

n-Heptane (Pure Grade)

Version 3.11

Revision Date 2023-05-19

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	: n-Heptane (Pure Grade)
Material	: 1119723, 1099971, 1016082, 1099970, 1084145, 1061726,
	1021845, 1028621, 1021842, 1021844, 1028384, 1028355,
	1021843, 10455211

EC-No.Registration number

Chemical name	CAS-No. EC-No. Index No.	Legal Entity Registration number
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	:	Manufacture Distribution 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 Use as a fuel - industrial
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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

SDS Number:10000067062

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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
.4 Emergency telephone:	
Mexico CHEMTREC 01-8 South America SOS-Cote Argentina: +(54)-1159839 EUROPE: BIG +32.14.58 Austria: VIZ +43 1 406 43 Belgium: 070 245 245 (24 Bulgaria: +359 2 9154 233 Croatia: +3851 2348 342 Cyprus: 1401 Czech Republic: Toxicolo Denmark: Danish Poison Estonia: BIG +32.14.5845 Finland: 0800 147 111 09 France: ORFILA number Germany: BIG +32.14.5845 Greece: (0030) 21077937 Hungary: +36-80-201-199 Iceland: 543 2222 (24 hou Ireland: BIG +32.14.58454 Italy: BIG +32.14.584545 Latvia: State Fire and Res Poisoning and Drug Infor 67042473. (24 hours.) Liechtenstein: BIG +32.14 Lithuania: +370 (85) 2362 Luxembourg: (+352) 8002 Malta: +356 2395 2000 The Netherlands: NVIC: + Norway: 22 59 13 00 (24 I Poland: BIG +32.14.584545 Dortugal: CIAV phone nur Romania: +40213183606 Slovakia: +421 2 5477 41	onal) 20 or 703.527.3887(int'l) 2 9186 1132) China: 0532 8388 9090 300-681-9531 (24 hours) to Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600 431 4545 (phone) or +32.14583516 (telefax) 43 (24 hours/day, 7 days/week) to hours/day, 7 days/week) 3 (24 hours/day, 7 days/week) gical Information Center +420 224 919 293, +420 224 915 402 Center (Giftlinjen): +45 8212 1212 45 (phone) or +32.14583516 (telefax) 9 471 977 (24 hours/day) (INRS): + 33 (0) 1 45 42 59 59 (24 hours/day, 7 days/week) 4545 (phone) or +32.14583516 (telefax) 77 (24 hours/day, 7 days/week) 9 (25 colo (24 hours/day, 7 days/week) 15 (phone) or +32.14583516 (telefax) 1052 2 5500 (24 hours/day, 7 days/week) 45 (phone) or +32.14583516 (telefax) 1052 2 5500 (24 hours/day, 7 days/week) 45 (phone) or +32.14583516 (telefax) 1052 2 5500 (24 hours/day, 7 days/week) 45 (phone) or +32.14583516 (telefax) 1052 2 5500 (24 hours/day, 7 days/week) 45 (phone) or +32.14583516 (telefax) 1052 2 5500 (24 hours/day, 7 days/week) 45 (phone) or +32.14583516 (telefax) 1052 2 5500 (24 hours/day, 7 days/week) 45 (phone) or +32.14583516 (telefax) 1052 2 5500 (24 hours/day, 7 days/week) 45 (phone) or +32.14583516 (telefax) 1052 2 5500 (24 hours/day, 7 days/week) 45 (phone) or +32.14583516 (telefax) 1052 2 5500 (24 hours/day, 7 days/week) 45 (phone) or +32.14583516 (telefax) 1052 2 5500 (24 hours/day, 7 days/week) 45 (phone) or +32.14583516 (telefax) 1052 2 5500 (24 hours/day, 7 days/week) 45 (phone) or +32.14583516 (telefax) 1052 2 5500 (24 hours/day, 7 days/week) 45 (phone) or +32.14583516 (telefax) 1052 1

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

SECTION 2: Hazards identification

2.1

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

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Flammable liquids, Category 2

Skin irritation, Category 2

Specific target organ toxicity - single exposure, Category 3, Central nervous system Aspiration hazard, Category 1

Short-term (acute) aquatic hazard, Category 1 Long-term (chronic) aquatic hazard, Category 1 H225: Highly flammable liquid and vapor. H315: Causes skin irritation. H336: May cause drowsiness or dizziness.

