blending in batch processes

PROC8a Transfer of a substance or preparation (charging/discharging) at non-dedicated facilities.

PROC8a Transfer of substance or mixture (charging/discharging) at non-dedicated facilities.

PROC10 Application with rollers or brushes.

PROC11 Non-industrial spray application.

PROC13 Treatment of articles by dipping and pouring.

PROC15 Use as laboratory reagent.

PROC19 Manual activities with direct contact.

PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles.

2. Other conditions of use affecting exposure (Industrial - Environment 1)

Products features

Form: Liquid, vapor pressure 0.5 - 10 kPa at STP Easily biodegradable.

Quantities used

Annual amount per site: 10 tonnes

Frequency and duration of use

Issue days: 365 days/year

Additional operating conditions relating to environmental exposure

Emission factor - air

Air release rate produced by the process (initial release prior to risk management measures): 0.98

Emission factor - water

Waste water release rate produced by the process (initial release prior to risk management measures): 0.01

Emission factor - soil

Soil release rate produced by the process (initial release prior to risk management measures): 0.01

Environmental factors that are not influenced by risk management

Dilution

Local fresh water dilution factor: 10

Local seawater dilution factor: 100

Risk management measures

Sewage Treatment Plant Data (STP)

Estimated substance removal from waste water via domestic sewage treatment 95.8%

Assumed domestic sewage treatment plant flow: 2000 m³/day

Local technical conditions and measures to reduce and limit discharges and air emissions

Air: Treat air emission to provide a typical removal efficiency of 0%.

Water: The typical on-site purification technique has a removal efficiency of 95.8%.

Conditions and measures for external treatment of waste

Waste treatment: External treatment and disposal of waste should comply with applicable local and/or national regulations.

2. Other conditions of use affecting exposure (Workers - Health 1)

Products features

Form:

Liquid, vapor pressure 0.5 - 10 kPa at STP

Concentration information:

Includes concentrations up to 100%, unless otherwise indicated.

Quantities used

Not applicable.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other operational conditions affecting worker exposure

Temperature:

(unless stated differently) assumes use at not more than 20°C above ambient temperature.

Ventilation Rate:

Provide a good standard of controlled ventilation (10 to 15 air changes per hour) or ensure operation is undertaken outdoors.

Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and process-level (source) measures to prevent releases

Technical protective measures:

Handle substance within a closed system. Provide supplementary ventilation to points where emissions occur. Ensure material transfers are managed using closed or air exhaust systems. Clean/flush equipment prior to opening or maintenance. Transport on closed roads. PROC11 Non-industrial spray application. Indoor use. Perform in a laminar flow ventilated booth. PROC15 Use as laboratory reagents handle under fume hood or extract air.

Organizational measures to prevent/limit releases, dispersion and exposure

Organizational measures

Avoid activities with an exposure of more than 4 hours.

Hand Application - Finger Paints, Chalks, Stickers:

Limit the amount of substance in the mixture to 5%.

Risk management measures

Wear protective gloves according to EN 374, resistant to solvents.

PROC10 Application with rollers or brushes.

PROC11 Non-industrial spray application. Outdoor use.

PROC13 Treatment of articles by dipping and pouring. Outdoor use.

Wear respiratory protection in accordance with EN 140 with filter type A or better.

3. Verification of exposure (Environment 1)

Environmental exposure

Predicted exposures are not expected to exceed the specific risks (listed in chapter 8 of the safety datasheet), when the risk management measures/operational conditions outlined in section 2 are implemented.

Maximum allowable site tonnage (M_{safe}), based on release following total waste water treatment removal: 5969 kg/day

3. Exposure Verification (Health 1)

Exposure

Predicted workplace exposures are not expected to exceed the DNEL when risk identification measures are implemented.

4. Guidance to check compliance with the exposure scenario (Environment 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Required removal efficiency for waste water can be achieved using on-site/off-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

4. Guidance to check compliance with the exposure scenario (Health 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Amines, polyethylenepoly-, triethylenetetramine fraction

Substance identification

Chemical Name: Amines, polyethylenepoly-, triethylenetetramine fraction

CAS number: 90640-67-8

INDUSTRIAL APPLICATION OF COATINGS AND PAINTS - INDUSTRIAL USE

1. TITLE SECTION

Exposure scenario name: Industrial application of coatings and paints

Date - Version: 15/07/2020 - 1.0

Life cycle stage: Use at industrial sites

Main user group: Industrial uses

Sector(s) of use: Industrial uses (SU3)

Contributing scenario - Environment

CS1 Wet polymerization: ERC4

Contributing scenario - Worker

CS2 Blend Operations: PROC5

CS3 Spraying: PROC7

CS4 Material Transfers: PROC8a

CS5 Material Transfers: PROC8b

CS6 Material Transfers: PROC9

CS7 Roller and brush application: PROC10

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

Environmental release categories: Use of non-reactive processing aid at industrial site (no inclusion into or onto article). (ERC4)

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity per site 2114 kg/day

Release Type: Continuous release

Issue days: 220 days a year

Measures and technical-organizational conditions

Control measures to prevent releases: No specific measures identified.

Other operational conditions affecting environmental exposure

Local fresh water dilution factor: 1000

2.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Process categories: Mixing or Blending in Batch Processes (PROC5)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 60 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.3. CS3 Contributing Scenario - Worker: Spray (PROC7)

Process categories: Industrial spray application (PROC7)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 15%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 95% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8a)

Process categories: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 25%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.5. CS5 Contributing Scenario - Worker: Material transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 25%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.6 Contributing Scenario CS6 - Worker: Material transfers (PROC9)

Process categories: Transfer of a substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 15%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.7 CS7 Contributing Scenario - Worker: Roller and brush application (PROC10)

Process categories: Roller and brush application (PROC10)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 15%.

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 60 min.

Additional conditions for human health: Limit the amount of substance in the product to 0.5%

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	0.00317 mg/l	EUSES	0.017
fresh water sediment	1.6 mg/kg bw/day	EUSES	0.017
sea water	0.00042 mg/l	EUSES	0.008
Marine sediment	0.212 mg/kg bw/day	EUSES	0.008
ground	0.114 mg/kg bw/day	EUSES	0.006

3.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.68 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	0.731 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.486

3.3. CS3 Contributing Scenario - Worker: Spray (PROC7)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.128 mg/kg bw/day	N.d.	0.226
by inhalation, systemic, long-term	0.457 mg/m ³	N.d.	0.457
by inhalation, systemic, short-term	0.914 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.683

3.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8a)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.041 mg/kg bw/day	N.d.	0.072
by inhalation, systemic, long-term	0.548 mg/m ³	N.d.	0.548
by inhalation, systemic, short-term	1,097 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.621

3.5. CS5 Contributing Scenario - Worker: Material transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.034 mg/kg bw/day	N.d.	0.06
by inhalation, systemic, long-term	0.548 mg/m ³	N.d.	0.548
by inhalation, systemic, short-term	1.096 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.609

3.6. Contributing Scenario CS6 - Worker: Material transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.068 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	1.22 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.706

3.7. CS7 Contributing Scenario - Worker: Roller and brush application (PROC10)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.082 mg/kg bw/day	N.d.	0.144
by inhalation, systemic, long-term	0.457 mg/m ³	N.d.	0.229
by inhalation, systemic, short-term	0.914 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.373

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

USE IN RIGID FOAM, COATINGS, ADHESIVES AND SEALANTS - INDUSTRIAL USE

1. TITLE SECTION

Exposure scenario name: Use in rigid foam, coatings, adhesives and sealants

Date - Version: 03/18/2020 - 1.0

Life cycle stage: Use at industrial sites

Main user group: Industrial uses

Sector(s) of use: Industrial uses (SU3)

Contributing scenario - Environment

CS1 Wet polymerization: ERC4

Contributing scenario - Worker

CS2 Blend Operations: PROC5

CS3 Spraying: PROC7

CS4 Material Transfers: PROC8a

CS5 Material Transfers: PROC8b

CS6 Material Transfers: PROC9

CS7 Roller and brush application: PROC10

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

Environmental release categories: Use of non-reactive processing aid at industrial site (no inclusion into or onto article). (ERC4)

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity per site 2114 kg/day

Release Type: Continuous release

Issue days: 220 days a year

Measures and technical-organizational conditions

Control measures to prevent releases: No specific measures identified.

