TrusTec™ Toluene Standard Fuel 93.4

Version 1.12 Revision Date 2023-05-18

According to Regulation (EC) No. 1907/2006, Regulation (EC) No. 2020/878

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product information

Product Name : TrusTec™ Toluene Standard Fuel 93.4
Material : 1024370, 1024369, 1024368, 1024371

EC-No.Registration number

Chemical name	CAS-No. EC-No. Index No.	Legal Entity Registration number
Toluene	108-88-3 203-625-9 601-021-00-3	Chevron Phillips Chemicals International NV 01-2119471310-51-0116
Toluene	108-88-3 203-625-9 601-021-00-3	Chevron Phillips Chemical Company LP 01-2119471310-51-0116
n-Heptane	142-82-5 205-563-8 601-008-00-2	Chevron Phillips Chemicals International NV 01-2119457603-38-0002
n-Heptane	142-82-5 205-563-8 601-008-00-2	Chevron Phillips Chemical Company LP 01-2119457603-38-0002

1.2

Relevant identified uses of the substance or mixture and uses advised against

Relevant Identified Uses Supported : Use as a fuel - industrial
Manufacture
Formulation
Use as a cleaning agent – industrial
Use as a cleaning agent – professional
Agrochemical uses
Use as a laboratory agent – industrial
Use as a laboratory agent – professional

1.3

Details of the supplier of the safety data sheet

Company : Chevron Phillips Chemical Company LP
Specialty Chemicals
10001 Six Pines Drive

The Woodlands, TX 77380

Local : Chevron Phillips Chemicals International N.V.
Airport Plaza (Stockholm Building)
Leonardo Da Vincilaan 19
1831 Diegem
Belgium

SDS Requests: (800) 852-5530
Responsible Party: Product Safety Group
Email:sds@cpchem.com

1.4

Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)
Transport:
CHEMTREC 800.424.9300 or 703.527.3887(int'l)
Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090
Mexico CHEMTREC 01-800-681-9531 (24 hours)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600
Argentina: +(54)-1159839431
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Austria: VIZ +43 1 406 43 43 (24 hours/day, 7 days/week)
Belgium: 070 245 245 (24 hours/day, 7 days/week)
Bulgaria: +359 2 9154 233
Croatia: +3851 2348 342 (24 hours/day, 7 days/week)
Cyprus: 1401
Czech Republic: Toxicological Information Center +420 224 919 293, +420 224 915 402
Denmark: Danish Poison Center (Giftlinjen): +45 8212 1212
Estonia: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Finland: 0800 147 111 09 471 977 (24 hours/day)
France: ORFILA number (INRS): + 33 (0) 1 45 42 59 59 (24 hours/day, 7 days/week)
Germany: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Greece: (0030) 2107793777 (24 hours/day, 7 days/week)
Hungary: +36-80-201-199 (24 hours/day, 7 days/week)
Iceland: 543 2222 (24 hours/day, 7 days/week)
Ireland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Italy: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Latvia: State Fire and Rescue Service, phone number: 112; Toxicology and Sepsis Clinic Poisoning and Drug Information Center, Hipokrāta 2, Riga, Latvia, LV-1038, phone number +371 67042473. (24 hours.)
Liechtenstein: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Lithuania: +370 (85) 2362052
Luxembourg: (+352) 8002 5500 (24 hours/day, 7 days/week)
Malta: +356 2395 2000
The Netherlands: NVIC: +31 (0)88 755 8000
Norway: 22 59 13 00 (24 hours/day, 7 days/week)
Poland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Portugal: CIAV phone number: +351 800 250 250
Romania: +40213183606
Slovakia: +421 2 5477 4166
Slovenia: Phone number: 112
Spain: National Emergency Telephone Number of Spanish Poison Centre: +34 91 562 04 20 (24 hours/day, 7 days/week)

Sweden: 112 – ask for Poisons Information

Responsible Department	:	Product Safety and Toxicology Group
E-mail address	:	SDS@CPChem.com
Website	:	www.CPChem.com

SECTION 2: Hazards identification

2.1

Classification of the substance or mixture
REGULATION (EC) No 1272/2008

Flammable liquids, Category 2	H225: Highly flammable liquid and vapor.
Skin irritation, Category 2	H315: Causes skin irritation.
Reproductive toxicity, Category 2	H361d: Suspected of damaging the unborn child.
Specific target organ toxicity - single exposure, Category 3, Central nervous system	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure, Category 2	H373: May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters airways.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

2.2

Labeling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal Word : Danger

Hazard Statements :	H225	Highly flammable liquid and vapor.
	H304	May be fatal if swallowed and enters airways.
	H315	Causes skin irritation.
	H336	May cause drowsiness or dizziness.
	H361d	Suspected of damaging the unborn child.
	H373	May cause damage to organs through prolonged or repeated exposure.
	H410	Very toxic to aquatic life with long lasting effects.

Precautionary Statements :	**Prevention:**	
	P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
	P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
	P273	Avoid release to the environment.

P280	Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
Response:	
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P331	Do NOT induce vomiting.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.

Hazardous ingredients which must be listed on the label:
- 108-88-3 Toluene
- 142-82-5 n-Heptane

2.3

Other hazards

Results of PBT and vPvB assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Endocrine disrupting properties : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 - 3.2

Substance or Mixture

Synonyms : Reference Fuel

Molecular formula : Mixture

Hazardous ingredients

Chemical name	CAS-No. EC-No. Index No.	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]	Specific Conc. Limits, M-factors and ATEs
Toluene	**108-88-3** **203-625-9** 601-021-00-3	Flam. Liq. 2; H225 Skin Irrit. 2; H315 Repr. 2; H361d STOT SE 3; H336 STOT RE 2; H373 Asp. Tox. 1; H304 Aquatic Chronic 3; H412	73 - 75	
n-Heptane	142-82-5 205-563-8 601-008-00-2	Flam. Liq. 2; H225 Skin Irrit. 2; H315 STOT SE 3; H336	25 - 27	

		Asp. Tox. 1; H304 Aquatic Acute 1; H400 Aquatic Chronic 1; H410		

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1

Description of first-aid measures

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

If inhaled : Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.

In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact : Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

4.2 Most important symptoms and effects, both acute and delayed

Notes to physician

Symptoms : No data available.

Risks : No data available.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : No data available.

SECTION 5: Firefighting measures

Flash point : 4°C (39°F)
Method: closed cup
estimated

Autoignition temperature : 528,9°C (984,0°F)

5.1

Extinguishing media

Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.

Unsuitable extinguishing media : High volume water jet.

5.2

Special hazards arising from the substance or mixture

Specific hazards during fire fighting	:	Do not allow run-off from fire fighting to enter drains or water courses.

5.3

Advice for firefighters

Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
Fire and explosion protection	:	Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.
Hazardous decomposition products	:	Hydrocarbons. Carbon oxides.

SECTION 6: Accidental release measures

6.1

Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

6.2

Environmental precautions

Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3

Methods and materials for containment and cleaning up

Methods for cleaning up	:	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

6.4

Reference to other sections

For additional details, see the Exposure Scenario in the Annex portion

SECTION 7: Handling and storage

7.1

Precautions for safe handling

Handling

Advice on safe handling : Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

7.2

Conditions for safe storage, including any incompatibilities

Storage

Requirements for storage areas and containers : No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

7.3

Specific End Use

Use : For additional details, see the Exposure Scenario in the Annex portion

SECTION 8: Exposure controls/personal protection

8.1

Control parameters

Ingredients with workplace control parameters

SK

Zložky	Podstata	Hodnota	Kontrolné parametre	Poznámka
Toluene	SK OEL	NPEL priemerný	50 ppm, 192 mg/m3	K,
	SK OEL	NPEL krátkodobý	100 ppm, 384 mg/m3	K,
n-heptane	SK OEL	NPEL priemerný	500 ppm, 2.085 mg/m3	

K Znamená, ze faktor môže byt' l'ahko absorbovaný kožou. Niektoré faktory, ktoré l'ahko prenikajú kožou, môžu spôsobovat' až smrtel'né otravy, éasto bez varovných príznakov (napr. anilín, nitrobenzén, nitroglykol, fenoly a pod.). Pri látkach s významným prienikom cez kožu, éi už v podobe kvapalín alebo pár, je osobitne dôležité zabránit' kožnému kontaktu.

SI

Sestavine	Osnova	Vrednost	Parametri nadzora	Pripomba
Toluene	SI OEL	MV	50 ppm, 192 mg/m3	RD-2, K,
	SI OEL	KTV	100 ppm, 384 mg/m3	RD-2, K,
n-heptane	SI OEL	MV	500 ppm, 2.085 mg/m3	
	SI OEL	KTV	500 ppm, 2.085 mg/m3	

K Lastnost lažjega prehajanja snovi v organizem skozi kožo
RD-2 Strupeno za razmnoževanje - lahko škoduje nerojenemu otroku - kategorija 2

SE

Beståndsdelar	Grundval	Värde	Kontrollparametrar	Anmärkning
Toluene	SE AFS	NGV	50 ppm, 192 mg/m3	H,
	SE AFS	KGV	100 ppm, 384 mg/m3	H,
n-heptane	SE AFS	NGV	200 ppm, 800 mg/m3	
	SE AFS	KGV	300 ppm, 1.200 mg/m3	V,

H Ämnet kan lätt upptas genom huden.
V Vägledande korttidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas

RU

Компоненты	Основа	Величина	Параметры контроля	Заметка
Толуол	RU OEL	ПДК	50 mg/m3	3,
	RU OEL	ПДК разовая	150 mg/m3	3,
	RU OEL	ПДК	50 mg/m3	3, пары и/или газы
	RU OEL	ПДК разовая	150 mg/m3	3, пары и/или газы
	RU OEL	ПДК	50 mg/m3	3, пары и/или газы
	RU OEL	ПДК разовая	150 mg/m3	3, пары и/или газы
н-гептан	RU OEL	ПДК	300 mg/m3	4, пары и/или газы
	RU OEL	ПДК разовая	900 mg/m3	4, пары и/или газы
	RU OEL	ПДК	300 mg/m3	4, пары и/или газы
	RU OEL	ПДК разовая	900 mg/m3	4, пары и/или газы

3 3 класс - опасные
4 4 класс - умеренно опасные

RS

Компоненты	Основа	Величина	Параметры контроля	Заметка
Толуол	RS OEL	GVI	50 ppm, 192 mg/m3	K, EU**,
	RS OEL	KGVI	100 ppm, 384 mg/m3	K, EU**,
н-гептан	RS OEL	GVI	500 ppm, 2.085 mg/m3	EU*,

EU* Substance mentioned in indicative exposure limit values in Directive 2000/39 / EC (first list)
EU** Substance mentioned in indicative exposure limit values in Directive 2006/15 / EC (second list)
K This chemical substance can adversely affect the skin.