H304: May be fatal if swallowed and enters airways. H400: Very toxic to aquatic life. H410: Very toxic to aquatic life with long lasting effects.

2.2

Labeling (REGULATION (EC) No 1272/2008)

Hazard pictograms	:		
Signal Word	:	Danger	\mathbf{v} \mathbf{v} \mathbf{v}
Hazard Statements	:	H225 H304	Highly flammable liquid and vapor. May be fatal if swallowed and enters airways.
		H315	Causes skin irritation.
		H336	May cause drowsiness or dizziness.
		H410	Very toxic to aquatic life with long lasting effects.
Precautionary Statements	÷	Prevention:	
		P210	Keep away from heat, hot surfaces, sparl open flames and other ignition sources. N smoking.
		P273	Avoid release to the environment.
		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 chemica
		D201	or alcohol-resistant foam to extinguish.
		P391	Collect spillage.
 Hazardous ingredients which 142-82-5 n-He 			e label:

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2.3	Other hazards Results of PBT and vP assessment	be ei	substance/mixture conta ther persistent, bioaccun stent and very bioaccum gher.	nulative and toxi	c (PBT), or very
	Endocrine disrupting properties	cons to RI (EU)	substance/mixture does idered to have endocrine EACH Article 57(f) or Co 2017/2100 or Commissi s of 0.1% or higher.	e disrupting prop mmission Deleg	erties according ated regulation
SEC	CTION 3: Composition/i	nformation on	ingredients		
	- 3.2 stance or Mixture Synonyms	Dipro	al Heptane pilmetano otane, 99%		
	Molecular formula	: C7H1	6		
	Hazardous ingredients	6			
	Chemical name	CAS-No. EC-No. Index No.	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]	Specific Conc. Limits, M-factors and ATEs
	n-Heptane	142-82-5 205-563-8 601-008-00-2	Flam. Liq. 2; H225 Skin Irrit. 2; H315 STOT SE 3; H336 Asp. Tox. 1; H304 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	99 - 100	
	For the full text of the H	-Statements me	entioned in this Section, s	see Section 16	
		Olatements inc			
SEC	CTION 4: First aid meas	ures			
4.1	Description of first siz				
	Description of first-aid				
	General advice	sheet	out of dangerous area. to the doctor in attendar us, potentially fatal pneur	nce. Material ma	ay produce a
	If inhaled		ult a physician after sign in recovery position and		
	In case of skin contact		n irritation persists, call a water. If on clothes, remo		skin, rinse well
000	In case of eye contact		eyes with water as a pre		ve contact
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			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.
.2	Most important symptoms an Notes to physician	nd	effects, both acute and delayed
	Symptoms	:	No data available.
.3	Risks Indication of any immediate		No data available. edical attention and special treatment needed
	Treatment	:	No data available.
SEC	TION 5: Firefighting measure	es	
	Flash point	:	-4°C (25°F) Method: Tag closed cup
	Autoignition temperature	:	203,85°C (398,93°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 Specific hazards during fire fighting	n ti :	he substance or mixture 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	:	Carbon oxides.
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SEC	CTION 6: Accidental release me	easures
6.1	Personal precautions, protec	tive 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 co Methods for cleaning up :	ntainment and 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	
	Reference to other sections :	For personal protection see section 8. For disposal considerations see section 13.
SEC	CTION 7: Handling and storage	
7.1	Precautions for safe handling Handling	J
	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 asfer taxes	
	Storage	ncluding any incompatibilities
	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
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	oorofully			
	Observe l	label precautions.	t upright to prevent lea . Electrical installations n the technological safe	s / working
7.3				
Specific End Use				
Use		onal details, see	the Exposure Scenario	in the Annex
	portion			
SECTION 8: Exposure c	ontrols/personal prot	tection		
-	rkplace control para			
SK				
Zložky	Podstata	Hodnota	Kontrolné parametre	Poznámka
n-heptane	SK OEL	NPEL priemerný	500 ppm, 2.085 mg/m3	
SI Contractor	Ostava) (no dia pot	Devery strive strang	Drinershe
Sestavine n-heptane	Osnova SI OEL	Vrednost MV	Parametri nadzora 500 ppm, 2.085 mg/m3	Pripomba
Theptane	SI OEL	KTV	500 ppm, 2.085 mg/m3	
SE				
Beståndsdelar	Grundval	Värde	Kontrollparametrar	Anmärkning
n-heptane	SE AFS	NGV	200 ppm, 800 mg/m3	
V Vägledande korttig	SE AFS	KGV	300 ppm, 1.200 mg/m3 gsta värde som inte bör överskrid	V,
-	asyransvarue ska använuas son	n en rekommenderal noç	ysia varue som mie dor overSKN	ມດວ
RS Компоненты	Основа	Величина	Параметры контроля	Заметка
н-гептан	RS OEL	GVI	500 ppm, 2.085 mg/m3	EU*,
	ned in indicative exposure limit	values in Directive 2000/		- ,
20				
Componente	Sursă	Valoare	Parametri de control	Notă
n-heptane	RO OEL	TWA	500 ppm, 2.085 mg/m3	
т				
Componentes	Bases	Valor	Parâmetros de controlo	Nota
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,	
				1
Składniki	Podstawa	Wartość	Parametry dotyczące kontroli	Uwaga
n-heptane	PL NDS	NDS	1.200 mg/m3	
	PL NDS	NDSch	2.000 mg/m3	
NO				
Komponenter	Grunnlag	Verdi	Kontrollparametrer	Nota
n-heptane	FOR-2011-12-06- 1358	GV	200 ppm, 800 mg/m3	
NL Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
n-heptane	NL WG	TGG-8 uur	1.200 mg/m3	opinierking
- ·	NL WG	TGG-15 min	1.600 mg/m3	
мт				
Components	Basis	Value	Control parameters	Note
n-Heptane	MT OEL	TWA	500 ppm, 2.085 mg/m3	
ИК				
Съставки	Основа	Стойност	Параметри на	Бележка
n-heptane	MK OEL	MV	контрол 500 ppm, 2.085 mg/m3	
			500 ppm, 2.005 mg/m3	1
•				
_V	Pāzo	Vārtība	Pārvaldības parametri	Diazīmo
_V Sastāvdaļas n-heptane	Bāze LV OEL	Vērtība AER 8 st	Pārvaldības parametri 85 ppm, 350 mg/m3	Piezīme