Other operational conditions affecting environmental exposure

Local fresh water dilution factor: 1000

2.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Process categories: Mixing or Blending in Batch Processes (PROC5)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 60 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.3. CS3 Contributing Scenario - Worker: Spray (PROC7)

Process categories: Industrial spray application (PROC7)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 15%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 95% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8a)

Process categories: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 25%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.5. CS5 Contributing Scenario - Worker: Material transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 25%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.6. Contributing Scenario CS6 - Worker: Material transfers (PROC9)

Process categories: Transfer of a substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 15%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.7. CS7 Contributing Scenario - Worker: Roller and brush application (PROC10)

Process categories: Roller and brush application (PROC10)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 5%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Additional conditions for human health: Limit the amount of substance in the product to 0.5%

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: -Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	0.00317 mg/l	EUSES	0.017
fresh water sediment	1.6 mg/kg bw/day	EUSES	0.017
sea water	0.00042 mg/l	EUSES	0.008
Marine sediment	0.212 mg/kg bw/day	EUSES	0.008
ground	0.114 mg/kg bw/day	EUSES	0.006

3.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.68 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	0.731 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.486

3.3. CS3 Contributing Scenario - Worker: Spray (PROC7)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.128 mg/kg bw/day	N.d.	0.226
by inhalation, systemic, long-term	0.457 mg/m ³	N.d.	0.457
by inhalation, systemic, short-term	0.914 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.683

3.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8a)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.041 mg/kg bw/day	N.d.	0.072
by inhalation, systemic, long-term	0.548 mg/m ³	N.d.	0.548
by inhalation, systemic, short-term	1.097 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.621

3.5. CS5 Contributing Scenario - Worker: Material transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.034 mg/kg bw/day	N.d.	0.06
by inhalation, systemic, long-term	0.548 mg/m ³	N.d.	0.548
by inhalation, systemic, short-term	1.096 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.609

3.6. Contributing Scenario CS6 - Worker: Material transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.068 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	1.22mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.706

3.7. CS7 Contributing Scenario - Worker: Roller and brush application (PROC10)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.082 mg/kg bw/day	N.d.	0.144
by inhalation, systemic, long-term	0.457 mg/m ³	N.d.	0.229
by inhalation, systemic, short-term	0.914 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.373

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

- INDUSTRIAL APPLICATION OF COATINGS AND PAINTS - PROFESSIONAL USE

1. TITLE SECTION

Exposure scenario name: Industrial application of coatings and paints

Date - Version: 03/18/2020 - 1.0

Life cycle stage: Generalized use by professional operators

Main user group: Professional uses

Sector(s) of use: Professional uses (SU22)

Contributing scenario - Environment

CS1 Wet polymerization: ERC8a - ERC8d

Contributing scenario - Worker

CS2 Blend Operations: PROC5

CS3 Material Transfers: PROC8a

CS4 Material Transfers: PROC8b

CS5 Material Transfers: PROC9

CS6 Roller and brush application: PROC10

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

Environmental release categories: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor). (ERC8a, ERC8d)

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity per site 15500kg/day

Release Type: Continuous release

Issue days: 300 days/year

Measures and technical-organizational conditions

Control measures to prevent releases: Preventive treatment of wastewater by neutralization. No other specific measures identified.

Other operational conditions affecting environmental exposure

Local fresh water dilution factor: 1000

2.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Process categories: Mixing or Blending in Batch Processes (PROC5)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 60 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.3. CS3 Contributing Scenario - Worker: Material transfers (PROC8a)

Process categories: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 15 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Inhalation - minimum 95% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 5%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.5. CS5 Contributing Scenario - Worker: Material transfers (PROC9)

Process categories: Transfer of a substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 25%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.6. Contributing Scenario CS6 - Worker: Roller and brush application (PROC10)

Process categories: Roller and brush application (PROC10)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 5%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Additional conditions for human health: Limit the amount of substance in the product to 2%

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC8a, ERC8d)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	0.0037 mg/l	EUSES	N.d.
fresh water sediment	1.6 mg/kg bw/day	EUSES	N.d.
sea water	0.00042 mg/l	EUSES	N.d.
Marine sediment	0.212 mg/kg bw/day	EUSES	N.d.
ground	0.114 mg/kg bw/day	EUSES	N.d.

3.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.68 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	0.731 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.486

3.3. CS3 Contributing Scenario - Worker: Material transfers (PROC8a)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.09 mg/kg bw/day	N.d.	0.15
by inhalation, systemic, long-term	0.61 mg/m ³	N.d.	0.609
by inhalation, systemic, short-term	1.22mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.76

3.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	1.52 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.324

3.5. CS5 Contributing Scenario - Worker: Material transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	1.52 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.324

3.6. Contributing Scenario CS6 - Worker: Roller and brush application (PROC10)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	0.243 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.498

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

USE IN RIGID FOAM, COATINGS, ADHESIVES AND SEALANTS - PROFESSIONAL USE

1. TITLE SECTION

Exposure scenario name: Industrial application of coatings and paints

Date - Version: 03/18/2020 - 1.0

Life cycle stage: Use in rigid foam, coatings, adhesives and sealants

Main user group: Professional uses

Sector(s) of use: Professional uses (SU22)

Contributing scenario - Environment

CS1 Wet polymerization: ERC8a - ERC8d

Contributing scenario - Worker

CS2 Blend Operations: PROC5

CS3 Material Transfers: PROC8a

CS4 Material Transfers: PROC8b

CS5 Material Transfers: PROC9

CS6 Roller and brush application: PROC10

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

Environmental release categories: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor). (ERC8a, ERC8d)

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity per site 15500kg/day

Release Type: Continuous release

Issue days: 300 days/year

Measures and technical-organizational conditions

Control measures to prevent releases: Preventive treatment of wastewater by neutralization. No other specific measures identified.

Other operational conditions affecting environmental exposure

Local fresh water dilution factor: 1000

2.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Process categories: Mixing or Blending in Batch Processes (PROC5)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 60 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.3. CS3 Contributing Scenario - Worker: Material transfers (PROC8a)

Process categories: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 15 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Inhalation - minimum 95% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 0.5 %

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: No specific measures identified.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.5. CS5 Contributing Scenario - Worker: Material transfers (PROC9)

Process categories: Transfer of a substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 5%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.6. Contributing Scenario CS6 - Worker: Roller and brush application (PROC10)

Process categories: Roller and brush application (PROC10)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 5%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC8a, ERC8d)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	0.0037 mg/l	EUSES	N.d.
fresh water sediment	1.6 mg/kg bw/day	EUSES	N.d.
sea water	0.00042 mg/l	EUSES	N.d.
Marine sediment	0.212 mg/kg bw/day	EUSES	N.d.
ground	0.114 mg/kg bw/day	EUSES	N.d.