RO

Componente	Sursă	Valoare	Parametri de control	Notă
Toluene	RO OEL	TWA	50 ppm, 192 mg/m3	R2, P,
	RO OEL	STEL	100 ppm, 384 mg/m3	R2, P,
n-heptane	RO OEL	TWA	500 ppm, 2.085 mg/m3	

P Contribuţie substanţială la încărcarea totală din organism prin posibilă expunere cutanată.
R2 susceptibil de a dăuna fertilităţii

PT

Componentes	Bases	Valor	Parâmetros de controlo	Nota
Toluene	PT OEL	VLE-MP	20 ppm,	P, A4,
	PT DL 305/2007	oito horas	50 ppm, 192 mg/m3	Cutânea,
	PT DL 305/2007	curta duração	100 ppm, 384 mg/m3	Cutânea,
n-heptane	PT DL 305/2007	oito horas	500 ppm, 2.085 mg/m3	
	PT OEL	VLE-MP	400 ppm,	
	PT OEL	VLE_CD	500 ppm,	

A4 Agente não classificável como carcinogénico no Homem.
Cutânea Uma notação cutânea atribuída ao valor limite de exposição profissional assinala a possibilidade de absorção significativa através de pele.
P Perigo de absorção cutânea

PL

Składniki	Podstawa	Wartość	Parametry dotyczące kontroli	Uwaga
Toluene	PL NDS	NDS	100 mg/m3	
	PL NDS	NDSch	200 mg/m3	
n-heptane	PL NDS	NDS	1.200 mg/m3	
	PL NDS	NDSch	2.000 mg/m3	

NO

Komponenter	Grunnlag	Verdi	Kontrollparametrer	Nota
Toluene	FOR-2011-12-06-1358	GV	25 ppm, 94 mg/m3	H,
n-heptane	FOR-2011-12-06-1358	GV	200 ppm, 800 mg/m3	

H Kjemikalier som kan tas opp gjennom huden.

NL

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
Toluene	NL WG	TGG-8 uur	150 mg/m3	
	NL WG	TGG-15 min	384 mg/m3	
n-heptane	NL WG	TGG-8 uur	1.200 mg/m3	
	NL WG	TGG-15 min	1.600 mg/m3	

MT

Components	Basis	Value	Control parameters	Note
Toluene	MT OEL	TWA	50 ppm, 192 mg/m3	Skin,
	MT OEL	STEL	100 ppm, 384 mg/m3	Skin,
n-Heptane	MT OEL	TWA	500 ppm, 2.085 mg/m3	

Skin A skin notation assigned to the OEL identifies the possibility of significant uptake through the skin.

MK

Съставки	Основа	Стойност	Параметри на контрол	Бележка
Toluene	MK OEL	MV	50 ppm, 192 mg/m3	K,
n-heptane	MK OEL	MV	500 ppm, 2.085 mg/m3	

K The properties of easier transport of substances into organism through (via) the skin

LV

Sastāvdaļas	Bāze	Vērtība	Pārvaldības parametri	Piezīme
Toluene	LV OEL	AER 8 st	14 ppm, 50 mg/m3	Āda,
	LV OEL	AER īslaicīgā	40 ppm, 150 mg/m3	Āda,
n-heptane	LV OEL	AER 8 st	85 ppm, 350 mg/m3	
	LV OEL	AER īslaicīgā	500 ppm, 2.085 mg/m3	

Āda Āda

LU

Composants	Base	Valeur	Paramètres de contrôle	Note
Toluene	LU OEL	TWA	50 ppm, 192 mg/m3	Peau,
	LU OEL	STEL	100 ppm, 384 mg/m3	Peau,
n-heptane	LU OEL	TWA	500 ppm, 2.085 mg/m3	

Peau Une pénétration cutanée s'ajoutant à l'inhalation réglementée est possible

LT

Komponentai	Šaltinis	Vertė	Kontrolės parametrai	Pastaba
Toluene	LT OEL	IPRD	50 ppm, 192 mg/m3	O,
	LT OEL	TPRD	100 ppm, 384 mg/m3	O,
n-heptane	LT OEL	IPRD	500 ppm, 2.085 mg/m3	
	LT OEL	TPRD	750 ppm, 3.128 mg/m3	

O patekimas per nepažeistą odą

IT

Componenti	Base	Valore	Parametri di controllo	Nota
Toluene	IT VLEP	TWA	50 ppm, 192 mg/m3	Cute,
n-heptane	IT VLEP	TWA	500 ppm, 2.085 mg/m3	

Cute La notazione che riporta il termine 'cute' per un valore limite di esposizione professionale, indica la possibilità di un assorbimento significativo attraverso la cute.

IS

Komponenter	Grunnlag	Verdi	Kontrollparametrer	Nota
Toluene	IS OEL	TWA	25 ppm, 94 mg/m3	H,
	IS OEL	STEL	50 ppm, 188 mg/m3	H,
n-heptane	IS OEL	TWA	200 ppm, 820 mg/m3	

H Skin notation

IE

Components	Basis	Value	Control parameters	Note
Toluene	IE OEL	OELV - 8 hrs (TWA)	50 ppm, 192 mg/m3	Sk,
	IE OEL	OELV - 15 min (STEL)	100 ppm, 384 mg/m3	Sk,
n-Heptane	IE OEL	OELV - 8 hrs (TWA)	500 ppm, 2.085 mg/m3	

Sk Substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body

HU

Komponensek	Bázis	Érték	Ellenőrzési paraméterek	Megjegyzés
Toluene	HU OEL	AK-érték	190 mg/m3	R+T, b, EU2, i,
	HU OEL	CK-érték	380 mg/m3	R+T, b, EU2, i,
n-heptane	HU OEL	AK-érték	2.000 mg/m3	R, EU1,

b Bőrön át is felszívódik. Az ÁK-értékek a veszélyes anyagoknak ezt a tulajdonságát, illetve az ebből származó expozíciót csak a levegőben megengedett koncentrációjuk mértékének megfelelően veszik figyelembe
EU1 2000/39/EK irányelvben közölt érték
EU2 2006/15/EK irányelvben közölt érték
i Ingerlő anyag (izgatja a bőrt, nyálkahártyát, szemet vagy mindhármat)
R Azok az anyagok, amelyek egészségkárosító hatása RÖVID expozíció hatására jelentkezik. Korrigált ÁK = ÁK x 8/a napi óraszám
R+T Azok az anyagok, amelyek RÖVID és TARTÓS expozíciója is egészségkárosodást okoz. Korrigált ÁK = ÁK x 8/a napi óraszám; Korrigált ÁK = ÁK x 40/a heti óraszám. A két faktor közül a szigorúbb (kisebb) értéket kell alkalmazni

HR

Sastojci	Temelj	Vrijednost	Nadzorni parametri	Bilješka
Toluene	HR OEL	GVI	50 ppm, 192 mg/m3	koža,
	HR OEL	KGVI	100 ppm, 384 mg/m3	koža,
n-heptane	HR OEL	GVI	500 ppm, 2.085 mg/m3	koža,
	HR OEL		500 ppm, 2.000 mg/m3	

koža Razvrstana kao tvar koja nadražuje kožu (H315) ili je takva napomena navedena u direktivama

GR

Συστατικά	Βάση	Τιμή	Παράμετροι ελέγχου	Σημείωση

Toluene	GR OEL	TWA	50 ppm, 192 mg/m3	Δ,
	GR OEL	STEL	100 ppm, 384 mg/m3	Δ,
n-heptane	GR OEL	TWA	500 ppm, 2.000 mg/m3	
	GR OEL	STEL	500 ppm, 2.000 mg/m3	

Δ Η ένδειξη 'δέρμα' (Δ), η οποία επισημαίνει ορισμένους χημικούς παράγοντες του πίνακα της παρ. 1 του άρθρου 3, υπονοεί την πιθανή συμβολή στην συνολική έκθεση του εργαζόμενου και της ποσότητας αυτών των χημικών παραγόντων που απορροφάται διαμέσου του δέρματος κατά την άμεση επαφή μαζί τους.

GB

Components	Basis	Value	Control parameters	Note
Toluene	GB EH40	TWA	50 ppm, 191 mg/m3	Sk,
	GB EH40	STEL	100 ppm, 384 mg/m3	Sk,
n-Heptane	GB EH40	TWA	500 ppm, 2.085 mg/m3	

Sk Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.

FR

Composants	Base	Valeur	Paramètres de contrôle	Note
Toluene	FR VLE	VME	20 ppm, 76,8 mg/m3	R2, Peau, VLR contraignantes,
	FR VLE	VLCT (VLE)	100 ppm, 384 mg/m3	R2, Peau, VLR contraignantes,
n-heptane	FR VLE	VME	400 ppm, 1.668 mg/m3	VLR contraignantes,
	FR VLE	VLCT (VLE)	500 ppm, 2.085 mg/m3	VLR contraignantes,

Peau Risque de pénétration percutanée
R2 Toxique pour la reproduction de catégorie 2 - Substances preoccupantes en raison d'effets toxiques pour la reproduction possibles
VLR contraignantes Valeurs limites réglementaires contraignantes

FI

Aineosat	Peruste	Arvo	Valvontaa koskevat muuttujat	Huomautus
Toluene	FI OEL	HTP-arvot 8h	25 ppm, 81 mg/m3	melu, iho,
	FI OEL	HTP-arvot 15 min	100 ppm, 380 mg/m3	melu, iho,
n-heptane	FI OEL	HTP-arvot 8h	300 ppm, 1.200 mg/m3	
	FI OEL	HTP-arvot 15 min	500 ppm, 2.100 mg/m3	
	FI OEL	HTP-arvot 8h	300 ppm, 1.200 mg/m3	
	FI OEL	HTP-arvot 15 min	500 ppm, 2.100 mg/m3	

iho Ihon läpi imeytyvien aineiden elimistöön joutuvia määriä ja elimistöön joutuneesta aineesta aiheutuvaa vaaraa ei voida näin ollen arvioida pelkästään ilmapitoisuuksien avulla.Tämän vuoksi näiden aineiden HTP-arvojen yhteyteen on huomautussarakkeeseen otettu ihon läpi imeytymisen osoittamiseksi merkintä 'iho'. Monet aineet, varsinkin voimakkaat hapot tai emäkset, voivat aiheuttaa iholle jouduttuaan ihon ärsyyntymistä tai syöpymistä.
melu Melu: aineille, joiden tiedetään voimistavan melun haitallisia kuulovaikutuksia.

ES

Componentes	Base	Valor	Parámetros de control	Nota
Toluene	ES VLA	VLA-ED	50 ppm, 192 mg/m3	vía dérmica,
	ES VLA	VLA-EC	100 ppm, 384 mg/m3	vía dérmica,
n-heptane	ES VLA	VLA-ED	500 ppm, 2.085 mg/m3	

vía dérmica Vía dérmica

EE

Komponendid, osad	Alused	Väärtus	Kontrolliparameetrid	Märkused
Toluene	EE OEL	Piirnorm	50 ppm, 192 mg/m3	A,
	EE OEL	Lühiajalise kokkupuute piirnorm	100 ppm, 384 mg/m3	A,
n-heptane	EE OEL	Piirnorm	500 ppm, 2.085 mg/m3	

A Naha kaudu kergesti absorbeeruvad ained

DK

Komponenter	Basis	Værdi	Kontrolparametre	Note
Toluene	DK OEL	GV	25 ppm, 94 mg/m3	H,
n-heptane	DK OEL	GV	200 ppm, 820 mg/m3	

H Betyder, at stoffet kan optages gennem huden.