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	LV OEL	AER īslaicīgā	500 ppm, 2.085 mg/m3	
U				
Composants	Base	Valeur	Paramètres de contrôle	Note
n-heptane	LU OEL	TWA	500 ppm, 2.085 mg/m3	
т				
Komponentai	Šaltinis	Vertė	Kontrolės parametrai	Pastaba
n-heptane	LT OEL	IPRD	500 ppm, 2.085 mg/m3	
	LT OEL	TPRD	750 ppm, 3.128 mg/m3	
т				
Componenti	Base	Valore	Parametri di controllo	Nota
n-heptane	IT VLEP	TWA	500 ppm, 2.085 mg/m3	
S				
Komponenter	Grunnlag	Verdi	Kontrollparametrer	Nota
n-heptane	IS OEL	TWA	200 ppm, 820 mg/m3	
		•		•
E	Decie	Value	Control poromotoro	Noto
Components n-Heptane	Basis IE OEL	Value OELV - 8 hrs (TWA)	Control parameters 500 ppm, 2.085 mg/m3	Note
•			1 000 ppm, 2.000 mg/mo	
IU		1 1		
Komponensek	Bázis	Érték	Ellenőrzési	Megjegyzés
n hantana		AK-érték	paraméterek	D EII1
n-heptane EU1 2000/39/EK irány	HU OEL	AN-ELLER	2.000 mg/m3	R, EU1,
R Azok az anyagok	k, amelyek egészségkárosító h	atása RÖVID expozíció hat	ására jelentkezik. Korrigált ÁK =	- ÁK x 8/a napi óraszá
IB				
IR Sastojci	Temelj	Vrijednost	Nadzorni parametri	Bilješka
n-heptane	HR OEL	GVI	500 ppm, 2.085 mg/m3	koža,
Theptane	HR OEL	011	500 ppm, 2.000 mg/m3	1020,
koža Razvrstana kao t	tvar koja nadražuje kožu (H31	j) ili je takva napomena nav		
	Βάση	Τιμή	Παράμετορι ελέγχου	Σημείωση
Συστατικά	Βάση	Τιμή τωρ	Παράμετροι ελέγχου	Σημείωση
	GR OEL	Τιμή TWA STEL	Παράμετροι ελέγχου 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3	Σημείωση
Συστατικά n-heptane		TWA	500 ppm, 2.000 mg/m3	Σημείωση
Συστατικά n-heptane SB	GR OEL GR OEL	TWA STEL	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3	
Συστατικά n-heptane SB Components	GR OEL GR OEL Basis	TWA STEL Value	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters	Σημείωση
Συστατικά n-heptane SB	GR OEL GR OEL	TWA STEL	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3	
Συστατικά n-heptane B Components n-Heptane	GR OEL GR OEL Basis	TWA STEL Value	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters	
Συστατικά n-heptane B Components n-Heptane	GR OEL GR OEL Basis	TWA STEL Value	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de	
Συστατικά n-heptane B Components n-Heptane R Composants	GR OEL GR OEL Basis GB EH40 Base	TWA STEL Value TWA Valeur	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle	Note
Συστατικά n-heptane SB Components n-Heptane R	GR OEL GR OEL Basis GB EH40 Base FR VLE	TWA STEL Value TWA Valeur VME	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3	Note Note VLR contraignantes,
Συστατικά n-heptane SB Components n-Heptane R Composants n-heptane	GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE	TWA STEL Value TWA Valeur	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle	Note
Συστατικά n-heptane B Components n-Heptane R Composants n-heptane VLR Valeurs limites ré	GR OEL GR OEL Basis GB EH40 Base FR VLE	TWA STEL Value TWA Valeur VME	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3	Note Note VLR contraignantes,
Συστατικά n-heptane B Components n-Heptane R Composants n-heptane VLR Valeurs limites ré contraignantes	GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE	TWA STEL Value TWA Valeur VME	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3	Note Note VLR contraignantes,
Συστατικά n-heptane B Components n-Heptane R Composants n-heptane VLR Valeurs limites re contraignantes	GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE	TWA STEL Value TWA Valeur VME	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3	Note Note VLR contraignantes,
Συστατικά n-heptane SB Components n-Heptane R Composants n-heptane VLR Valeurs limites re contraignantes	GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE églementaires contraignantes	TWA STEL Value TWA Valeur VME VLCT (VLE)	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3 500 ppm, 2.085 mg/m3	Note Note VLR contraignantes, VLR contraignantes,