3.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.68 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	0.731 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.486

3.3. CS3 Contributing Scenario - Worker: Material transfers (PROC8a)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.09 mg/kg bw/day	N.d.	0.15
by inhalation, systemic, long-term	0.61 mg/m ³	N.d.	0.609
by inhalation, systemic, short-term	1.22mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.76

3.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	1.52 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.324

3.5. CS5 Contributing Scenario - Worker: Material transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	1.52 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.324

3.6. Contributing Scenario CS6 - Worker: Roller and brush application (PROC10)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	1.52 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.373

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Benzyl alcohol

Substance identification

Chemical Name: Benzyl alcohol

CAS number: 100-51-6

Date: 07/12/2012

INDUSTRIAL USE

Exposure scenario for industrial use in adhesives, sealants, coatings and paints, fillers, finger paints, metallic and non-metallic surface treatment products, inks and toners (PC1, PC9a, PC9b, PC9c, PC14, PC15, PC18)

1. TITLE

Systematic title based on the use descriptor: SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Processes, activities covered:

Mixing or dilution in batch processes

Processing by compression/pelletisation, calendaring or use during foam production

Transfer operations from/to large or small containers

Treatment of objects by brush/roller application, spraying or immersion/pouring

Lubrication at high energy conditions

Use as a laboratory agent

Handling of substances bound in materials/articles

Evaluation method:

ECETOC TRA (April 2010), EUSES (v.2.1)

2. OPERATING CONDITIONS AND RISK MANAGEMENT MEASURES

Process categories for human health and environmental release categories for exposure assessment:

PC1: PROC5, 7, 8a, 8b, 9, 10, 12, 13, 14 spERC ESVO 5 (related to ERC4)

PC9a/b/c: PROC5, 7, 8a, 8b, 9, 10, 13 spERC ESVO 5 (related to ERC4)

PC14: PROC5, 8a, 8b, 9, 15, 23, 24, 25 spERC ESVO 5 (related to ERC4)

PC15: PROC5, 8a, 8b, 9, 15 spERC ESVO 5 (related to ERC4)

PC18: PROC7, 8a, 8b, 9, 10, 13 spERC ESVO 5 (related to ERC4)

2.1 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC12, PROC13, PROC14, PROC15

Product features

Concentration ≤ 40%

Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day: 8h (full shift, indoors)

Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: 10 m³/8h-day (light activity)

Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Internal use

Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

Local vapor ventilation (efficiency > 90 %) or other adequate ventilation required

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

PROC7:

Respiratory protection recommended (95% efficiency) as described in section 8.

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.2 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC23, PROC24, PROC25

Product features

Concentration ≤ 40%

Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day: 8h (full shift, indoors and outdoors)

Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: 10 m³/8h-day (light activity)

Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Indoor use.

Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

Local vapor ventilation (efficiency > 90 %) or other adequate ventilation required.

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.3 EXPOSURE SCENARIO CONTROLLING ENVIRONMENTAL EXPOSURE FOR SPERC ESVOC 5 - RELATED TO ERC4

Product features

Not relevant

Quantity used

Number of sites: > 1

Yearly amount used in the region: PC 1, 9a, 9b, 9c, 14, 15, 18: 412 to: 570 to (10 % rule applies)

Frequency and duration of use

spERC ESVOC 5 (related to ERC4): 300 days/year

Environmental factors not influenced by risk management

Local fresh water dilution factor: 10

Receiving surface water flow: 18,000 m³/d

Local seawater dilution factor 100

Other operational conditions affecting environmental exposure

Indoor and outdoor use

Technical conditions and measures at process level (source) to prevent release

spERC ESVOC 5 (related to ERC4):

Fraction of tonnage released to air: 9,8 %

Fraction of tonnage released to wastewater: 2 %

Fraction of tonnage released into industrial ground: 0 %

Local technical conditions and measures to reduce and limit discharges, atmospheric emissions and soil release

Waste water must be sent to a dedicated treatment plant or treated with other suitable techniques. Floors should be waterproof and resistant to liquids.

Organizational measures to prevent/limit release from site

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures for the domestic sewage treatment plant

Dimensions of wastewater treatment plant: 2000 m³/d (removal rate: 87.4 %)

Conditions and measures for external treatment of waste for disposal

No specific measures. For general conditions and measures, see section 13.

Conditions and measures for external recovery of waste

No specific measures. For general conditions and measures, see section 13.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

Workers

Exposure assessment (human):

ECETOC TRA model (April 2010 version). Dermal exposure estimates of ECETOC TRA have been corrected for concentration.

Exposure estimation:

Individual and combined (skin and inhalation) exposure values are below the DNELs (RCR ratios < 1).

Environment

Exposure assessment (environment):

EUSES 2.1: ERC4 modified with ESVOC 5 (ESVOC SPERC 4.3a.v1)

Exposure estimation:

The predicted exposure concentrations for air, water and soil are lower than the derived PNECs, giving an RCR < 1.

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Environment:

Under the conditions listed above the process is considered safe. Direct release to water and soil should be avoided, air emissions should be minimised. Other conditions should be considered only when adequate measurements or calculations demonstrate that the RCR remains < 1.

Health:

Under the conditions listed above the process is considered safe. Other conditions should be considered only when adequate measurements or calculations demonstrate that the RCR remains < 1.

Further good practice advice beyond the REACH CSA

Environment: Not applicable

Health: On possible contact with the product (sampling, use, spills, product leaks, cleaning): wear protective clothing. Wear protective gloves and safety goggles. See section 8 for information on appropriate personal protective equipment.

PROFESSIONAL USE

Exposure scenario for professional uses of benzyl alcohol consisting of mixing/loading and charging/discharging, roller, brush, spray or dip application (PC0, PC1, PC09a, 9b, 9c, PC14, PC15, PC18, PC21, PC26, PC31, PC32).

1. TITLE

Systematic title based on the use descriptor: SU22 - Professional uses: Generalized use

Processes, activities covered:

Mixing or dilution in batch processes BY HAND

Transfer operations from/to large or small containers

Treatment of objects by brush/roller application, spraying or immersion/pouring

Hand mixing with intimate contact and only PSD available

Handling of substances bound in materials/articles

Evaluation method:

ECETOC TRA (April 2010), EUSES (v.2.1)

2. OPERATING CONDITIONS AND RISK MANAGEMENT MEASURES

Process categories for human health and environmental release categories for exposure assessment:

PC0: PROC5, 8a, 8b, 9, 10, 11, 13, 19 - ERC8a, 8d

PC1: PROC5, 8a, 8b, 9, 10, 11, 13, 19 - ERC8a, 8d

PC9a, 9b, 9c: PROC5, 8a, 8b, 9, 10, 11, 13, 19 - ERC8a, 8d

PC14: PROC8a, 8b, 9, 10, 11, 13, 19, 23, 24, 25 - ERC8a, 8d

PC15: PROC8a, 8b, 9, 10, 11, 13, 19 - ERC8a, 8d

PC18: PROC5, 8a, 8b, 10, 11, 13, 19 - ERC8a, 8d

PC21: PROC8a, 8b, 15 - ERC8a, 8d

PC26: PROC5, 6, 8a, 8b, 11, 13, 14, 19, 21 - ERC8a, 8d

PC30: PROC8a, 8b - ERC8a, 8d

PC31: PROC8b, 10, 11 - ERC8a, 8d

PC32: PROC8a, 8b, 9, 10, 11 - ERC8a, 8d

Number of sites: > 1

2.1 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC12, PROC13, PROC14, PROC15

Product features

Concentration ≤ 40%

Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day: 8h (full shift, indoors and outdoors)

Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: 10 m³/8h-day (light activity)

Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Internal use

Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

No special measures are required.

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection:

PROC8b, PROC9, PROC14, PROC15: concentration ≤ 40 %: no RMM required.

PROC5, PROC8a, PROC13: > 25 % - ≤ 40 %: gloves (90 % efficiency) are required as described in section 8.

PROC6: > 5 % - ≤ 40 %: gloves (90 % efficiency) are required as described in section 8.

PROC10: < 5 % (indoor and outdoor environment): No RMMs required.

> 5 - ≤ 40 % (indoor and outdoor environment): gloves (90 % efficiency) are required as described in point 8.

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.2 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC11

Product features

Concentration ≤ 40 %

Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day: 8h (full shift, indoors and outdoors)

Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: 10 m³/8h-day (light activity)

Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Indoor and outdoor use

Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

No special measures are required.

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection:

≤ 5 % (indoor and outdoor environment): Respiratory protection (95 % efficiency) required as described in section 8.

> 5 % ≤ 40 % (indoor and outdoor environment): Respiratory protection (95 % efficiency) and gloves (90 % efficiency) required as described in section 8.