DE

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Toluene	DE TRGS 900	AGW	50 ppm, 190 mg/m3	H, Y,
n-heptane	DE TRGS 900	AGW	500 ppm, 2.100 mg/m3	

H Hautresorptiv
Y Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden

CZ

Složky	Základ	Hodnota	Kontrolní parametry	Poznámka
Toluene	CZ OEL	PEL	192 mg/m3	I, D,

	CZ OEL	NPK-P	384 mg/m3	I, D,
n-heptane	CZ OEL	PEL	1.000 mg/m3	I,
	CZ OEL	NPK-P	2.000 mg/m3	I,

D Při expozici se významně uplatňuje pronikání faktoru kůží
I dráždí sliznice (oči, dýchací cesty), respektive kůži

CY

Συστατικά	Βάση	Τιμή	Παράμετροι ελέγχου	Σημείωση
Toluene	CY OEL	TWA	50 ppm, 192 mg/m3	
	CY OEL	STEL	100 ppm, 384 mg/m3	
n-heptane	CY OEL	TWA	500 ppm, 2.085 mg/m3	

CH

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Toluene	CH SUVA	MAK-Wert	50 ppm, 190 mg/m3	OL, H, R2D, R2F, NIOSH, DFG, INRS, HSE, SSc,
	CH SUVA	KZGW	200 ppm, 760 mg/m3	OL, H, R2D, R2F, NIOSH, DFG, INRS, HSE, SSc,
n-heptane	CH SUVA	KZGW	400 ppm, 1.600 mg/m3	NIOSH,
	CH SUVA	MAK-Wert	400 ppm, 1.600 mg/m3	NIOSH,

DFG Deutsche Forschungsgemeinschaft
H Vergiftung durch Hautresorption möglich; Bei Stoffen, welche die Haut leicht zu durchdringen vermögen, kann durch die zusätzliche Hautresorption die innere Belastung wesentlich höher werden als bei alleiniger Aufnahme durch die Atemwege.
HSE Health and Safety Executive (Occupational Medicine and Hygiene Laboratory)
INRS Institut National de Recherche et de Sécurité pour la prévention des accidents du travail et des maladies professionnelles
NIOSH National Institute for Occupational Safety and Health
OL lärmverstärkende Ototoxizität
R2D Stoffe, die möglicherweise beim Menschen reproduktionstoxisch sind; die Beeinträchtigung bezieht sich auf die Entwicklung.
R2F Stoffe, die möglicherweise beim Menschen reproduktionstoxisch sind; die Beeinträchtigung bezieht sich auf die Fruchtbarkeit oder Sexualität.
SSc Eine Schädigung der Leibesfrucht braucht bei Einhaltung des MAK-Wertes nicht befürchtet zu werden.

BG

Съставки	Основа	Стойност	Параметри на контрол	Бележка
Toluene	BG OEL	TWA	50 ppm, 192 mg/m3	
	BG OEL	STEL	100 ppm, 384 mg/m3	
n-heptane	BG OEL	TWA	1.600 mg/m3	

BE

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
Toluene	BE OEL	TGG 8 hr	20 ppm, 77 mg/m3	D,
	BE OEL	TGG 15 min	100 ppm, 384 mg/m3	D,
n-heptane	BE OEL	TGG 8 hr	400 ppm, 1.664 mg/m3	
	BE OEL	TGG 15 min	500 ppm, 2.085 mg/m3	

D Opname van het agens via de huid, de slijmvliezen of de ogen vormt een belangrijk deel van de totale blootstelling. Deze opname kan het gevolg zijn van zowel direct contact als zijn aanwezigheid in de lucht.

AT

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Toluene	AT OEL	MAK-TMW	50 ppm, 190 mg/m3	H,
	AT OEL	MAK-KZW	100 ppm, 380 mg/m3	H,
n-heptane	AT OEL	MAK-TMW	500 ppm, 2.000 mg/m3	
	AT OEL	MAK-KZW	2.000 ppm, 8.000 mg/m3	

H Besondere Gefahr der Hautresorption

Biological exposure indices

SK

Názov látky	Č. CAS	Kontrolné parametre	Doba odberu vzorky	Aktualizácia
Toluene	108-88-3	toluén: 600 µg/l (Krv)	Koniec vystavenia alebo pracovnej zmeny	2016-01-18
		toluén: 6.517 µmol.l-1 (Krv)	Koniec vystavenia alebo pracovnej zmeny	2016-01-18
		kyselina hippurová: 2.401 mg/l (moč)	Koniec vystavenia alebo pracovnej zmeny	2016-01-18

		kyselina hippurová: 13399 µmol.l-1 (moč)	Koniec vystavenia alebo pracovnej zmeny	2016-01-18
		kyselina hippurová: 1600 mg/g kreatinínu (moč)	Koniec vystavenia alebo pracovnej zmeny	2016-01-18
		kyselina hippurová: 1010 µmol/mmol kreatinínu (moč)	Koniec vystavenia alebo pracovnej zmeny	2016-01-18
		o-krezol: 14.3 µmol.l-1 (moč)	Pri dlhodobej expozícii; po viacerých predchádzajúcich pracovných zmenáchKoniec vystavenia alebo pracovnej zmeny	2016-01-18
		o-krezol: 1.03 mg/g kreatinínu (moč)	Pri dlhodobej expozícii; po viacerých predchádzajúcich pracovných zmenáchKoniec vystavenia alebo pracovnej zmeny	2016-01-18
		o-krezol: 1.08 µmol/mmol kreatinínu (moč)	Pri dlhodobej expozícii; po viacerých predchádzajúcich pracovných zmenáchKoniec vystavenia alebo pracovnej zmeny	2016-01-18
		o-krezol: 1,5 mg/l (moč)	Pri dlhodobej expozícii; po viacerých predchádzajúcich pracovných zmenáchKoniec vystavenia alebo pracovnej zmeny	2016-01-18

SI

Ime snovi	Št. CAS	Parametri nadzora	Čas vzorčenja	Sprememba
Toluene	108-88-3	toluen: 600 µmol/l (Kri)	Ob koncu delovne izmene	2018-12-04
		o-krezol: 1,5 mg/l po hidrolizi (Urin)	pri dolgotrajni izpostavljenosti: ob koncu delovne izmene po več zaporednih delavnikihOb koncu delovne izmene	2018-12-04

RO

Numele substanţei	Nr. CAS	Parametri de control	Timp de prelevare a probei	Adus la zi
Toluene	108-88-3	o-cresol: 3 mg/l (Urină)	Sfârşit schimb	2018-08-17
		acid hipuric: 2 g/l (Urină)	Sfârşit schimb	2018-08-17

PT

Nome da substância	No. CAS	Parâmetros de controlo	Tempo de amostra	Atualizada em
Toluene	108-88-3	Tolueno: 0,02 mg/l (Sangue)	Antes do último turno da semana de trabalho	2014-11-14
		Tolueno: 0,03 mg/l (Urina)	Fim do turno	2014-11-14
		o-Cresol: 0.3 mg/g creatinina Com hidrólise (Urina) Valor basal ()	Fim do turno	2014-11-14

LV

Vielas nosaukums	CAS Nr.	Pārvaldības parametri	Parauga ņemšanas laiks	Precizējums
Toluene	108-88-3	toluolu: 0,05 mg/l (Asinis)	maiņas beigās nosaka	2007-05-18
		hipurskābi: 1.6 g/g kreatinīns (Urīns)	maiņas beigās nosaka	2007-05-18

IT

Denominazione della sostanza	N. CAS	Parametri di controllo	Tempo di campionamento	Aggiornamento

HU

Az anyag megnevezése	CAS szám	Ellenőrzési paraméterek	Mintavétel időpontja	Aktualizálás
Toluene	108-88-3	o-krezol: 1 mg/g kreatinin (húgyhólyag)	A műszak végén	2020-02-06
		o-krezol: 1 µmol/mmol kreatinin (kerekített értékek) (húgyhólyag)	A műszak végén	2020-02-06

HR

Naziv tvari	CAS-br.	Nadzorni parametri	Vrijeme uzorkovanja	Ažurirati
Toluene	108-88-3	toluen: 10.85 µmol/l (Krv)	na kraju radne smjene	2018-10-12
		toluen: 1 mg/l (Krv)	na kraju radne smjene	2018-10-12
		toluen: 0.83 µmol/l (krajnje izdahnuti zrak)	za vrijeme izloženosti	2018-10-12
		toluen: 20 dijelova na milijun (krajnje izdahnuti zrak)	za vrijeme izloženosti	2018-10-12
		hipurna kiselina: 1.58 mol/mol kreatinina Računato na prosječnu vrijednost kreatinina od 1,2 g/L urina. Za sve rezultate koji se izražavaju na kreatinin, koncentracije kreatinina < 0,5 g/L i > 3,0 g/L ne mogu se uzeti u obzir. (Urin) hrana bogata voćem i povrćem te konzervirana Na-benzoatom povisuje nalaz ()	na kraju radne smjene	2018-10-12
		hipurna kiselina: 2.5 g/g kreatinin Računato na prosječnu vrijednost kreatinina od 1,2 g/L urina. Za sve rezultate koji se izražavaju na kreatinin, koncentracije kreatinina < 0,5 g/L i > 3,0 g/L ne mogu se uzeti u obzir. (Urin) hrana bogata voćem i povrćem te konzervirana Na-benzoatom povisuje nalaz ()	na kraju radne smjene	2018-10-12
		o-krezol: 1.05 mmol/mol kreatinina Računato na prosječnu vrijednost kreatinina od 1,2 g/L urina. Za sve rezultate koji se izražavaju na kreatinin, koncentracije kreatinina < 0,5 g/L i > 3,0 g/L ne mogu se uzeti u obzir. (Urin)	na kraju radne smjene	2018-10-12
		o-krezol: 1 mg/g kreatinina Računato na prosječnu vrijednost kreatinina od 1,2 g/L urina. Za sve rezultate koji se izražavaju na kreatinin, koncentracije kreatinina < 0,5 g/L i > 3,0 g/L ne mogu se uzeti u obzir. (Urin)	na kraju radne smjene	2018-10-12

FI

Aineen nimi	CAS-Nro.	Valvontaa koskevat muuttujat	Näytteenottoaika	Päivämäärä
Toluene	108-88-3	tolueeni: 500 nmol/l (Veri)	Työpäivän jälkeinen aamu	2016-12-22

ES

Nombre de la sustancia	No. CAS	Parámetros de control	Hora de muestreo	Puesto al día
Toluene	108-88-3	o-cresol: 0.6 mg/g creatinina Cuando el final de la exposición no coincida con el final de la jornada laboral, la muestra se tomará lo antes posible después de que cese la exposición real (Orina) Fondo. El indicador está generalmente presente en cantidades detectables en personas no expuestas laboralmente. Estos niveles de fondo están considerados en el valor VLB. ()	Final de la jornada laboral	2018-02-19
		tolueno: 0,05 mg/l Antes del comienzo de la quinta jornada consecutiva de exposición. (Sangre)	principio de la última jornada de la semana laboral	2018-02-19
		tolueno: 0,08 mg/l Cuando el final de la exposición no coincida con el final de la jornada laboral, la muestra se tomará lo antes posible después de que cese la exposición real (Orina)	Final de la jornada laboral	2018-02-19

DE

Stoffname	CAS-Nr.	Zu überwachende Parameter	Probennahmezeitpunkt	Stand
Toluene	108-88-3	Toluol: 600 µg/l (Blut)	Schichtende	2019-03-29
		o-Kresol: 1,5 mg/l Nach Hydrolyse (Urin)	bei Langzeitexposition: nach mehreren vorangegangenen SchichtenExpositionsende, bzw. Schichtende	2019-03-29
		Toluol: 75 µg/l (Urin)	Expositionsende, bzw. Schichtende	2019-03-29