Συστατικά n-heptane SB Components n-Heptane R Composants n-heptane VLR VLR VLR VLR VLR VLR VLR VLR Valeurs limites restrict	GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE églementaires contraignantes	TWA STEL Value TWA Valeur VME VLCT (VLE) Arvo HTP-arvot 8h	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3 500 ppm, 2.085 mg/m3 Valvontaa koskevat muuttujat 300 ppm, 1.200 mg/m3	Note Note VLR contraignantes, VLR contraignantes,
Συστατικά n-heptane SB Components n-Heptane R Composants n-heptane VLR Valeurs limites re contraignantes	GR OEL GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE FR VLE Siglementaires contraignantes Peruste FI OEL FI OEL	TWA STEL Value TWA Valeur VME VLCT (VLE) Arvo HTP-arvot 8h HTP-arvot 15 min	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3 500 ppm, 2.085 mg/m3 Valvontaa koskevat muuttujat 300 ppm, 1.200 mg/m3 500 ppm, 2.100 mg/m3	Note Note VLR contraignantes, VLR contraignantes,
Συστατικά n-heptane SB Components n-Heptane R Composants n-heptane VLR Valeurs limites récontraignantes	GR OEL GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE FR VLE Siglementaires contraignantes FI OEL FI OEL FI OEL FI OEL	TWA STEL Value TWA Valeur VME VLCT (VLE) Arvo HTP-arvot 8h HTP-arvot 15 min HTP-arvot 8h	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3 500 ppm, 2.085 mg/m3 Valvontaa koskevat muuttujat 300 ppm, 1.200 mg/m3 500 ppm, 2.100 mg/m3 300 ppm, 1.200 mg/m3	Note Note VLR contraignantes, VLR contraignantes,
Συστατικά n-heptane SB Components n-Heptane R Composants n-heptane VLR Valeurs limites re contraignantes	GR OEL GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE FR VLE Siglementaires contraignantes Peruste FI OEL FI OEL	TWA STEL Value TWA Valeur VME VLCT (VLE) Arvo HTP-arvot 8h HTP-arvot 15 min	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3 500 ppm, 2.085 mg/m3 Valvontaa koskevat muuttujat 300 ppm, 1.200 mg/m3 500 ppm, 2.100 mg/m3	Note Note VLR contraignantes, VLR contraignantes,
Συστατικά n-heptane SB Components n-Heptane R Composants n-heptane VLR Valeurs limites recontraignantes I Aineosat n-heptane	GR OEL GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE FR VLE FR VLE FI OEL FI OEL FI OEL FI OEL FI OEL FI OEL	TWA STEL Value TWA Valeur VME VLCT (VLE) Arvo HTP-arvot 8h HTP-arvot 15 min HTP-arvot 15 min	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3 500 ppm, 2.085 mg/m3 Valvontaa koskevat muuttujat 300 ppm, 1.200 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.100 mg/m3	Note Note VLR contraignantes, VLR contraignantes, Huomautus
Συστατικά n-heptane SB Components n-Heptane R Composants n-heptane VLR Valeurs limites récontraignantes I Aineosat n-heptane S Componentes	GR OEL GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE FR VLE FR VLE FI OEL FI OEL FI OEL FI OEL FI OEL FI OEL FI OEL FI OEL Base	TWA STEL Value TWA Valeur VME VLCT (VLE) Arvo HTP-arvot 8h HTP-arvot 8h HTP-arvot 15 min HTP-arvot 15 min Valor	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3 500 ppm, 2.085 mg/m3 Valvontaa koskevat muuttujat 300 ppm, 1.200 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.100 mg/m3	Note Note VLR contraignantes, VLR contraignantes,
Συστατικά n-heptane SB Components n-Heptane R Composants n-heptane VLR Valeurs limites re contraignantes I Aineosat n-heptane SS	GR OEL GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE FR VLE FR VLE FI OEL FI OEL FI OEL FI OEL FI OEL FI OEL	TWA STEL Value TWA Valeur VME VLCT (VLE) Arvo HTP-arvot 8h HTP-arvot 15 min HTP-arvot 15 min	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3 500 ppm, 2.085 mg/m3 Valvontaa koskevat muuttujat 300 ppm, 1.200 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.100 mg/m3	Note Note VLR contraignantes, VLR contraignantes, Huomautus