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.3 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC19

Product features

Concentration ≤ 40 %

Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day (concentration ≤ 25 %): 8 hours (indoors and outdoors)

Duration of exposure per day (concentration $>25\% \leq 40\%$): 4 hours (indoors and outdoors)

Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: 10 m³/8h-day (light activity)

Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Indoor and outdoor use

Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

No special measures are required.

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection:

> 1 % (indoor): gloves (90 % efficiency) are required as described in section 8.

> 5% - 40% (outdoors): gloves (90 % efficiency) are required as described in section 8.

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.4 EXPOSURE SCENARIO CONTROLLING ENVIRONMENTAL EXPOSURE FOR ERC8a, ERC8d

Product features

Not relevant

Quantity used

Yearly amount used in the region: the 10% rule applies

ERC8a PC0, 1, 9a, 9b, 9c, 14, 15, 18, 21, 26, 30, 31, 32, 34, 35: 1,785t

ERC8d PC0, 1, 9a, 9b, 9c, 14, 15, 18, 21, 26, 31, 32, 34, 35: 1,775t

Fraction of main local source: 0.002 (default)

Issue days per site: 365 days/year (default)

Frequency and duration of use

Continuous release: 365 days/year

Environmental factors not influenced by risk management

Local fresh water dilution factor: 10

Receiving surface water flow: 18,000 m³/d

Local seawater dilution factor local: 100

Other operational conditions affecting environmental exposure

Indoor / outdoor environment

Technical conditions and measures at process level (source) to prevent release

No special measures are required.

Local technical conditions and measures to reduce and limit discharges, atmospheric emissions and soil release

Waste water must be sent to a dedicated treatment plant or treated with other suitable techniques.

Organizational measures to prevent release from site

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures for the domestic sewage treatment plant

Dimensions of wastewater treatment plant: 2000 m³/d (removal rate: 87.4 %)

Conditions and measures for external treatment of waste for disposal

No specific measures. For general conditions and measures, see section 13.

Conditions and measures for external recovery of waste

No specific measures. For general conditions and measures, see section 13.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

Workers

PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15, PROC19

Exposure assessment (human):

PROC5, PROC6, PROC8b, PROC9, PROC11, PROC13, PROC14, PROC15

ECETOC TRA model (April 2010 version). Dermal exposure estimates of ECETOC TRA have been linearly corrected for concentration.

PROC8a, PROC10

ECETOC TRA model (April 2010 version). Dermal exposure estimates of ECETOC TRA have been linearly corrected for concentration. Local and systemic exposure via inhalation of ECETOC TRA has been linearly scaled based on the concentration.

PROC19

ECETOC TRA model (April 2010 version). The dermal exposure estimates of ECETOC TRA have been linearly corrected for the concentration and according to the EMFs of CEFIC for the duration of exposure. Local exposure via inhalation of ECETOC TRA has been linearly scaled based on the concentration and in accordance with the CEFIC EMFs for the duration of exposure. Systemic exposure via inhalation has been linearly scaled for the duration of exposure.

Exposure estimation:

Individual and combined (skin and inhalation) exposure values are below the DNELs (RCR ratios < 1).

Environment

ERC8a, ERC8d

Exposure assessment (environment):

EUSES 2.1.

Exposure estimation:

The predicted exposure concentrations for air, water and soil are lower than the derived PNECs, giving an RCR < 1.

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Environment:

Under the conditions listed above the process is considered safe. Direct release to water and soil should be avoided, air emissions should be minimised. Other conditions should be considered only when adequate measurements or calculations demonstrate that the RCR remains < 1.

Health:

Under the conditions listed above the process is considered safe. Other conditions should be considered only when adequate measurements or calculations demonstrate that the RCR remains < 1.

Further good practice advice beyond the REACH CSA

Environment: Not applicable

Health: On possible contact with the product (sampling, use, spills, product leaks, cleaning): wear protective clothing. Wear protective gloves and safety goggles. See section 8 for information on appropriate personal protective equipment.

PROFESSIONAL USE

Exposure scenario for professional use in photochemicals (PC30)

1. TITLE

Systematic title based on the use descriptor: SU22 - Professional uses: Generalized use

Processes, activities covered:

Transfer operations from/to large or small containers

Evaluation method:

ECETOC TRA (April 2010), EUSES (v.2.1)

2. OPERATING CONDITIONS AND RISK MANAGEMENT MEASURES

Human Health Exposure/Environmental Exposure:

PC30: PROC8a, 8b - ERC8a, 8d

Number of sites: > 1

2.1 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC8a E PROC8b

Product features

Concentration ≤ 40%

Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day: 8h (full shift, indoors and outdoors)

Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: 10 m³/8h-day (light activity)

Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Internal use

Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

No special measures are required.

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection:

PROC8b: concentration ≤ 40 %: no RMM required.

PROC8a: > 25 % - ≤ 40 %: gloves (90 % efficiency) are required as described in section 8.

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.2 EXPOSURE SCENARIO CONTROLLING ENVIRONMENTAL EXPOSURE FOR ERC8a, ERC8b

Product features

Not relevant

Quantity used

Yearly amount used in the region: the 10% rule applies

ERC8a PC30: 1.785 t

ERC8d PC30: 190 t

Fraction of main local source: 0.002 (default)

Issue days per site: 365 days/year (default)

Frequency and duration of use

Continuous release: 365 days/year

Environmental factors not influenced by risk management

Local fresh water dilution factor: 10

Receiving surface water flow: 18,000 m³/d

Local seawater dilution factor local: 100

Other operational conditions affecting environmental exposure

No special measures are required.

Technical conditions and measures at process level (source) to prevent release

No special measures are required.

Local technical conditions and measures to reduce and limit discharges, atmospheric emissions and soil release

Waste water must be sent to a dedicated treatment plant or treated with other suitable techniques.

Organizational measures to prevent release from site

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures for the domestic sewage treatment plant

Dimensions of wastewater treatment plant: 2000 m³/d (removal rate: 87.4 %)

Conditions and measures for external treatment of waste for disposal

No specific measures. For general conditions and measures, see section 13.

Conditions and measures for external recovery of waste

No specific measures. For general conditions and measures, see section 13.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

Workers

PROC8a, PROC8b

Exposure assessment (human):

PROC8a

ECETOC TRA model (April 2010 version). Dermal exposure estimates of ECETOC TRA have been linearly corrected for concentration. Local and systemic exposure via inhalation of ECETOC TRA has been linearly scaled based on the concentration.

PROC8b

ECETOC TRA model (April 2010 version). Dermal exposure estimates of ECETOC TRA have been linearly corrected for concentration.

Exposure estimation:

Individual and combined (skin and inhalation) exposure values are below the DNELs (RCR ratios < 1).

Environment

ERC8a, ERC8b

Exposure assessment (environment):

EUSES 2.1.

Exposure estimation:

The predicted exposure concentrations for air, water and soil are lower than the derived PNECs, giving an RCR < 1.

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Environment:

Under the conditions listed above the process is considered safe. Direct release to water and soil should be avoided, air emissions should be minimised. Other conditions should be considered only when adequate measurements or calculations demonstrate that the RCR remains < 1.

Health:

Under the conditions listed above the process is considered safe. Other conditions should be considered only when adequate measurements or calculations demonstrate that the RCR remains < 1.

Further good practice advice beyond the REACH CSA

Environment: Not applicable

Health: On possible contact with the product (sampling, use, spills, product leaks, cleaning): wear protective clothing. Wear protective gloves and safety goggles. See section 8 for information on appropriate personal protective equipment.