CZ

Název látky	Č. CAS	Kontrolní parametry	Doba odběru vzorku	Aktualizace
Toluene	108-88-3	Hippurová kyselina: 1600 mg/g kreatininu Je-li hodnota při nálezu kyseliny hippurové vyšší než 1600 mg/g, avšak nepřesahuje 2500 mg/g kreatininu, použije se ke zpřesnění expozice toluenu biologický expoziční test podle ukazatele o-Kresol. Je-li hodnota při nálezu kyseliny hippurové vyšší než 2500 mg/g, považuje se za hodnotu prokazující, že jde o pracovní expozici toluenu, jehož hodnota PEL je překračována a biologický expoziční test podle ukazatele o-Kresol se již neprovádí (moč)	Konec směny	2013-04-22

		Hippurová kyselina: 1000 µmol/mmol kreatininu Je-li hodnota při nálezu kyseliny hippurové vyšší než 1600 mg/g, avšak nepřesahuje 2500 mg/g kreatininu, použije se ke zpřesnění expozice toluenu biologický expoziční test podle ukazatele o-Kresol. Je-li hodnota při nálezu kyseliny hippurové vyšší než 2500 mg/g, považuje se za hodnotu prokazující, že jde o pracovní expozici toluenu, jehož hodnota PEL je překračována a biologický expoziční test podle ukazatele o-Kresol se již neprovádí (moč)	Konec směny	2013-04-22
		o-Kresol: 1.5 mg/g kreatininu Po hýdrolyse (moč)	Konec směny	2013-04-22
		o-Kresol: 1.6 µmol/mmol kreatininu Po hýdrolyse (moč)	Konec směny	2013-04-22

CH

Stoffname	CAS-Nr.	Zu überwachende Parameter	Probennahmezeitpunkt	Stand
Toluene	108-88-3	o-Kresol: 0,5 mg/l Quantitative Interpretation schwierig; Bei den mit Q gekennzeichneten biologischen Parametern ist die exakte quantitative Interpretation schwierig. Als Screening-Test kann der biologische Parameter verwendet werden, ebenfalls als Zusatzuntersuchung nach der Bestimmung nicht spezifischer Parameter (N). (Urin)	Expositionsende, bzw. Schichtendebei Langzeitexposition: nach mehreren vorangegangenen Schichten	2018-01-18
		Hippursäure: 2 g/g Kreatinin Nicht spezifischer Parameter; Die mit N gekennzeichneten biologischen Parameter sind nicht für den aufgeführten Arbeitsstoff spezifisch, sondern können auch nach Expositionen gegenüber bestimmten anderen Arbeitsstoffen im biologischen Material gemessen werden. In der Praxis hat sich die Bestimmung dieser Stoffe jedoch bewährt. Bei speziellen Problemen empfiehlt sich zusätzlich die Bestimmung eines spezifischen Parameters. (Urin) Umwelteinflüsse; Die mit X gekennzeichneten biologischen Parameter werden auch in unterschiedlicher Quantität bei beruflich Nichtexponierten gemessen, da sie zusätzlich auf Umwelteinflüsse zurückgeführt werden können. Die Festsetzung des BAT-Wertes berücksichtigt bei diesen Parametern auch die Einflüsse von Umweltfaktoren. ()	Expositionsende, bzw. Schichtendebei Langzeitexposition: nach mehreren vorangegangenen Schichten	2018-01-18
		Toluol: 6.48 µmol/l (Blut)	Expositionsende, bzw. Schichtende	2018-01-18

		Hippursäure: 1.26 mmol/mmol Kreatinin Nicht spezifischer Parameter; Die mit N gekennzeichneten biologischen Parameter sind nicht für den aufgeführten Arbeitsstoff spezifisch, sondern können auch nach Expositionen gegenüber bestimmten anderen Arbeitsstoffen im biologischen Material gemessen werden. In der Praxis hat sich die Bestimmung dieser Stoffe jedoch bewährt. Bei speziellen Problemen empfiehlt sich zusätzlich die Bestimmung eines spezifischen Parameters. (Urin) Umwelteinflüsse; Die mit X gekennzeichneten biologischen Parameter werden auch in unterschiedlicher Quantität bei beruflich Nichtexponierten gemessen, da sie zusätzlich auf Umwelteinflüsse zurückgeführt werden können. Die Festsetzung des BAT-Wertes berücksichtigt bei diesen Parametern auch die Einflüsse von Umweltfaktoren. ()	Expositionsende, bzw. Schichtendebei Langzeitexposition: nach mehreren vorangegangenen Schichten	2018-01-18
		o-Kresol: 4.62 µmol/l Quantitative Interpretation schwierig; Bei den mit Q gekennzeichneten biologischen Parametern ist die exakte quantitative Interpretation schwierig. Als Screening-Test kann der biologische Parameter verwendet werden, ebenfalls als Zusatzuntersuchung nach der Bestimmung nicht spezifischer Parameter (N). (Urin)	Expositionsende, bzw. Schichtendebei Langzeitexposition: nach mehreren vorangegangenen Schichten	2018-01-18
		Toluol: 600 µg/l (Blut)	Expositionsende, bzw. Schichtende	2018-01-18

BG

Наименование на веществото	CAS номер	Параметри на контрол	Време на взимане на пробата	Последна актуализация
Toluene	108-88-3	хипурова киселина: 1.6 mmol/mmol креатинин (Урина)	В края на експозицията или в края на работната смяна	2007-08-17

AT

Stoffname	CAS-Nr.	Zu überwachende Parameter	Probennahmezeitpunkt	Stand
Toluene	108-88-3	o-Cresol: 0,8 mg/l Bei wiederholt erhöhten o-Cresolwerten ist zusätzlich Toluol im Blut am Ende eines Arbeitstages zu bestimmen (der Zeitpunkt der Untersuchung ist anzugeben). (Urin)	Nach Ablauf einer Arbeitswoche/am Ende des Arbeitstages/am Schichtende	2014-02-18
		Toluol: 250 µg/l (Blut)	Am Ende eines Arbeitstages	2014-02-18

DNEL
n-Heptane :

8.2

Exposure controls
Engineering measures

Adequate ventilation to control airborned concentrations below the exposure guidelines/limits.

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

Respiratory protection	:	If ventilation or other engineering controls are not adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure, a supplied-air NIOSH approved respirator may be appropriate. If exposure to harmful levels of airborne material may occur, a NIOSH approved respirator that provides protection may be appropriate, such as:. Air-Purifying Respirator for Organic Vapors. A positive pressure, air-supplying respirator may be appropriate if there is potential for uncontrolled release, aerosolization, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.
Hand protection	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Eye protection	:	Eye wash bottle with pure water. Tightly fitting safety goggles.
Skin and body protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Flame retardant antistatic protective clothing. Workers should wear antistatic footwear.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

For additional details, see the Exposure Scenario in the Annex portion

SECTION 9: Physical and chemical properties

9.1

Information on basic physical and chemical properties

Appearance

Form	:	Non-viscous
Physical state	:	liquid
Color	:	Clear
Odor	:	Strong gasoline

Safety data

Flash point	:	4°C (39°F) Method: closed cup

		estimated
Lower explosion limit	:	1,1 %(V)
Upper explosion limit	:	7,1 %(V)
Oxidizing properties	:	No
Autoignition temperature	:	528,9°C (984,0°F)
Thermal decomposition	:	No data available
Molecular formula	:	Mixture
Molecular weight	:	Not applicable
pH	:	Not applicable
Freezing point	:	-94,44°C (-137,99°F)
Pour point		No data available
Boiling point/boiling range	:	99°C (210°F)
Vapor pressure	:	30,00 MMHG estimated
Relative density	:	0,82 at 15,6 °C (60,1 °F)
Density	:	0,8 g/cm3
Water solubility	:	negligible
Partition coefficient: n-octanol/water	:	No data available
Viscosity, kinematic	:	No data available
Relative vapor density	:	3,2 (Air = 1.0)
Evaporation rate	:	4,5
Percent volatile	:	> 99 %
		0,02 %

9.2 Other information

Conductivity	:	No data available

SECTION 10: Stability and reactivity

10.1

Reactivity : Stable under recommended storage conditions.

10.2

Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3

Possibility of hazardous reactions

Hazardous reactions : Hazardous reactions: Hazardous polymerization does not occur.

Hazardous reactions: Vapors may form explosive mixture with air.

10.4

Conditions to avoid : Heat, flames and sparks.

10.5

Materials to avoid : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Thermal decomposition : No data available

10.6

Hazardous decomposition products : Hydrocarbons
Carbon oxides

Other data : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1

Information on toxicological effects

TrusTec™ Toluene Standard Fuel 93.4
Acute oral toxicity : Acute toxicity estimate: > 5.000 mg/kg
Method: Calculation method

TrusTec™ Toluene Standard Fuel 93.4
Acute inhalation toxicity : Acute toxicity estimate: > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

TrusTec™ Toluene Standard Fuel 93.4

Acute dermal toxicity : Acute toxicity estimate: > 5.000 mg/kg
Method: Calculation method

TrusTec™ Toluene Standard Fuel 93.4
Skin irritation : Irritating to skin.
largely based on animal evidence.

TrusTec™ Toluene Standard Fuel 93.4
Eye irritation : Vapors may cause irritation to the eyes, respiratory system and the skin.

TrusTec™ Toluene Standard Fuel 93.4
Sensitization : Does not cause skin sensitization.
largely based on animal evidence.

Repeated dose toxicity

Toluene : Species: Rat
Application Route: Inhalation
Dose: 0, 100, 625, 1250, 3000 ppm
Exposure time: 15 wk
Number of exposures: 6.5 h/d, 5 d/wk
NOEL: 625 ppm

Species: Mouse
Application Route: Inhalation
Dose: 0, 100, 625, 1250, 3000 ppm
Exposure time: 14 wk
Number of exposures: 6.5 h/d, 5 d/wk
NOEL: 100 ppm

n-Heptane Species: Rat, male
Sex: male
Application Route: Inhalation
Dose: 12.47 mg/l
Exposure time: 16 wk
Number of exposures: 12 h/d, 7 d/wk
NOEL: 12,47 mg/l
No adverse effect has been observed in chronic toxicity tests.

Species: Rat, Male and female
Sex: Male and female
Application Route: Inhalation
Dose: 12.35 mg/l
Exposure time: 26 wk
Number of exposures: 6 h/d, 5 d/wk
Method: OECD Test Guideline 413
No adverse effect has been observed in chronic toxicity tests.