Συστατικά n-heptane B Components n-Heptane R Composants n-heptane VLR Valeurs limites ré contraignantes I Aineosat n-heptane S Componentes n-heptane	GR OEL GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE FR VLE FR VLE FI OEL FI OEL FI OEL FI OEL FI OEL FI OEL FI OEL FI OEL Base	TWA STEL Value TWA Valeur VME VLCT (VLE) Arvo HTP-arvot 8h HTP-arvot 8h HTP-arvot 15 min HTP-arvot 15 min Valor	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3 500 ppm, 2.085 mg/m3 Valvontaa koskevat muuttujat 300 ppm, 1.200 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.100 mg/m3	Note Note VLR contraignantes, VLR contraignantes, Huomautus
Συστατικά n-heptane B Components n-Heptane R Composants n-heptane VLR Valeurs limites ré contraignantes I Aineosat n-heptane S Componentes n-heptane E	GR OEL GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE FR VLE Siglementaires contraignantes Peruste FI OEL FI OEL FI OEL FI OEL FI OEL FI OEL SI OEL	TWA STEL Value TWA Valeur VME VLCT (VLE) Arvo HTP-arvot 8h HTP-arvot 15 min HTP-arvot 15 min HTP-arvot 15 min Valor VLA-ED	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3 500 ppm, 2.085 mg/m3 Valvontaa koskevat muuttujat 300 ppm, 1.200 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.085 mg/m3	Note Note VLR contraignantes, VLR contraignantes, Huomautus Nota
Συστατικά n-heptane B Components n-Heptane R Composants n-heptane VLR Valeurs limites ré contraignantes I Aineosat n-heptane S Componentes n-heptane	GR OEL GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE FR VLE FR VLE FI OEL FI OEL FI OEL FI OEL FI OEL FI OEL FI OEL FI OEL Base	TWA STEL Value TWA Valeur VME VLCT (VLE) Arvo HTP-arvot 8h HTP-arvot 8h HTP-arvot 15 min HTP-arvot 15 min Valor	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3 500 ppm, 2.085 mg/m3 Valvontaa koskevat muuttujat 300 ppm, 1.200 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.100 mg/m3	Note Note VLR contraignantes, VLR contraignantes, Huomautus
Συστατικά n-heptane SB Components n-Heptane R Composants n-heptane VLR Valeurs limites recontraignantes I Aineosat n-heptane S Componentes n-heptane E Komponendid, osad n-heptane	GR OEL GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE FR VLE FR VLE Siglementaires contraignantes Peruste FI OEL FI OEL FI OEL FI OEL FI OEL FI OEL SI OEL ES VLA	TWA STEL Value TWA Valeur VME VLCT (VLE) Arvo HTP-arvot 8h HTP-arvot 15 min HTP-arvot 15 min HTP-arvot 15 min Valor VLA-ED Väärtus	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3 500 ppm, 2.085 mg/m3 Valvontaa koskevat muuttujat 300 ppm, 1.200 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.100 mg/m3 S00 ppm, 2.100 mg/m3 Kontrolliparameetrid	Note Note VLR contraignantes, VLR contraignantes, Huomautus Nota
Συστατικά n-heptane SB Components n-Heptane R Composants n-heptane VLR Valeurs limites recontraignantes I Aineosat n-heptane S Componentes n-heptane E Komponendid, osad n-heptane	GR OEL GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE FR VLE Seglementaires contraignantes Peruste FI OEL FI OEL FI OEL FI OEL FI OEL ES VLA Alused EE OEL	TWA STEL Value TWA Valeur VME VLCT (VLE) Arvo HTP-arvot 8h HTP-arvot 15 min HTP-arvot 15 min HTP-arvot 15 min Valor VLA-ED Väärtus Piirnorm	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3 500 ppm, 2.085 mg/m3 Valvontaa koskevat muuttujat 300 ppm, 1.200 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.085 mg/m3 Kontrolliparameetrid 500 ppm, 2.085 mg/m3	Note VLR contraignantes, VLR contraignantes, VLR contraignantes, Huomautus Nota Märkused