PROFESSIONAL USE

Exposure scenario for professional use in washing and cleaning products, cosmetics and personal care products (PC35, PC39)

1. TITLE

Systematic title based on the use descriptor: SU22 - Professional uses: Generalized use

Processes, activities covered:

Transfer operations from/to large or small containers
Treatment of objects by roller/brush, spray or dip/pour application
Mixing or dilution in batch processes or by hand

Evaluation method:

ECETOC TRA (April 2010), EUSES (v.2.1)

2. OPERATING CONDITIONS AND RISK MANAGEMENT MEASURES

Human Health Exposure/Environmental Exposure:

PC35: PROC8a, 8b, 9, 10, 11, 13, 19 - ERC8a, 8b, 8d, 8e

PC39: PROC13 - ERC8a, 8b, 8d, 8e

Number of sites: > 1

2.1 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC8a, PROC8b, PROC9, PROC10, PROC13

Product features

Concentration ≤ 40%
Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day: 8h (full shift, indoors and outdoors)
Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: 10 m³/8h-day (light activity)
Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Internal use
Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

No special measures are required.

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection:

PROC8b, PROC9: concentration ≤ 40 %: no RMM required.

PROC8a, PROC13: > 25 % - ≤ 40 %: gloves (90 % efficiency) are required as described in section 8.

PROC10: < 5 % (indoor and outdoor environment): No RMMs required

> 5 - ≤ 40 % (indoor and outdoor environment): gloves (90 % efficiency) are required as described in section 8.

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.2 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC11

Product features

Concentration $\leq 40\%$

Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day: 8h (full shift, indoors and outdoors)

Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: 10 m³/8h-day (light activity)

Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Internal use

Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

No special measures are required.

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection:

$\leq 5\%$ (indoor and outdoor environment): Respiratory protection (95 % efficiency) required as described in section 8.

$> 5\% - \leq 40\%$ (indoor and outdoor environment): Respiratory protection (95 % efficiency) and gloves (90 % efficiency) required as described in section 8.

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.3 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC19

Product features

Concentration $\leq 40\%$

Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day (concentration $\leq 25\%$): 8 h (indoor and outdoor)

Duration of exposure per day (concentration $>25\% - \leq 40\%$): 4 hours (indoors and outdoors)

Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: 10 m³/8h-day (light activity)

Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Internal use

Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

No special measures are required.

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection:

> 1 % (indoor): gloves (90 % efficiency) are required as described in section 8.

> 5% - 40% (outdoors): gloves (90 % efficiency) are required as described in section 8..

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.4 EXPOSURE SCENARIO CONTROLLING ENVIRONMENTAL EXPOSURE FOR ERC8a, ERC8b, ERC8d, ERC8e

Product features

Not relevant

Quantity used

Yearly amount used in the region: the 10% rule applies

ERC8a PC35/PC39: 1,785 t

ERC8b PC35/PC39: 190 t

ERC8d PC35/PC39: 1,775 t

ERC8e PC35/PC39: 190 t

Fraction of main local source: 0.002 (default)

Issue days per site: 365 days/year (default)

Frequency and duration of use

Continuous release: 365 days/year

Environmental factors not influenced by risk management

Local fresh water dilution factor: 10

Receiving surface water flow: 18,000 m³/d

Local seawater dilution factor local: 100

Other operational conditions affecting environmental exposure

No special measures are required.

Technical conditions and measures at process level (source) to prevent release

No special measures are required.

Local technical conditions and measures to reduce and limit discharges, atmospheric emissions and soil release

Waste water must be sent to a dedicated treatment plant or treated with other suitable techniques.

Organizational measures to prevent release from site

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures for the domestic sewage treatment plant

Dimensions of wastewater treatment plant: 2000 m³/d (removal rate: 87.4 %)

Conditions and measures for external treatment of waste for disposal

No specific measures. For general conditions and measures, see section 13.

Conditions and measures for external recovery of waste

No specific measures. For general conditions and measures, see section 13.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

Workers

Exposure assessment (human):

PROC8b, PROC9, PROC11, PROC13

ECETOC TRA model (April 2010 version). Dermal exposure estimates of ECETOC TRA have been corrected for concentration.

PROC8a, PROC10

ECETOC TRA model (April 2010 version). Dermal exposure estimates of ECETOC TRA have been linearly corrected for concentration. Local and systemic exposure via inhalation of ECETOC TRA has been linearly scaled based on the concentration.

PROC19

ECETOC TRA model (April 2010 version). The dermal exposure estimates of ECETOC TRA have been linearly corrected for the concentration and according to the EMFs of CEFIC for the duration of exposure. Local exposure via inhalation of ECETOC TRA has been linearly scaled based on the concentration and in accordance with the CEFIC EMFs for the duration of exposure. Systemic exposure via inhalation has been linearly scaled for the duration of exposure.

Exposure estimation:

Individual and combined (skin and inhalation) exposure values are below the DNELs (RCR ratios < 1).

Environment

ERC8a, ERC8b, ERC8d, ERC8e

Exposure assessment (environment):

EUSES 2.1.

Exposure estimation:

The predicted exposure concentrations for air, water and soil are lower than the derived PNECs, giving an RCR < 1.

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Environment:

Under the conditions listed above the process is considered safe. Direct release to water and soil should be avoided, air emissions should be minimised. Other conditions should be considered only when adequate measurements or calculations demonstrate that the RCR remains < 1.

Health:

Under the conditions listed above the process is considered safe. Other conditions should be considered only when adequate measurements or calculations demonstrate that the RCR remains < 1.

Further good practice advice beyond the REACH CSA

Environment: Not applicable

Health: On possible contact with the product (sampling, use, spills, product leaks, cleaning): wear protective clothing. Wear protective gloves and safety goggles. See section 8 for information on appropriate personal protective equipment.

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine

Substance identification

Chemical Name: Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine
CAS number: 68082-29-1

USE AT INDUSTRIAL USES

1. TITLE SECTION

Exposure scenario name: Industrial production of varnishes and enamels - Industrial application of coatings and paints - Use in rigid foam, coatings, adhesives and sealants - Use in composite and foundry materials

Date - Version: 03/12/2020 - 1.0

Life cycle stage: Use at industrial sites

Main user group: Industrial uses

Sector(s) of use: Industrial uses (SU3)

Contributing scenario - Environment

CS1 Wet polymerization: ERC5

Contributing scenario - Worker

CS2 Hardening: PROC4

CS3 Spraying - Dermal Exposure Assessment: PROC7

CS4 Spraying - Dermal Exposure Assessment: PROC7

CS5 Material transfers: PROC8b

CS6 Material Transfers: PROC9

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. CS1 Environment Contributing Scenario: Wet Polymerization (ERC5)

Environmental release categories: Industrial use leading to inclusion into/onto an article (ERC5)

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity per site 3.33 tons/day - Yearly amount per site 999 tons/year

Release Type: Continuous release

Issue days: 300 days/year

Conditions and measures for the municipal sewage treatment plant

Type of sewage treatment plant (STP): Municipal STP - Water: minimum efficiency of 91.34%

STP effluent (m³/day): 2000

Conditions and measures for waste treatment (including the product waste)

Waste treatment: No specific measures identified.

Other operational conditions affecting environmental exposure

Flow rate of receiving surface water: 18000 m³/day

2.2. Contributing Scenario CS2 - Worker: Curing (PROC4)

Process categories: Chemical production where opportunity for exposure arises (PROC4)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 8 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (up to 3 air changes per hour).

Ensure personnel are trained to minimize exposure.

Dermal - minimum efficiency 90%

Inhalation - minimum efficiency 90%

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95%

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Possible skin contact is believed to be limited to the hands.

2.3. Contributing Scenario CS3 - Spraying: Dermal Exposure Assessment (PROC7)

Process categories: Industrial spray application (PROC7)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 8 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (up to 3 air changes per hour).

Ensure personnel are trained to minimize exposure.

Dermal - minimum efficiency 95%

Inhalation - minimum efficiency 90%

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95%

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Possible skin contact is believed to be limited to the hands and forearms.

2.4. Contributing Scenario CS4 - Spraying: Inhalation Exposure Assessment (PROC7)

Process categories: Industrial spray application (PROC7)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: 7.9E-08 Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: For each application, avoid using for a duration exceeding 480 min.

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment: Wear suitable respiratory protection. Inhalation - minimum efficiency 95%

Other operational conditions affecting worker exposure

Indoor use

Room size: Covers use in a room size of 300m².