Genotoxicity in vitro

Toluene : Test Type: Ames test
Result: negative

Test Type: Sister Chromatid Exchange Assay
Result: negative

Test Type: Mouse lymphoma assay
Result: negative

Test Type: Cytogenetic assay
Result: negative

n-Heptane

Test Type: Ames test
Method: Mutagenicity (Escherichia coli - reverse mutation assay)
Result: negative

Test Type: Mammalian cell gene mutation assay
Method: OECD Guideline 476
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Guideline 473
Result: negative

Test Type: Mitotic recombination
Result: negative

Genotoxicity in vivo

Toluene : Test Type: Cytogenetic assay
Result: negative

Test Type: Mouse micronucleus assay
Result: negative

Carcinogenicity

Toluene : Species: Rat
Dose: 0, 600, 1200 ppm
Exposure time: 2 yrs
Number of exposures: 6.5 h/d, 5 d/wk
Remarks: No evidence of carcinogenicity

Species: Mouse
Dose: 0, 600, 1200 ppm
Exposure time: 2 yrs
Number of exposures: 6.5 h/d, 5 d/wk
Remarks: No evidence of carcinogenicity

Reproductive toxicity

Toluene : Species: Rat
Application Route: Inhalation
Dose: 0, 100, 500, 2000 ppm
Test period: 95 d
NOAEL Parent: 2000 ppm

n-Heptane

Species: Rat
Sex: male and female
Application Route: Inhalation

Dose: 0, 900, 3000, 9000 ppm
Number of exposures: 6 hr/d, 5 d/wk
Test period: 13 wk
Method: OECD Test Guideline 416
NOAEL Parent: 9000 ppm
NOAEL F1: 3000 ppm
NOAEL F2: 3000 ppm
Information given is based on data obtained from similar substances.

Developmental Toxicity

Toluene : Species: Rat
Application Route: Inhalation
Dose: 0, 100, 500, 2000 ppm
Test period: 95 d
NOAEL Teratogenicity: 400-750 ppm

n-Heptane Species: Rat
Application Route: Inhalation
Dose: 0, 900, 3000, 9000 ppm
Exposure time: GD6-15
Number of exposures: 6 hrs/d
NOAEL Teratogenicity: 9000 ppm
NOAEL Maternal: 3000 ppm

TrusTec™ Toluene Standard Fuel 93.4
Aspiration toxicity : May be fatal if swallowed and enters airways.

Specific Target Organ Toxicity (Single Exposure)
Toluene : Assessment: May cause drowsiness or dizziness.

n-Heptane Target Organs: Central nervous system
Assessment: May cause drowsiness or dizziness.

Specific Target Organ Toxicity (Repeated Exposure)
Toluene : Route of Exposure:Inhalation
Target Organs: Auditory organs, color vision
Assessment: May cause damage to organs through prolonged or repeated exposure.

CMR effects

Toluene : Carcinogenicity: Not classifiable as a human carcinogen.
Mutagenicity: Animal testing did not show any mutagenic effects.
Teratogenicity: Some evidence of adverse effects on development, based on animal experiments.
Reproductive toxicity: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

n-Heptane Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Teratogenicity: Animal testing did not show any effects on fetal development.
Reproductive toxicity: No toxicity to reproduction

11.2

Information on other hazards

TrusTec™ Toluene Standard Fuel 93.4

Further information	:	Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.
Endocrine disrupting properties	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 12: Ecological information

12.1

Toxicity

Toxicity to fish

Toluene	:	LC50: 18 - 36 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow)
n-Heptane		LL50: 5,738 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data

Toxicity to daphnia and other aquatic invertebrates

Toluene	:	EC50: 3,78 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea)
n-Heptane		EC50: 1,5 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Toxic to aquatic organisms. LC50: 0,1 mg/l Exposure time: 96 h Species: Mysidopsis bahia (mysid shrimp) semi-static test Very toxic to aquatic organisms.

Toxicity to algae

Toluene	:	EC50: 134 mg/l Exposure time: 72 h Species: Chlamydomonas angulosa (Green algae)
n-Heptane		EL50: 4,338 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (microalgae)

Method: QSAR

Toxicity to fish (Chronic toxicity)

n-Heptane	:	NOELR: 1,284 mg/l Exposure time: 28 d Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data

12.2

Persistence and degradability

Biodegradability	:	Taking into consideration the properties of several ingredients, the product is estimated to be biodegradable according to OECD classification.

12.3

Bioaccumulative potential

Elimination information (persistence and degradability)

Bioaccumulation

Toluene	:	This material is not expected to bioaccumulate.
n-Heptane	:	Bioconcentration factor (BCF): 552 Method: QSAR modeled data This material is not expected to bioaccumulate.

12.4

Mobility in soil

Mobility

Toluene	:	Not expected to adsorb on soil.
n-Heptane	:	Medium: Air Method: Calculation, Mackay Level I Fugacity Model Content: 100 % After release, disperses into the air.

12.5

Results of PBT and vPvB assessment

Results of PBT assessment	:	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6

Endocrine disrupting properties

Endocrine disrupting properties	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7

Other adverse effects

Additional ecological information : Very toxic to aquatic life with long lasting effects.

12.8

Additional Information

Ecotoxicology Assessment

Short-term (acute) aquatic hazard

Toluene : Toxic to aquatic life.

n-Heptane : Very toxic to aquatic life.

Long-term (chronic) aquatic hazard

Toluene : Harmful to aquatic life with long lasting effects.

n-Heptane : Very toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1

Waste treatment methods

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product : The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

For additional details, see the Exposure Scenario in the Annex portion

SECTION 14: Transport information

14.1 - 14.7

Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
UN1268, PETROLEUM PRODUCTS, N.O.S., 3, II, MARINE POLLUTANT, (N-HEPTANE)

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN1268, PETROLEUM PRODUCTS, N.O.S., 3, II, (4 °C c.c.), MARINE POLLUTANT, (N-HEPTANE)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN1268, PETROLEUM PRODUCTS, N.O.S., 3, II

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN1268, PETROLEUM PRODUCTS, N.O.S., 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (N-HEPTANE)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
33,UN1268,PETROLEUM PRODUCTS, N.O.S., 3, II, ENVIRONMENTALLY HAZARDOUS, (N-HEPTANE)

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN1268, PETROLEUM PRODUCTS, N.O.S., 3, II, ENVIRONMENTALLY HAZARDOUS, (N-HEPTANE)

Maritime transport in bulk according to IMO instruments

SECTION 15: Regulatory information

15.1

Safety, health and environmental regulations/legislation specific for the substance or mixture
National legislation

Commission Regulation (EU) 2020/878 of 18 June 2020 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Water hazard class (Germany) : WGK 2 water endangering

15.2

Chemical Safety Assessment

Components	:	heptane	A Chemical Safety Assessment has been carried out for this substance.	205-563-8

Major Accident Hazard Legislation : 96/82/EC Update:
Dangerous for the environment
9b
Quantity 1: 200 t

Quantity 2: 500 t

: 96/82/EC Update:
Highly flammable
7b
Quantity 1: 5.000 t
Quantity 2: 50.000 t

: ZEU_SEVES3 Update:
FLAMMABLE LIQUIDS
P5c
Quantity 1: 5.000 t
Quantity 2: 50.000 t

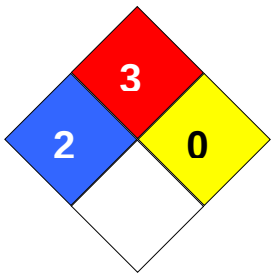
: ZEU_SEVES3 Update:
ENVIRONMENTAL HAZARDS
E1
Quantity 1: 100 t
Quantity 2: 200 t

Notification status

Europe REACH	:	This mixture contains only ingredients which have been registered according to Regulation (EU) No. 1907/2006 (REACH).
Switzerland CH INV	:	On the inventory, or in compliance with the inventory
United States of America (USA) TSCA	:	On or in compliance with the active portion of the TSCA inventory
Canada DSL	:	All components of this product are on the Canadian DSL
Australia AIIC	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	Not in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	On the inventory, or in compliance with the inventory
Korea KECI	:	A substance(s) in this product was not registered, notified to be registered, or exempted from registration by CPChem according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance or the exported amount does not exceed the minimum threshold quantity of the non-registered substance(s).
Philippines PICCS	:	On the inventory, or in compliance with the inventory
Taiwan TCSI	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory

SECTION 16: Other information

NFPA Classification : Health Hazard: 2
Fire Hazard: 3
Reactivity Hazard: 0



Further information

Legacy SDS Number : 26600

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AIIC	Australian Inventory of Industrial Chemicals	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%	ATE	Acute toxicity estimate

Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapor.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Annex

1. Short title of Exposure Scenario: **Use as a fuel - industrial**

Main User Groups	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU3:** Industrial Manufacturing (all)
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC16:** Using material as fuel sources, limited exposure to unburned product to be expected
Environmental release category	:	**ERC7, ERC8b:** Industrial use of substances in closed systems, Wide dispersive indoor use of reactive substances in open systems
Further information	:	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

2.1 Contributing scenario controlling environmental exposure for:ERC7, ERC8b: Industrial use of substances in closed systems, Wide dispersive indoor use of reactive substances in open systems

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (tonnes/day): (Msafe)	:	4.300 tonnes/day

Environment factors not influenced by risk management

Flow rate	:	18.000 m3/d
Dilution Factor (River)	:	10
Dilution Factor (Coastal Areas)	:	100

Other given operational conditions affecting environmental exposure

Continuous use/release		
Number of emission days per year	:	20
Emission or Release Factor: Air	:	5 %
Emission or Release Factor: Water	:	0,001 %
Emission or Release Factor: Soil	:	0 %

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of

(%): (Effectiveness: 95 %)

Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 0 %)
Remarks	:	Risk from environmental exposure is driven by freshwater sediment.
Water	:	If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): (Effectiveness: 0 %)
Remarks	:	No wastewater treatment required.
Remarks	:	Common practices vary across sites thus conservative process release estimates used.

Conditions and measures related to municipal sewage treatment plant

Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Effectiveness (of a measure)	:	96,2 %
Percentage removed from waste water	:	96,2 %

Conditions and measures related to external treatment of waste for disposal

Remarks	:	Combustion emissions considered in regional exposure assessment. Combustion emissions limited by required exhaust emission controls.

Conditions and measures related to external recovery of waste

Recovery Methods	:	This substance is consumed during use and no waste of the substance is generated.

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics

Physical Form (at time of use)	:	Liquid substance

Amount used

Remarks	:	No limit

Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure

Remarks	:	Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures

Handle substance within a closed system., Store substance within a closed system.

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics

Physical Form (at time of use)	:	Liquid substance

Amount used

Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures
Handle substance within a closed system., Store substance within a closed system., Transfer via enclosed lines.

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures
Handle substance within a closed system.

Organizational measures to prevent /limit releases, dispersion and exposure
No specific measures identified.

2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above

ambient temperature, unless stated differently.

Technical conditions and measures
Drain down and flush system prior to equipment opening or maintenance.

Organizational measures to prevent /limit releases, dispersion and exposure
Apply vessel entry procedures including use of forced supplied air.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374., Wear suitable coveralls to prevent exposure to the skin.