Συστατικά n-heptane Generation Group on ents n-Heptane R Composants n-heptane VLR Valeurs limites recontraignantes rineosat n-heptane S Componentes n-heptane E Komponendid, osad n-heptane	GR OEL GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE FR VLE FR VLE Seglementaires contraignantes Peruste FI OEL FI OEL FI OEL FI OEL FI OEL ES VLA Base ES VLA Alused EE OEL Basis	TWA STEL Value TWA Valeur VME VLCT (VLE) Arvo HTP-arvot 8h HTP-arvot 15 min HTP-arvot 15 min HTP-arvot 15 min Valor VLA-ED Väärtus Piirnorm	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3 500 ppm, 2.085 mg/m3 Valvontaa koskevat muuttujat 300 ppm, 1.200 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 S00 ppm, 2.000 mg/m3 S00 ppm, 2.000 mg/m3 Kontrolliparameetrid 500 ppm, 2.085 mg/m3 Kontrolparametre	Note Note VLR contraignantes, VLR contraignantes, Huomautus Nota
n-heptane GB Components n-Heptane R Composants n-heptane VLR Valeurs limites re contraignantes I Aineosat n-heptane S Componentes n-heptane E Komponendid, osad n-heptane Komponendid, osad N-heptane Komponendid, osad N-heptane	GR OEL GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE FR VLE Seglementaires contraignantes Peruste FI OEL FI OEL FI OEL FI OEL FI OEL ES VLA Alused EE OEL	TWA STEL Value TWA Valeur VME VLCT (VLE) Arvo HTP-arvot 8h HTP-arvot 15 min HTP-arvot 15 min HTP-arvot 15 min Valor VLA-ED Väärtus Piirnorm	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3 500 ppm, 2.085 mg/m3 Valvontaa koskevat muuttujat 300 ppm, 1.200 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.085 mg/m3 Kontrolliparameetrid 500 ppm, 2.085 mg/m3	Note VLR contraignantes, VLR contraignantes, VLR contraignantes, Huomautus Nota Märkused
Συστατικά n-heptane Generation Group on ents n-Heptane R Composants n-heptane VLR Valeurs limites recontraignantes rineosat n-heptane S Componentes n-heptane E Komponendid, osad n-heptane	GR OEL GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE FR VLE FR VLE Seglementaires contraignantes Peruste FI OEL FI OEL FI OEL FI OEL FI OEL ES VLA Base ES VLA Alused EE OEL Basis	TWA STEL Value TWA Valeur VME VLCT (VLE) Arvo HTP-arvot 8h HTP-arvot 15 min HTP-arvot 15 min HTP-arvot 15 min Valor VLA-ED Väärtus Piirnorm	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3 500 ppm, 2.085 mg/m3 Valvontaa koskevat muuttujat 300 ppm, 1.200 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 S00 ppm, 2.000 mg/m3 S00 ppm, 2.000 mg/m3 Kontrolliparameetrid 500 ppm, 2.085 mg/m3 Kontrolparametre	Note VLR contraignantes, VLR contraignantes, VLR contraignantes, Huomautus Nota Märkused
Συστατικά n-heptane SB Components n-Heptane R Composants n-heptane VLR VLR VLR Valeurs limites récontraignantes I Aineosat n-heptane S Componentes n-heptane E Komponendid, osad n-heptane DK Komponenter n-heptane	GR OEL GR OEL GR OEL Basis GB EH40 Base FR VLE FR VLE FR VLE FR VLE Seglementaires contraignantes Peruste FI OEL FI OEL FI OEL FI OEL FI OEL ES VLA Base ES VLA Alused EE OEL Basis	TWA STEL Value TWA Valeur VME VLCT (VLE) Arvo HTP-arvot 8h HTP-arvot 15 min HTP-arvot 15 min HTP-arvot 15 min Valor VLA-ED Väärtus Piirnorm	500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 Control parameters 500 ppm, 2.085 mg/m3 Paramètres de contrôle 400 ppm, 1.668 mg/m3 500 ppm, 2.085 mg/m3 Valvontaa koskevat muuttujat 300 ppm, 1.200 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.100 mg/m3 500 ppm, 2.000 mg/m3 500 ppm, 2.000 mg/m3 S00 ppm, 2.000 mg/m3 S00 ppm, 2.000 mg/m3 Kontrolliparameetrid 500 ppm, 2.085 mg/m3 Kontrolparametre	Note VLR contraignantes, VLR contraignantes, VLR contraignantes, Huomautus Nota Märkused