Temperature: Includes use at room temperature.

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Possible skin contact is believed to be limited to the hands and forearms.

Additional conditions for human health: Moderate amount used (0.3-3 l/minute)

Learn more about good practices. The obligations set out in the REACH Regulation in Article 37(4) do not apply.

Further information on good practices: Use a splash guard. For further data, see section 8 of the safety data sheet. Wear suitable respiratory protection.

2.5. Contributing Scenario CS5 - Worker: Material Transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 8 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (up to 3 air changes per hour).

Ensure personnel are trained to minimize exposure.

Dermal - minimum efficiency 95%

Inhalation - minimum efficiency 95%

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95 %

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Possible skin contact is believed to be limited to the hands and forearms.

2.6. Contributing Scenario CS6 - Worker: Material Transfers (PROC9)

Process categories: Transfer of a substance or preparation (filling/emptying) (dedicated filling line, including weighing) (PROC9)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 8 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (up to 3 air changes per hour).

Ensure personnel are trained to minimize exposure.

Dermal - minimum efficiency 90%

Inhalation - minimum efficiency 90%

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95 %

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Possible skin contact is believed to be limited to the hands.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. CS1 Environment Contributing Scenario: Wet Polymerization (ERC5)

Release route	Release rate	Release evaluation method
Water	0.666 kg/day	spERC
Air	8.325 kg/day	spERC
Ground	0.01 %	spERC

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	0.001 mg/l	N.d.	0.279
fresh water sediment	121.3 mg/kg dry weight	N.d.	0.279
sea water	0.0001251 mg/l	N.d.	0.288
Marine sediment	12.51 mg/kg dry weight	N.d.	0.288
agricultural land	7.992 mg/kg dry weight	N.d.	0.292
environmentally exposed people - Inhalation	0.002 mg/m ³	N.d.	< 0.01
environmentally exposed people - Oral	208.8 mg/kg bw/day	N.d.	372.8
All ways	N.d.	N.d.	372.8

3.2. Contributing Scenario CS2 - Worker: Curing (PROC4)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.17 mg/m ³	ECETOC TRA worker v2.0	0.044
skin contact, systemic, long-term	0.009 mg/kg bw/day	ECETOC TRA worker v2.0	0.008
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.051

3.3. Contributing Scenario CS3 - Spraying: Dermal Exposure Assessment (PROC7)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.21 mg/m ³	ECETOC TRA worker v2.0	0.054
skin contact, systemic, long-term	0.027 mg/kg bw/day	ECETOC TRA worker v2.0	0.024
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.078

3.4. Contributing Scenario CS4 - Spraying: Inhalation Exposure Assessment (PROC7)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.21 mg/m ³	ECETOC TRA worker v2.0	0.054
skin contact, systemic, long-term	0.027 mg/kg bw/day	ECETOC TRA worker v2.0	0.024
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.078

3.5. Contributing Scenario CS5 - Worker: Material Transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.085 mg/m ³	ECETOC TRA worker v2.0	0.022
skin contact, systemic, long-term	0.009 mg/kg bw/day	ECETOC TRA worker v2.0	0.008
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.03

3.6. Contributing Scenario CS6 - Worker: Material Transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.17 mg/m ³	ECETOC TRA worker v2.0	0.044
skin contact, systemic, long-term	0.009 mg/kg bw/day	ECETOC TRA worker v2.0	0.008
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.051

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

GENERALIZED USE BY PROFESSIONAL OPERATORS

1. TITLE SECTION

Exposure scenario name: Industrial production of varnishes and enamels - Industrial application of coatings and paints - Use in rigid foam, coatings, adhesives and sealants - Use in composite and foundry materials

Date - Version: 03/12/2020 - 1.0

Life cycle stage: Use at industrial sites

Main user group: Generalized use by professional traders

Sector(s) of use: Professional uses (SU22)

Contributing scenario - Environment

CS1 Wet polymerization: ERC8C

Contributing scenario - Worker

CS2 Blend Operations: PROC5

CS3 Material Transfers: PROC8b

CS4 Material Transfers: PROC9

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. CS1 Environment Contributing Scenario: Wet Polymerization (ERC8c)

Environmental release categories: Widespread use resulting in an inclusion into or onto the surface of an article (indoor use) (ERC8c)

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity at site 0.0005494 tons/day

Conditions and measures for the municipal sewage treatment plant

Type of sewage treatment plant (STP): Municipal STP - Water: minimum efficiency of 91.34%

STP effluent (m³/day): 2000

Conditions and measures for waste treatment (including the product waste)

Waste treatment: No specific measures identified.

Other operational conditions affecting environmental exposure

Flow rate of receiving surface water: 18000 m³/day

2.2. Contributing Scenario CS2 - Worker: Blending Operations (PROC5)

Process categories: Mixing or Blending in Batch Processes (PROC5)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 4 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Ensure personnel are trained to minimize exposure.

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95 %

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Body parts exposed: Possible skin contact is believed to be limited to the hands.

2.3. CS3 Worker Contributing Scenario: Material Transfers (PROC8a)

Process categories: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 4 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Ensure personnel are trained to minimize exposure.

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95 %

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Body parts exposed: Possible skin contact is believed to be limited to the hands and forearms.

2.4. CS4 Worker Contributing Scenario: Material Transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 4 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Ensure personnel are trained to minimize exposure.

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95 %

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Body parts exposed: Possible skin contact is believed to be limited to the hands and forearms.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. CS1 Environment Contributing Scenario: Wet Polymerization (ERC8c)

Release route	Release rate	Release evaluation method
Water	0.008 kg/day	spERC
Air	0 %	spERC
Ground	0 %	spERC

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	7.3E-05 mg/l	N.d.	0.017
fresh water sediment	7.301 mg/kg dry weight	N.d.	0.017
sea water	1.113E-05 mg/l	N.d.	0.026
Marine sediment	1.113 mg/kg dry weight	N.d.	0.026
agricultural land	7.318 mg/kg dry weight	N.d.	0.084
environmentally exposed people - Inhalation	9.158E-07 mg/m ³	N.d.	< 0.01
environmentally exposed people - Oral	190.8 mg/kg bw/day	N.d.	340.7
All ways	N.d.	N.d.	340.7

3.2. Contributing Scenario CS2 - Worker: Blending Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.714 mg/m ³	ECETOC TRA worker v2.0	0.183
skin contact, systemic, long-term	0.171 mg/kg bw/day	ECETOC TRA worker v2.0	0.156
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.339

3.3. CS3 Worker Contributing Scenario: Material Transfers (PROC8a)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.714 mg/m ³	ECETOC TRA worker v2.0	0.183
skin contact, systemic, long-term	0.171 mg/kg bw/day	ECETOC TRA worker v2.0	0.156
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.339

3.4. CS4 orker Contributing Scenario: Material Transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.714 mg/m ³	ECETOC TRA worker v2.0	0.183
skin contact, systemic, long-term	0.171 mg/kg bw/day	ECETOC TRA worker v2.0	0.156
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.339

4 GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

2-methoxy-1-methylethyl acetate

Substance identification

Chemical Name: 2-methoxy-1-methylethyl acetate

CAS number: 108-65-6

Date - Version: 02/08/2021 18.0

4. USE IN COATINGS. - USE IN INDUSTRIAL PLANTS

Short title of the exposure scenario: Use in coatings. - Use in industrial plants

SU3; ERC4; PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC4: Industrial use of processing aids not becoming part of articles.

Operating conditions

Yearly amount used in EU: 63,050,000 kg

Daily amount per site: 105.087 kg

Minimum continuous emission days per year: 300

Emission factor to air: 27%

Emission factor in water: 2%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Treat air emissions to provide a typical removal efficiency of 70%.