2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures
Handle substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

2.2 Contributing scenario controlling worker exposure for: PROC16: Using material as fuel sources, limited exposure to unburned product to be expected

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures
Handle substance within a closed system.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC7, ERC8b	Hydrocarbon Block Method with Petrorisk		Air		0,0086 µg/m3	
			Freshwater		0,0043 µg/L	0,000046
			Freshwater sediment		0,13 µg/kg	0,000052
			Marine water		0,0004 µg/L	0,000005
			Marine sediment		0,013 µg/kg	0,000005
			Agricultural soil		0,0006 µg/kg	< 0,000001

ERC7: Industrial use of substances in closed systems
ERC8b: Wide dispersive indoor use of reactive substances in open systems

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC1, CS15, CS37, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,04 mg/m3	0,000
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,001
			Worker – long-term – systemic Combined routes		0,001
PROC2, CS15, CS37, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	40,90 mg/m3	0,020
			Worker – dermal, long-term – systemic	1,37 mg/kg	0,005
			Worker – long-term – systemic Combined routes		0,024
PROC3, CS15, CS37, CS107	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	102,25 mg/m3	0,049
			Worker – dermal, long-term – systemic	0,34 mg/kg	0,001
			Worker – long-term – systemic Combined routes		0,050
PROC8a, CS39	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,009
			Worker – long-term – systemic Combined routes		0,107
PROC8a, CS103	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	20,45 mg/m3	0,010
			Worker – long-term – systemic Combined routes	2,742 mg/kg	0,009
			Worker – dermal, long-term – systemic		0,019
PROC8b, CS8, CS14	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
			Worker – dermal, long-term – systemic	1,372 mg/kg	0,005
			Worker – long-term – systemic Combined		0,103

			routes		
PROC16, CS15, CS107	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	20,45 mg/m3	0,010
			Worker – dermal, long-term – systemic	0,34 mg/kg	0,001
			Worker – long-term – systemic Combined routes		0,011

PROC1: Use in closed process, no likelihood of exposure
CS15: General exposures (closed systems)
CS37: Use in contained batch processes
CS67: Storage

PROC2: Use in closed, continuous process with occasional controlled exposure
CS15: General exposures (closed systems)
CS37: Use in contained batch processes
CS67: Storage

PROC3: Use in closed batch process (synthesis or formulation)
CS15: General exposures (closed systems)
CS37: Use in contained batch processes
CS107: (closed systems)

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
CS39: Equipment cleaning and maintenance

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
CS103: Vessel and container cleaning

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
CS8: Drum/batch transfers
CS14: Bulk transfers

PROC16: Using material as fuel sources, limited exposure to unburned product to be expected
CS15: General exposures (closed systems)
CS107: (closed systems)

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.
Risk Management Measures are based on qualitative risk characterisation.
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 wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-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).

1. Short title of Exposure Scenario: **Manufacture**

Main User Groups	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU3, SU8, SU9:** Industrial Manufacturing (all), Manufacture of bulk, large scale chemicals (including petroleum products), Manufacture of fine chemicals
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC15:** Use as laboratory reagent
Environmental release category	:	**ERC1, ERC4:** Manufacture of substances, Industrial use of processing aids in processes and products, not becoming part of articles
Further information	:	Manufacture of the substance or use as an intermediate or process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

2.1 Contributing scenario controlling environmental exposure for:ERC1, ERC4: Manufacture of substances, Industrial use of processing aids in processes and products, not becoming part of articles

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d):(Msafe)	:	720.000

Environment factors not influenced by risk management

Flow rate	:	18.000 m3/d
Dilution Factor (River)	:	10
Dilution Factor (Coastal Areas)	:	100

Other given operational conditions affecting environmental exposure

Number of emission days per year	:	100
Emission or Release Factor: Air	:	5 %
Emission or Release Factor: Water	:	0,03 %
Emission or Release Factor: Soil	:	0,01 %

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide the required removal efficiency of (%): (Effectiveness: 90 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 0 %)
Remarks	:	Prevent discharge of undissolved substance to or recover from onsite wastewater.
Water	:	If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): (Effectiveness: 0 %)
Remarks	:	Risk from environmental exposure is driven by freshwater sediment.
Remarks	:	No wastewater treatment required.

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Effectiveness (of a measure)	:	96,2 %
Percentage removed from waste water	:	96,2 %

Conditions and measures related to external treatment of waste for disposal

Waste treatment	:	During manufacturing no waste of the substance is generated.

Conditions and measures related to external recovery of waste

Recovery Methods	:	During manufacturing no waste of the substance is generated.

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics

Physical Form (at time of use)	:	Liquid substance

Amount used

Remarks	:	Not applicable

Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure

Remarks	:	Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures

Store substance within a closed system.

Organizational measures to prevent /limit releases, dispersion and exposure

No specific measures identified.

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics

Physical Form (at time of use)	:	Liquid substance

Amount used
Remarks : Not applicable

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Handle substance within a closed system., Store substance within a closed system.

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : Not applicable

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Handle substance within a closed system.

2.2 Contributing scenario controlling worker exposure for: PROC4, PROC15: Use in batch and other process (synthesis) where opportunity for exposure arises, Use as laboratory reagent

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : Not applicable

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Organizational measures to prevent /limit releases, dispersion and exposure
No specific measures identified.

2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : Not applicable

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : Not applicable

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Handle substance within a closed system.

Organizational measures to prevent /limit releases, dispersion and exposure
No specific measures identified.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC1, ERC4	Hydrocarbon Block Method with Petrorisk		Air		0,0051 mg/m3	
			Freshwater		0,0015 mg/L	0,016
			Freshwater sediment		0,046 mg/kg	0,019
			Marine water		0,15 µg/L	0,0016
			Marine sediment		0,0046 mg/kg	0,0018
			Agricultural soil		0,036 µg/kg	0,000068

ERC1: Manufacture of substances
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC1, CS15	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,04 mg/m3	0,000
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,001
			Worker – long-term – systemic Combined routes		0,001
PROC2, CS15, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	40,90 mg/m3	0,020
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,005
			Worker – long-term – systemic Combined routes		0,024
PROC3, CS15	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	102,25 mg/m3	0,049
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,001
			Worker – long-term – systemic Combined routes		0,050
PROC4, CS16	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	81,80 mg/m3	0,039
			Worker – dermal, long-term – systemic	6,86 mg/kg/d	0,023
			Worker – long-term – systemic Combined routes		0,062
PROC15, CS36	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	40,90 mg/m3	0,020
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,001
			Worker – long-term – systemic Combined routes		0,021
PROC8a, CS39	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,009
			Worker – long-term – systemic Combined routes		0,107
PROC8b, CS2, CS14, CS107, CS108	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
			Worker – dermal, long-term – systemic	6,86 mg/kg/d	0,023
			Worker – long-term – systemic Combined		0,121

			routes		

PROC1: Use in closed process, no likelihood of exposure
CS15: General exposures (closed systems)

PROC2: Use in closed, continuous process with occasional controlled exposure
CS15: General exposures (closed systems)
CS67: Storage

PROC3: Use in closed batch process (synthesis or formulation)
CS15: General exposures (closed systems)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
CS16: General exposures (open systems)

PROC15: Use as laboratory reagent
CS36: Laboratory activities

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
CS39: Equipment cleaning and maintenance

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
CS2: Process sampling
CS14: Bulk transfers
CS107: (closed systems)
CS108: (open systems)

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.
Risk Management Measures are based on qualitative risk characterisation.
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 wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-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).

1. Short title of Exposure Scenario: **Formulation**

Main User Groups	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU 10:** Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or

formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletization
PROC15: Use as laboratory reagent

Environmental release category : **ERC2:** Formulation of preparations

Further information :

Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

2.1 Contributing scenario controlling environmental exposure for:ERC2: Formulation of preparations

Amount used

Annual site tonnage (tonnes/year):	:	150
Maximum daily site tonnage (kg/day):	:	1500
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d):(Msafe)	:	220.000

Environment factors not influenced by risk management

Flow rate	:	18.000 m3/d
Dilution Factor (River)	:	10
Dilution Factor (Coastal Areas)	:	100

Other given operational conditions affecting environmental exposure

Continuous use/release		
Number of emission days per year	:	100
Emission or Release Factor: Air	:	2,5 %
Emission or Release Factor: Water	:	0,02 %
Emission or Release Factor: Soil	:	0,01 %

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%):

(Effectiveness: 0 %)

Remarks	:	Prevent discharge of undissolved substance to or recover from onsite wastewater.
Water	:	If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): (Effectiveness: 0 %)
Remarks	:	Risk from environmental exposure is driven by freshwater sediment.
Remarks	:	No wastewater treatment required.

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Effectiveness (of a measure)	:	96,2 %
Percentage removed from waste water	:	96,2 %

Conditions and measures related to external treatment of waste for disposal

Remarks	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery Methods	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure

Product characteristics

Physical Form (at time of use)	:	Liquid substance

Amount used

Remarks	:	No limit

Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure

Remarks	:	Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures

Handle substance within a closed system., Store substance within a closed system., Transfer via enclosed lines.

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics

Physical Form (at time of use)	:	Liquid substance

Amount used

Remarks	:	No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Provide enhanced general ventilation by mechanical means., Formulate in enclosed or ventilated mixing vessels., Avoid dip sampling.

2.2 Contributing scenario controlling worker exposure for: PROC4, PROC9, PROC14, PROC15: Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Production of preparations or articles by tabletting, compression, extrusion, pelletization, Use as laboratory reagent

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Organizational measures to prevent /limit releases, dispersion and exposure
No specific measures identified.

2.2 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Provide extraction ventilation at points where emissions occur., Use drum pumps or carefully pour from container.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Provide extraction ventilation at points where emissions occur., Use drum pumps or carefully pour from container.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC2	Hydrocarbon Block Method with Petrorisk		Air		0,0029 mg/m3	
			Freshwater		0,57 µg/L	0,0061
			Freshwater sediment		0,017 mg/kg	0,0069
			Marine water		0,057 µg/L	0,00061
			Marine sediment		0,0017 mg/kg	0,00069
			Agricultural soil		0,02 µg/kg	0,000038

ERC2: Formulation of preparations

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC1, CS15, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,04 mg/m3	0,000
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,001
			Worker – long-term – systemic Combined routes		0,001
PROC2, CS15, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	40,90 mg/m3	0,020
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,005
			Worker – long-term – systemic Combined routes		0,024
PROC3, CS15	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	102,25 mg/m3	0,049
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,001
			Worker – long-term – systemic Combined routes		0,050
PROC3, CS136	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	122,70 mg/m3	0,059
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,001
			Worker – long-term – systemic Combined routes		0,060
PROC4, CS16	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	81,80 mg/m3	0,039
			Worker – dermal, long-term – systemic	6,86 mg/kg/d	0,023
			Worker – long-term – systemic Combined routes		0,062
PROC9, CS6	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
			Worker – dermal, long-term – systemic	6,86 mg/kg/d	0,023
			Worker – long-term – systemic Combined routes		0,121
PROC14, CS100	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
			Worker – dermal, long-	3,43 mg/kg/d	0,011

			term – systemic		
			Worker – long-term – systemic Combined routes		0,110
PROC15, CS36	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	40,90 mg/m3	0,020
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,001
			Worker – long-term – systemic Combined routes		0,021
PROC5, CS30	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,009
			Worker – long-term – systemic Combined routes		0,107
PROC8a, CS34, CS22	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	20,45 mg/m3	0,010
			Worker – dermal, long-term – systemic	0,1371 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,010
PROC8a, CS39	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,009
			Worker – long-term – systemic Combined routes		0,107
PROC8b, CS14	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
			Worker – dermal, long-term – systemic	1,372 mg/kg/d	0,005
			Worker – long-term – systemic Combined routes		0,103
PROC8b, CS8	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	6,13 mg/m3	0,003
			Worker – dermal, long-term – systemic	0,686 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,005

PROC1: Use in closed process, no likelihood of exposure
CS15: General exposures (closed systems)
CS67: Storage

PROC2: Use in closed, continuous process with occasional controlled exposure
CS15: General exposures (closed systems)
CS67: Storage

PROC3: Use in closed batch process (synthesis or formulation)
CS15: General exposures (closed systems)

PROC3: Use in closed batch process (synthesis or formulation)
CS136: Batch processes at elevated temperatures

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
CS16: General exposures (open systems)

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
CS6: Drum and small package filling

PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletization

CS100: Production or preparation or articles by tabletting, compression, extrusion or pelletization

PROC15: Use as laboratory reagent
CS36: Laboratory activities

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
CS30: Mixing operations (open systems)

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
CS34: Manual
CS22: Transfer from/pouring from containers

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
CS39: Equipment cleaning and maintenance

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
CS14: Bulk transfers

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
CS8: Drum/batch transfers

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.
Risk Management Measures are based on qualitative risk characterisation.
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 wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-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).