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n-heptane	DE TRGS 900	AGW	500 ppm, 2.100 mg/m3	
Z				
Složky	Základ	Hodnota	Kontrolní parametry	Poznámka
n-heptane	CZ OEL	PEL	1.000 mg/m3	Ι,
	CZ OEL	NPK-P	2.000 mg/m3	I,
	ći, dýchací cesty), respektive ků	JZI		
Υ΄ Συστατικά	Déan	Turá	Παράματροι αλάμγου	Σουσίωσο
n-heptane	Βάση CY OEL	Τιμή ΤΨΑ	Παράμετροι ελέγχου 500 ppm, 2.085 mg/m3	Σημείωση
•	CTUEL	TWA	500 ppm, 2.065 mg/m3	
1	O must all a sur	10/	7 "It a more that a da	Description
nhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
n-heptane	CH SUVA	KZGW	400 ppm, 1.600 mg/m3	NIOSH,
•	CH SUVA	MAK-Wert	400 ppm, 1.600 mg/m3	NIOSH,
NIOSH National Institute	for Occupational Safety and He	ealth		
G				
Съставки	Основа	Стойност	Параметри на	Бележка
hantana			контрол	
n-heptane	BG OEL	TWA	1.600 mg/m3	
Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
n-heptane	BE OEL	TGG 8 hr	400 ppm, 1.664 mg/m3	
	BE OEL	TGG 15 min	500 ppm, 2.085 mg/m3	
Г				
			7	Bemerkung
	Grundlage	Wert	Zu überwachende Parameter	Dementung
nhaltsstoffe	AT OEL AT OEL	Wert MAK-TMW MAK-KZW		
Inhaltsstoffe n-heptane	AT OEL AT OEL : End Us Routes Potenti Value: : End Us Routes Potenti	MAK-TMW MAK-KZW se: Workers of exposure: Sk al health effects: 300 mg/kg se: Workers of exposure: Inf	Parameter 500 ppm, 2.000 mg/m3 2.000 ppm, 8.000 mg/m3 in contact Chronic effects, Syster	nic effects
Inhaltsstoffe n-heptane DNEL DNEL PNEC	AT OEL AT OEL : End Us Routes Potenti Value: : End Us Routes Potenti Value: : : Fresh v Value:	MAK-TMW MAK-KZW se: Workers of exposure: Sk al health effects: 300 mg/kg se: Workers of exposure: Inf al health effects: 2085 mg/m3 water 0,03 mg/l	Parameter 500 ppm, 2.000 mg/m3 2.000 ppm, 8.000 mg/m3 in contact Chronic effects, Syster	nic effects
Inhaltsstoffe n-heptane DNEL DNEL PNEC PNEC	AT OEL AT OEL : End Us Routes Potenti Value: : End Us Routes Potenti Value: : Fresh v Value: : Marine Value:	MAK-TMW MAK-KZW se: Workers of exposure: Sk al health effects: 300 mg/kg se: Workers of exposure: Inh al health effects: 2085 mg/m3 water 0,03 mg/l water 0,03 mg/l	Parameter 500 ppm, 2.000 mg/m3 2.000 ppm, 8.000 mg/m3 in contact Chronic effects, Syster	nic effects
Inhaltsstoffe n-heptane DNEL DNEL PNEC PNEC PNEC	AT OEL AT OEL : End Us Routes Potenti Value: : End Us Routes Potenti Value: : Fresh v Value: : Marine Value: : Fresh v Value:	MAK-TMW MAK-KZW se: Workers of exposure: Sk al health effects: 300 mg/kg se: Workers of exposure: Inh al health effects: 2085 mg/m3 water 0,03 mg/l water 0,03 mg/l water sediment 4,4 mg/kg	Parameter 500 ppm, 2.000 mg/m3 2.000 ppm, 8.000 mg/m3 in contact Chronic effects, Syster	nic effects
Inhaltsstoffe n-heptane DNEL DNEL PNEC PNEC	AT OEL AT OEL : End Us Routes Potenti Value: : End Us Routes Potenti Value: : Fresh v Value: : Marine Value: : Fresh v Value: : Fresh v	MAK-TMW MAK-KZW se: Workers of exposure: Sk al health effects: 300 mg/kg se: Workers of exposure: Inh al health effects: 2085 mg/m3 water 0,03 mg/l water 0,03 mg/l water sediment	Parameter 500 ppm, 2.000 mg/m3 2.000 ppm, 8.000 mg/m3 in contact Chronic effects, Syster	nic effects