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.1338

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 79,180 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC1: Use in closed process, no likelihood of exposure.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 0.04 mg/m³

Risk Characterization Ratio (RCR): 0.0001

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure.
General exposure. Continuous process (closed system) with sample collection.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure.
Film formation - Fast drying.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Operation is carried out at elevated temperature (> 20°C above ambient temperature).

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.5

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC3: Use in batch process (synthesis or formulation). Mixing operations. General exposure (closed system).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 93.85 mg/m³

Risk Characterization Ratio (RCR): 0.25

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch process (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application. Mixing operations (open systems).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application. Spraying (automatic/robotic).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Carry out in a vented booth or extracted enclosure. Effectiveness: 95%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 46.93 mg/m³

Risk Characterization Ratio (RCR): 0.13

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 2.14 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.04

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application. Spraying (manual).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Effectiveness: 70%.

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 281.56 mg/m³

Risk Characterization Ratio (RCR): 0.76

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 8.57 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.17

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities. Material transfers. Non-dedicated system.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Material transfers. Dedicated plant.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Material transfers. Drum/batch transfers. Transfer from containers. Dedicated plant.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 5.49 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.11

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC14: Production of preparations or articles by tableting, compression, extrusion or pelletising. Production or preparation of articles by tableting, compression, extrusion.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 3.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.07

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC15: Use as laboratory reagent. Laboratory activities.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

5. USE IN COATINGS. - USE IN INDUSTRIAL PLANTS

Short title of the exposure scenario: Use in coatings. - Use in industrial plants

SU3; ERC4; PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC4: Industrial use of processing aids not becoming part of articles.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 430kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 140.104 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC1: Use in closed process, no likelihood of exposure (closed system). General exposure.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure.

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure. General exposure. Continuous process (closed system) with sample collection.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 7.51 mg/m³

Risk Characterization Ratio (RCR): 0.02

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure.
Film formation - Fast drying.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Operation is carried out at elevated temperature ($> 20^\circ\text{C}$ above ambient temperature).

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC3: Use in batch process (synthesis or formulation). Mixing operations.
General exposure (closed system).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 18.77 mg/m³

Risk Characterization Ratio (RCR): 0.05

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch process (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 15.02 mg/m³

Risk Characterization Ratio (RCR): 0.04

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application. Mixing operations (open systems).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application. Spraying (automatic/robotic). Spraying (manual)

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 8.57 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.17

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application. Spraying (manual).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities. Material transfers. Non-dedicated system.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Material transfers. Dedicated plant.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Material transfers. Drum/batch transfers. Transfer from containers. Dedicated plant.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 27.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.54

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC14: Production of preparations or articles by tableting, compression, extrusion or pelletising. Production or preparation of articles by tableting, compression, extrusion.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 3.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.07

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC15: Use as laboratory reagent. Laboratory activities.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 7.51 mg/m³

Risk Characterization Ratio (RCR): 0.02

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

7 USE IN COATINGS. - USE IN INDUSTRIAL PLANTS

Short title of the exposure scenario: Use in coatings. - Use in professional installations

SU22; ERC8a, ERC8d; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC8a: Wide dispersive indoor use of processing aids in open systems.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 433 kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 15,141 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC8d: Wide dispersive outdoor use of processing aids in open systems.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 433 kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 15,141 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC1: Use in closed process, no likelihood of exposure.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 0.04 mg/m³

Risk Characterization Ratio (RCR): 0.0001

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure.

Filling/Preparation of equipment required for drums and containers.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure.

The use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure.

General exposure. Use in confined systems (closed system). Filling/Preparation of equipment required for drums and containers.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Operation is carried out at elevated temperature ($> 20^\circ\text{C}$ above ambient temperature).

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC3: Use in batch process (synthesis or formulation). Preparation of material for application

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 93.85 mg/m³

Risk Characterization Ratio (RCR): 0.25

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch process (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch and other processes (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure.

The use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Alternatively: Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 269.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities. Material transfers. Drum/batch transfers. Non-dedicated system.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Material transfers. Drum/batch transfers Dedicated plant.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%

If there is no general ventilation, ensure that operations are carried out outdoors.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 5.49 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.11

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Wear suitable gloves compliant with EN ISO 374-1.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application. Spraying (manual).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Carry out in a vented booth or extracted enclosure. Effectiveness: 80%.

Wear a respirator conforming to EN140 with type A filter or better. Effectiveness: 90%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 2.14 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.04

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application. Spraying (manual).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally. Effectiveness: 30%.

Wear a respirator conforming to EN140 with type A filter or better. Effectiveness: 90%.

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 131.4 mg/m³

Risk Characterization Ratio (RCR): 0.36

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 21.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.42

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Alternatively: Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC15: Use as laboratory reagent. Laboratory activities.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact using only personal protective equipment. Hand application - fingerpaints, pastels, adhesives.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%.

If there is no general ventilation, ensure that operations are carried out outdoors.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 14.14 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.28

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact using only personal protective equipment. Hand application - fingerpaints, pastels, adhesives.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Wear chemically resistant gloves in combination with "basic" employee training.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

8. USE IN COATINGS. - USE IN INDUSTRIAL PLANTS

Short title of the exposure scenario: Use in coatings. - Use in professional installations

SU22; ERC8a, ERC8d; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC8a: Wide dispersive indoor use of processing aids in open systems.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 433 kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 15,141 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC8d: Wide dispersive outdoor use of processing aids in open systems.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 433 kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 15,141 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC1: Use in closed process, no likelihood of exposure. General exposure (closed system).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure. Filling/Preparation of equipment required for drums and containers.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure. General exposure. Use in confined systems (closed system). Filling/Preparation of equipment required for drums and containers.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Operation is carried out at elevated temperature ($> 20^\circ\text{C}$ above ambient temperature).

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 15.02 mg/m³

Risk Characterization Ratio (RCR): 0.4

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC3: Use in batch process (synthesis or formulation). Preparation of material for application

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 18.77 mg/m³

Risk Characterization Ratio (RCR): 0.05

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch and other processes (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch and other processes (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Indoor use.

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities. Material transfers. Drum/batch transfers. Non-dedicated system.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Material transfers. Drum/batch transfers Dedicated plant.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 27.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.54

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Indoor/Outdoor: Outdoor use.

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application. Spraying (manual).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%.

If there is no general ventilation, ensure that operations are carried out outdoors.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 10.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.21

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application. Spraying (manual).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Wear chemically resistant gloves in combination with "basic" employee training.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Indoor use.

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC15: Use as laboratory reagent. Laboratory activities.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 7.51 mg/m³

Risk Characterization Ratio (RCR): 0.02

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact using only personal protective equipment. Hand application - fingerpaints, pastels, adhesives.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 28.29 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.56

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact using only personal protective equipment. Hand application - fingerpaints, pastels, adhesives.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Outdoor use.

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

Xylene

Identification of the exposure scenario

Product name: Xylene

Reach registration number: 01-2119488216-32-XXXX

CAS number: 1330-20-7

EC number: 215-535-7

Review date: 14/02/2022 rev. 3.0

USE IN COATINGS - INDUSTRIAL USE

1. Title of the exposure scenario

Process purpose: Includes use in coatings (varnishes, inks, adhesives, etc.), including exposure during application (including material receipt, storage, bulk and semi-bulk preparation and transfer, application by spray, roller, manual spraying, dip, flow, fluid layers in production lines and in film formation) and system cleaning, maintenance and related laboratory activities.

Main sector: SU3 Industrial uses

Environment

Environmental Release Categories [ERC]: ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article).

Specific Environmental Release Category [SPERC]: ESVOC SPERC 4.3a.v1

Worker

Process categories:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC 3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions.

PROC4 Production of chemicals with the possibility of exposure.

PROC5 Mixing or blending in batch processes

PROC7 Industrial spraying.

PROC8a Transfer of a substance or preparation (charging/discharging) at non-dedicated facilities.

PROC8a Transfer of substance or mixture (charging/discharging) at non-dedicated facilities.

PROC10 Application with rollers or brushes.