1. Short title of Exposure Scenario: **Use as a cleaning agent – industrial**

Main User Groups	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU3:** Industrial Manufacturing (all)
Process category	:	**PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC7:** Industrial spraying

		PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC10:** Roller application or brushing **PROC13:** Treatment of articles by dipping and pouring
Environmental release category	:	**ERC4:** Industrial use of processing aids in processes and products, not becoming part of articles
Further information	:	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.

2.1 Contributing scenario controlling environmental exposure for:ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d):(Msafe)	:	1.800 tonnes/day

Environment factors not influenced by risk management

Flow rate	:	18.000 m3/d
Dilution Factor (River)	:	10
Dilution Factor (Coastal Areas)	:	100

Other given operational conditions affecting environmental exposure

Continuous use/release		
Number of emission days per year	:	20
Emission or Release Factor: Air	:	100 %
Emission or Release Factor: Water	:	3 ppm
Emission or Release Factor: Soil	:	0 %

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 70 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 0 %)
Remarks	:	Prevent discharge of undissolved substance to or recover from onsite wastewater.
Water	:	If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): (Effectiveness: 0 %)
Remarks	:	Risk from environmental exposure is driven by freshwater.
Remarks	:	No wastewater treatment required.

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant

Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Effectiveness (of a measure)	:	96,2 %
Percentage removed from waste water	:	96,2 %

Conditions and measures related to external treatment of waste for disposal

Waste treatment	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery Methods	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics

Physical Form (at time of use)	:	Liquid substance

Amount used

Remarks	:	No limit

Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure

Remarks	:	Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Organizational measures to prevent /limit releases, dispersion and exposure

No specific measures identified.

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics

Physical Form (at time of use)	:	Liquid substance

Amount used

Remarks	:	No limit

Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure

Remarks	:	Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Organizational measures to prevent /limit releases, dispersion and exposure

No specific measures identified.

2.2 Contributing scenario controlling worker exposure for: PROC4, PROC13: Use in

batch and other process (synthesis) where opportunity for exposure arises, Treatment of articles by dipping and pouring

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Provide extraction ventilation at points where emissions occur.

2.2 Contributing scenario controlling worker exposure for: PROC7: Industrial spraying

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Provide enhanced general ventilation by mechanical means.

Organizational measures to prevent /limit releases, dispersion and exposure
Avoid carrying out operation for more than 4 hours.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training., Wear a respirator conforming to EN140 with Type A filter or better.

2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC4	Hydrocarbon Block Method with Petrorisk		Air		0,23 µg/m3	
			Freshwater		0,0027 µg/L	0,000028
			Freshwater sediment		0,046 µg/kg	0,000013
			Marine water		0,028 ng/L	< 0,000003
			Marine sediment		0,87 ng/kg	< 0,000004
			Agricultural soil		0,0016 µg/kg	< 0,000003

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Workers/Consumers

Contributing	Exposure	Specific	Value type	Level of Exposure	Risk characterization

Scenario	Assessment Method	conditions			ratio (PEC/PNEC):
PROC2, CS93, CS101	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	40,90 mg/m3	0,020
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,005
			Worker – inhalation, long-term – systemic		0,024
PROC3, CS93	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	102,5 mg/m3	0,049
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,001
			Worker – inhalation, long-term – systemic		0,050
PROC4, CS37	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	8,18 mg/m3	0,004
			Worker – dermal, long-term – systemic	0,686 mg/kg/d	0,002
			Worker – inhalation, long-term – systemic		0,006
PROC13, CS41	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	20,45 mg/m3	0,010
			Worker – dermal, long-term – systemic	0,686 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,012
PROC7, CS44	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	184,05 mg/m3	0,088
			Worker – dermal, long-term – systemic	4,286 mg/kg/d	0,014
			Worker – inhalation, long-term – systemic		0,103
PROC7, CS44	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	30,67 mg/m3	0,015
			Worker – dermal, long-term – systemic	4,286 mg/kg/d	0,014
			Worker – long-term – systemic Combined routes		0,029
PROC8a, CS14, PROC8b, CS45	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,009
			Worker – inhalation, long-term – systemic		0,107
PROC8b, CS45	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
			Worker – dermal, long-term – systemic	1,372 mg/kg/d	0,005
			Worker – long-term – systemic Combined routes		0,103
PROC10, CS34, CS42	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
			Worker – dermal, long-term – systemic	2,743 mg/kg/d	0,009
			Worker – inhalation, long-term – systemic		0,107

PROC2: Use in closed, continuous process with occasional controlled exposure
CS93: Automated process with (semi) closed systems.
CS101: Application of cleaning products in closed systems

PROC3: Use in closed batch process (synthesis or formulation)
CS93: Automated process with (semi) closed systems.

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
CS37: Use in contained batch processes

PROC13: Treatment of articles by dipping and pouring

CS41: Degreasing small objects in cleaning station

PROC7: Industrial spraying
CS44: Cleaning with high pressure washers

PROC7: Industrial spraying
CS44: Cleaning with high pressure washers

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
CS14: Bulk transfers
PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
CS45: Filling/ preparation of equipment from drums or containers.

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
CS45: Filling/ preparation of equipment from drums or containers.

PROC10: Roller application or brushing
CS34: Manual
CS42: Cleaning with low-pressure washers

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.
Risk Management Measures are based on qualitative risk characterisation.
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 wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-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).

1. Short title of Exposure Scenario: **Use as a cleaning agent – professional**

Main User Groups	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	:	**PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
PROC10: Roller application or brushing
PROC11: Non industrial spraying
PROC13: Treatment of articles by dipping and pouring

Environmental release category : **ERC8a, ERC8d:** Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Further information :

Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).

2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Daily amount per site(Msafe) : 55

Environment factors not influenced by risk management

Flow rate : 18.000 m3/d
Dilution Factor (River) : 10
Dilution Factor (Coastal Areas) : 100

Other given operational conditions affecting environmental exposure

Continuous use/release
Number of emission days per year : 365
Emission or Release Factor: Air : 2 %
Emission or Release Factor: Soil : 0 %
Remarks : Emission or Release Factor: Air : < 0.001 %

Technical conditions and measures / Organizational measures

Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 0 %)
Remarks : Prevent discharge of undissolved substance to or recover from onsite wastewater.
Water : If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): (Effectiveness: 0 %)
Remarks : Risk from environmental exposure is driven by freshwater.
Remarks : No wastewater treatment required.

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant : Onsite sewage treatment plant
Flow rate of sewage treatment plant effluent : 2.000 m3/d
Effectiveness (of a measure) : 96,2 %
Percentage removed from waste water : 96,2 %

Conditions and measures related to external treatment of waste for disposal

Waste treatment : External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery Methods : External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC2, PROC3: Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation)

Product characteristics

Physical Form (at time of use) : Liquid substance

Amount used

Remarks : No limit

Frequency and duration of use

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Organizational measures to prevent /limit releases, dispersion and exposure

No specific measures identified.

2.2 Contributing scenario controlling worker exposure for: PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Product characteristics

Physical Form (at time of use) : Liquid substance

Amount used

Remarks : No limit

Frequency and duration of use

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures

Provide enhanced general ventilation by mechanical means., Ensure operation is undertaken outdoors.

Organizational measures to prevent /limit releases, dispersion and exposure

No specific measures identified.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Provide enhanced general ventilation by mechanical means., Provide extraction ventilation at points where emissions occur., Ensure doors and windows are opened

Organizational measures to prevent /limit releases, dispersion and exposure
No specific measures identified., Limit the substance content in the product to 25%

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374., Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Provide enhanced general ventilation by mechanical means., Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC8a, ERC8d	Hydrocarbon Block Method with Petrorisk		Air		0,0022 µg/m3	
			Freshwater		0,0024 µg/L	0,000025
			Freshwater		0,037 µg/kg	0,000009

			sediment			
			Marine water		0,0078 ng/L	< 0,000007
			Marine sediment		0,085 ng/kg	< 0,000002
			Agricultural soil		0,57 ng/kg	< 0,000006

ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC2, CS93	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	81,80 mg/m3	0,039
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,005
			Worker – long-term – systemic Combined routes		0,044
PROC3, CS93	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	102,25 mg/m3	0,049
			Worker – dermal, long-term – systemic	0,34 mg/kg	0,001
			Worker – long-term – systemic Combined routes		0,050
PROC4, CS76	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	61,36 mg/m3	0,029
			Worker – dermal, long-term – systemic	1,372 mg/kg	0,005
			Worker – long-term – systemic Combined routes		0,034
PROC4, CS101	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	143,15 mg/m3	0,069
			Worker – dermal, long-term – systemic	1,372 mg/kg	0,005
			Worker – long-term – systemic Combined routes		0,073
PROC4, CS74	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
			Worker – dermal, long-term – systemic	6,86 mg/kg	0,023
			Worker – long-term – systemic Combined routes		0,121
PROC8a, CS45	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	286,30 mg/m3	0,137
			Worker – dermal, long-term – systemic	2,742 mg/kg	0,009
			Worker – long-term – systemic Combined routes		0,146
PROC8b, CS45	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
			Worker – dermal, long-term – systemic	1,372 mg/kg	0,005
			Worker – long-term – systemic Combined routes		0,103
PROC10, CS42	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	122,70 mg/m3	0,059
			Worker – dermal, long-term – systemic	5,486 mg/kg	0,018
			Worker – long-term – systemic Combined routes		0,077
PROC10, CS34	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	122,70 mg/m3	0,059

			Worker – dermal, long-term – systemic	2,734 mg/kg	0,009
			Worker – long-term – systemic Combined routes		0,068
PROC10, CS27	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	49,08 mg/m3	0,024
			Worker – dermal, long-term – systemic	0,8229 mg/kg	0,003
			Worker – long-term – systemic Combined routes		0,026
PROC10, CS27	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	245,40 mg/m3	0,118
			Worker – dermal, long-term – systemic	3,2916 mg/kg	0,011
			Worker – long-term – systemic Combined routes		0,129
PROC11, CS44	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	122,70 mg/m3	0,059
			Worker – dermal, long-term – systemic	4,2856 mg/kg	0,014
			Worker – long-term – systemic Combined routes		0,073
PROC11, CS44	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	143,15 mg/m3	0,069
			Worker – dermal, long-term – systemic	2,1428 mg/kg	0,007
			Worker – long-term – systemic Combined routes		0,076
PROC11, CS44	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	286,30 mg/m3	0,137
			Worker – dermal, long-term – systemic	4,2856 mg/kg	0,014
			Worker – long-term – systemic Combined routes		0,152

PROC2: Use in closed, continuous process with occasional controlled exposure
CS93: Automated process with (semi) closed systems.