PROC13 Treatment of articles by dipping and pouring.

PROC15 Use as laboratory reagent.

PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles.

2. Other conditions of use affecting exposure (Industrial - Environment 1)

Products features

Form: Liquid, vapor pressure 0.5 - 10 kPa at STP

Easily biodegradable.

Amounts used:

Annual amount per site: 2500 tonnes

Frequency and duration of use

Issue days: 300 days/year

Additional operating conditions relating to environmental exposure

Emission factor - air

Air release rate produced by the process (initial release prior to risk management measures): 0.98

Emission factor - water

Waste water release rate produced by the process (initial release prior to risk management measures): 0.007

Emission factor - soil

Soil release rate produced by the process (initial release prior to risk management measures): 0

Environmental factors that are not influenced by risk management

Dilution

Local fresh water dilution factor: 10

Local seawater dilution factor: 100

Risk management measures

Sewage Treatment Plant Data (STP)

Estimated substance removal from waste water via domestic sewage treatment: 95.8%

Assumed domestic sewage treatment plant flow: 2000 m³/day

Local technical conditions and measures to reduce and limit discharges and air emissions

Air:

Treat air emission to provide a typical removal efficiency of > 90%.

Water:

Avoid releasing the undiluted substance into local waste water or recover it on site. The typical on-site purification technique has a removal efficiency of 95.8%.

Ground:

Soil emission controls are not applicable as there is no direct release to soil.

Conditions and measures for external treatment of waste

Sludge treatment:

Do not spread industrial sludge on natural soils. Sewerage sludge should be burned, stored or regenerated.

Waste treatment:

No waste of the substance is formed during production.

2. Other conditions of use affecting exposure (Workers - Health 1)

Products features

Form:

Liquid, vapor pressure 0.5 - 10 kPa at STP

Concentration information: Includes concentrations up to 100%, unless otherwise indicated.

Quantities used

Not applicable.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other operational conditions affecting worker exposure

Temperature: (unless stated differently) assumes use at not more than 20°C above ambient temperature.

Ventilation Rate: Ensure a sufficient amount of controlled ventilation (10 to 15 air changes per hour). Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and process-level (source) measures to prevent releases

Technical protective measures:

Handle substance within a closed system. Provide supplementary ventilation to points where emissions occur. Ensure material transfers are managed using closed or air exhaust systems. Drain or remove substance from equipment before opening or servicing PROC7 Industrial spraying: spraying (automatic/robotic) should be carried out in a ventilated booth with laminar air flow.

Risk management measures:

PROC7 Industrial spraying.

Manual spraying.

Wear respiratory protection in accordance with EN 140 with filter type A or better.

3. Verification of exposure (Environment 1)

Environmental exposure:

Predicted exposures are not expected to exceed the specific risks (listed in chapter 8 of the safety datasheet), when the risk management measures/operational conditions outlined in section 2 are implemented.

Maximum allowable site tonnage (M_{safe}), based on release following total waste water treatment removal: 9874 kg/day

3. Exposure Verification (Health 1)

Exposure

Predicted workplace exposures are not expected to exceed the DNEL when risk identification measures are implemented.

4. Guidance to check compliance with the exposure scenario (Environment 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Required removal efficiency for waste water can be achieved using on-site/off-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

4. Guidance to check compliance with the exposure scenario (Health 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

USE IN COATINGS - PROFESSIONAL USE

1. Title of the exposure scenario

Process purpose: Includes use in coatings (varnishes, inks, adhesives, etc.), including exposure during application (including material receipt, storage, bulk and semi-bulk preparation and transfer, application by spray, roller, brush and manual spraying or similar processes and film formation) and system cleaning, maintenance and related laboratory activities.

Main sector: SU22 Professional uses

Environment

Environmental Release Categories [ERC]:

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).

ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).

ERC8c Widespread use leading to inclusion into/onto article (indoor).

ERC8f Widespread use leading to inclusion into/onto article (outdoor).

Specific Environmental Release Category [SPERC]: ESVOC SPERC 8.3b.v1

Worker

Process categories:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC 3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions.

PROC4 Production of chemicals with the possibility of exposure.

PROC5 Mixing or blending in batch processes

PROC8a Transfer of a substance or preparation (charging/discharging) at non-dedicated facilities.

PROC8a Transfer of substance or mixture (charging/discharging) at non-dedicated facilities.

PROC10 Application with rollers or brushes.

PROC11 Non-industrial spray application.

PROC13 Treatment of articles by dipping and pouring.

PROC15 Use as laboratory reagent.

PROC19 Manual activities with direct contact.

PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles.

2. Other conditions of use affecting exposure (Industrial - Environment 1)

Products features

Form: Liquid, vapor pressure 0.5 - 10 kPa at STP Easily biodegradable.

Quantities used

Annual amount per site: 10 tonnes

Frequency and duration of use

Issue days: 365 days/year

Additional operating conditions relating to environmental exposure

Emission factor - air

Air release rate produced by the process (initial release prior to risk management measures): 0.98

Emission factor - water

Waste water release rate produced by the process (initial release prior to risk management measures): 0.01

Emission factor - soil

Soil release rate produced by the process (initial release prior to risk management measures): 0.01

Environmental factors that are not influenced by risk management

Dilution

Local fresh water dilution factor: 10

Local seawater dilution factor: 100

Risk management measures

Sewage Treatment Plant Data (STP)

Estimated substance removal from waste water via domestic sewage treatment 95.8%

Assumed domestic sewage treatment plant flow: 2000 m³/day

Local technical conditions and measures to reduce and limit discharges and air emissions

Air: Treat air emission to provide a typical removal efficiency of 0%.

Water: The typical on-site purification technique has a removal efficiency of 95.8%.

Conditions and measures for external treatment of waste

Waste treatment: External treatment and disposal of waste should comply with applicable local and/or national regulations.

2. Other conditions of use affecting exposure (Workers - Health 1)

Products features

Form:

Liquid, vapor pressure 0.5 - 10 kPa at STP

Concentration information:

Includes concentrations up to 100%, unless otherwise indicated.

Quantities used

Not applicable.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other operational conditions affecting worker exposure

Temperature:

(unless stated differently) assumes use at not more than 20°C above ambient temperature.

Ventilation Rate:

Provide a good standard of controlled ventilation (10 to 15 air changes per hour) or ensure operation is undertaken outdoors.

Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and process-level (source) measures to prevent releases

Technical protective measures:

Handle substance within a closed system. Provide supplementary ventilation to points where emissions occur. Ensure material transfers are managed using closed or air exhaust systems. Clean/flush equipment prior to opening or maintenance. Transport on closed roads. PROC11 Non-industrial spray application. Indoor use. Perform in a laminar flow ventilated booth. PROC15 Use as laboratory reagents handle under fume hood or extract air.

Organizational measures to prevent/limit releases, dispersion and exposure

Organizational measures

Avoid activities with an exposure of more than 4 hours.

Hand Application - Finger Paints, Chalks, Stickers:

Limit the amount of substance in the mixture to 5%.

Risk management measures

Wear protective gloves according to EN 374, resistant to solvents.

PROC10 Application with rollers or brushes.

PROC11 Non-industrial spray application. Outdoor use.

PROC13 Treatment of articles by dipping and pouring. Outdoor use.

Wear respiratory protection in accordance with EN 140 with filter type A or better.

3. Verification of exposure (Environment 1)

Environmental exposure

Predicted exposures are not expected to exceed the specific risks (listed in chapter 8 of the safety datasheet), when the risk management measures/operational conditions outlined in section 2 are implemented.

Maximum allowable site tonnage (M_{safe}), based on release following total waste water treatment removal: 5969 kg/day

3. Exposure Verification (Health 1)

Exposure

Predicted workplace exposures are not expected to exceed the DNEL when risk identification measures are implemented.

4. Guidance to check compliance with the exposure scenario (Environment 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Required removal efficiency for waste water can be achieved using on-site/off-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

4. Guidance to check compliance with the exposure scenario (Health 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.