PROC3: Use in closed batch process (synthesis or formulation)
CS93: Automated process with (semi) closed systems.

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
CS76: Semi Automated process. (e.g.: Semi automatic application of floor care and maintenance products)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
CS101: Application of cleaning products in closed systems

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
CS74: Cleaning of medical devices

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
CS45: Filling/ preparation of equipment from drums or containers.

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
CS45: Filling/ preparation of equipment from drums or containers.

PROC10: Roller application or brushing
CS42: Cleaning with low-pressure washers

PROC10: Roller application or brushing
CS34: Manual

PROC10: Roller application or brushing
CS27: Ad hoc manual application via trigger sprays, dipping, etc.

PROC10: Roller application or brushing
CS27: Ad hoc manual application via trigger sprays, dipping, etc.

PROC11: Non industrial spraying
CS44: Cleaning with high pressure washers

PROC11: Non industrial spraying
CS44: Cleaning with high pressure washers

PROC11: Non industrial spraying
CS44: Cleaning with high pressure washers

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.
Risk Management Measures are based on qualitative risk characterisation.
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 wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-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).

1. Short title of Exposure Scenario: **Agrochemical uses**

Main User Groups	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	:	**PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC11:** Non industrial spraying **PROC13:** Treatment of articles by dipping and pouring
Environmental release category	:	**ERC8a, ERC8d:** Wide dispersive indoor use of processing

		aids in open systems, Wide dispersive outdoor use of processing aids in open systems
Further information	:	Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including equipment clean-downs and disposal.

2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d):(Msafe)	:	4.300

Environment factors not influenced by risk management

Flow rate	:	18.000 m3/d
Dilution Factor (River)	:	10
Dilution Factor (Coastal Areas)	:	100

Other given operational conditions affecting environmental exposure

Continuous use/release		
Number of emission days per year	:	365
Emission or Release Factor: Air	:	90 %
Emission or Release Factor: Water	:	1 %
Emission or Release Factor: Soil	:	9 %

Technical conditions and measures / Organizational measures

Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 0 %)
Remarks	:	Risk from environmental exposure is driven by freshwater sediment.
Water	:	If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): (Effectiveness: 0 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Effectiveness (of a measure)	:	96,2 %
Percentage removed from waste water	:	96,2 %

Conditions and measures related to external treatment of waste for disposal

Waste treatment	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery Methods	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2: Use in closed process, no likelihood of exposure, Use in closed, continuous process with

occasional controlled exposure

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Store substance within a closed system.

2.2 Contributing scenario controlling worker exposure for: PROC4, PROC8b: Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Organizational measures to prevent /limit releases, dispersion and exposure
No specific measures identified.

2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated

differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Provide enhanced general ventilation by mechanical means., Ensure operation is undertaken outdoors.

Organizational measures to prevent /limit releases, dispersion and exposure
Limit the substance content in the product to 25%, Avoid carrying out operation for more than 1 hour., Avoid carrying out operation for more than 4 hours.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

2.2 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Ensure operation is undertaken outdoors.

Organizational measures to prevent /limit releases, dispersion and exposure
Limit the substance content in the product to 25%, Avoid carrying out operation for more than 4 hours.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures

Ensure operation is undertaken outdoors., Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20.

Organizational measures to prevent /limit releases, dispersion and exposure

Limit the substance content in the product to 25%, Avoid carrying out operation for more than 4 hours.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear a respirator conforming to EN140 with Type A filter or better., Wear suitable coveralls to prevent exposure to the skin., Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC8a, ERC8d	Hydrocarbon Block Method with Petrorisk		Air		0,0025 µg/m3	
			Freshwater		0,003 µg/L	0,000032
			Freshwater sediment		0,09 µg/kg	0,000036
			Marine water		0,3 ng/L	0,000003
			Marine sediment		0,009 µg/kg	0,000004
			Agricultural soil		0,054 µg/kg	0,000035

ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC1, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,04 mg/m3	0,000
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,001
			Worker – long-term – systemic Combined routes		0,001
PROC2, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	81,80 mg/m3	0,039
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,005
			Worker – long-term – systemic Combined routes		0,044
PROC4, CS23, PROC8b, CS22	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
			Worker – dermal, long-term – systemic	6,86 mg/kg/d	0,023
			Worker – long-term – systemic Combined		0,121

			routes		
PROC8a, CS26	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	44,17 mg/m3	0,021
			Worker – dermal, long-term – systemic	1,6452 mg/kg/d	0,005
			Worker – long-term – systemic Combined routes		0,027
PROC8a, CS28	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	11,45 mg/m3	0,005
			Worker – dermal, long-term – systemic	0,5484 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,007
PROC13, CS27	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	103,07 mg/m3	0,049
			Worker – dermal, long-term – systemic	1,6452 mg/kg/d	0,005
			Worker – long-term – systemic Combined routes		0,055
PROC11, CS24	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	51,53 mg/m3	0,025
			Worker – dermal, long-term – systemic	3,2142 mg/kg/d	0,011
			Worker – long-term – systemic Combined routes		0,035
PROC11, CS25	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	147,24 mg/m3	0,071
			Worker – dermal, long-term – systemic	1,2857 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,075

PROC1: Use in closed process, no likelihood of exposure
CS67: Storage

PROC2: Use in closed, continuous process with occasional controlled exposure
CS67: Storage

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
CS23: Mixing and blending.
PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
CS22: Transfer from/pouring from containers

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
CS26: Operation of equipment containing engine oils and similar

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
CS28: Disposal of wastes

PROC13: Treatment of articles by dipping and pouring
CS27: Ad hoc manual application via trigger sprays, dipping, etc.

PROC11: Non industrial spraying
CS24: Spraying/ fogging by manual application

PROC11: Non industrial spraying
CS25: Spraying/ fogging by machine application

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.
Risk Management Measures are based on qualitative risk characterisation.
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 wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-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).

1. Short title of Exposure Scenario: **Use as a laboratory agent – industrial**

Main User Groups	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU3:** Industrial Manufacturing (all)
Process category	:	**PROC10:** Roller application or brushing **PROC15:** Use as laboratory reagent
Environmental release category	:	**ERC2, ERC4:** Formulation of preparations, Industrial use of processing aids in processes and products, not becoming part of articles
Further information	:	Use of the substance within laboratory settings, including material transfers and equipment cleaning. Wiping

2.1 Contributing scenario controlling environmental exposure for:ERC2, ERC4: Formulation of preparations, Industrial use of processing aids in processes and products, not becoming part of articles

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d):(Msafe)	:	2.200

Environment factors not influenced by risk management

Flow rate	:	18.000 m3/d
Dilution Factor (River)	:	10
Dilution Factor (Coastal Areas)	:	100

Other given operational conditions affecting environmental exposure

Continuous use/release		
Number of emission days per year	:	20

Emission or Release Factor: Air	:	2,5 %
Emission or Release Factor: Water	:	2 %
Emission or Release Factor: Soil	:	0,01 %

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 17,4 %)
Remarks	:	Risk from environmental exposure is driven by freshwater sediment.
Water	:	If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): (Effectiveness: 0 %)
Remarks	:	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Effectiveness (of a measure)	:	96,2 %
Percentage removed from waste water	:	96,2 %

Conditions and measures related to external treatment of waste for disposal

Waste treatment	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery Methods	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Product characteristics

Physical Form (at time of use)	:	Liquid substance

Amount used

Remarks	:	No limit

Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure

Remarks	:	Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent

Product characteristics
Physical Form (at time of use) : Liquid substance

Amount used
Remarks : No limit

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Organizational measures to prevent /limit releases, dispersion and exposure
No specific measures identified.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC2, ERC4	Hydrocarbon Block Method with Petrorisk		Air		0,059 µg/m3	
			Freshwater		0,0038 mg/L	0,041
			Freshwater sediment		0,12 mg/kg	0,046
			Marine water		0,38 µg/L	0,0041
			Marine sediment		0,012 mg/kg	0,0046
			Agricultural soil		0,67 ng/kg	< 0,000008

ERC2: Formulation of preparations
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC10, CS47	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
			Worker – dermal, long-term – systemic	5,486 mg/kg/d	0,018
			Worker – long-term – systemic Combined routes		0,116
PROC15, CS36	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	40,90 mg/m3	0,020
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,001
			Worker – long-term – systemic Combined routes		0,021

PROC10: Roller application or brushing
CS47: Cleaning

PROC15: Use as laboratory reagent
CS36: Laboratory activities

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.
Risk Management Measures are based on qualitative risk characterisation.
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 wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-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).

1. Short title of Exposure Scenario: **Use as a laboratory agent – professional**

Main User Groups	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	:	**PROC10:** Roller application or brushing **PROC15:** Use as laboratory reagent
Environmental release category	:	**ERC8a:** Wide dispersive indoor use of processing aids in open systems
Further information	:	Use of the substance within laboratory settings, including material transfers and equipment cleaning.

2.1 Contributing scenario controlling environmental exposure for:ERC8a: Wide dispersive indoor use of processing aids in open systems

Daily amount per site(Msafe)	:	87

Environment factors not influenced by risk management

Flow rate	:	18.000 m3/d
Dilution Factor (River)	:	10
Dilution Factor (Coastal Areas)	:	100

Other given operational conditions affecting environmental exposure

Continuous use/release		
Number of emission days per year	:	365
Emission or Release Factor: Air	:	50 %
Emission or Release Factor: Water	:	50 %
Emission or Release Factor: Soil	:	0 %

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 0 %)
Remarks	:	Risk from environmental exposure is driven by freshwater sediment.
Water	:	If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): (Effectiveness: 0 %)
Remarks	:	No wastewater treatment required.

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Effectiveness (of a measure)	:	96,2 %
Percentage removed from waste water	:	96,2 %

Conditions and measures related to external treatment of waste for disposal

Waste treatment	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery Methods	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Product characteristics

Physical Form (at time of use)	:	Liquid substance

Amount used

Remarks	:	No limit

Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure

Remarks	:	Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures

Handle in a fume cupboard or under extract ventilation.

2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent

Product characteristics

Physical Form (at time of use)	:	Liquid substance

Amount used

Remarks	:	No limit

Frequency and duration of use

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Organizational measures to prevent /limit releases, dispersion and exposure

No specific measures identified.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC8a	Hydrocarbon Block Method with Petrorisk		Air		0,0029 µg/m3	
			Freshwater		0,0071 µg/L	0,000076
			Freshwater sediment		0,22 µg/kg	0,000087
			Marine water		0,71 ng/L	< 0,000008
			Marine sediment		0,022 µg/kg	0,000009
			Agricultural soil		0,13 µg/kg	0,000083

ERC8a: Wide dispersive indoor use of processing aids in open systems

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC10, CS47	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	81,80 mg/m3	0,039
			Worker – dermal, long-term – systemic	1,3715 mg/kg/d	0,005
			Worker – long-term – systemic Combined routes		0,044
PROC15, CS36	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	40,90 mg/m3	0,020
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,001
			Worker – long-term – systemic Combined routes		0,021

PROC10: Roller application or brushing
CS47: Cleaning

PROC15: Use as laboratory reagent
CS36: Laboratory activities

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.
Risk Management Measures are based on qualitative risk characterisation.
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 wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-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).