Exposure controls Engineering measures

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

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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 Physical state Color Odor	:	liquid liquid Clear Sweet
Safety data		

Flash point

: -4°C (25°F) Method: Tag closed cup

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n-Heptane (Pure Grade)

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	Lower explosion limit	: 1 %(V)
	Upper explosion limit	: 7 %(V)
	Oxidizing properties	: No
	Autoignition temperature	: 203,85°C (398,93°F)
	Molecular formula	: C7H16
	Molecular weight	: 100,23 g/mol
	рН	: Not applicable
	Pour point	: No data available
	Boiling point/boiling range	: 98°C (208°F)
	Vapor pressure	: 1,60 PSI at 38°C (100°F)
	Relative density	: 0,69 at 16 °C (61 °F)
	Density	: 5,75 L/G at 20°C (68°F)
	Water solubility	: negligible
	Partition coefficient: n- octanol/water	: No data available
	Relative vapor density	: 3,4 (Air = 1.0)
	Evaporation rate	: 3,46
	Percent volatile	: > 99 %
9.2	Other information Conductivity	: <1 pSm at 20 °C
SEC	CTION 10: Stability and react	/ity
10. [,]	1 Reactivity	: Stable under recommended storage conditions.
10.:		
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1-Heptane (Pure Grad /ersion 3.11	IE) Revision Date 2023-05-1
Chemical stability	 This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
0.3	
Possibility of hazardous r	reactions
Hazardous reactions	: Hazardous reactions: Hazardous polymerization does not occur.
	Hazardous reactions: Vapors may form explosive mixture with air.
0.4 Conditions to avoid	: Heat, flames and sparks.
0.5 Materials to avoid	: May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
0.6 Hazardous decompositior products	n : Carbon oxides
Other data	: No decomposition if stored and applied as directed.
1.1	ormation
1.1 Information on toxicologic	ormation
1.1	ormation
Acute oral toxicity	cal effects : LD50: > 5.000 mg/kg Species: Rat Method: OECD Test Guideline 401 Information given is based on data obtained from similar
1.1 Information on toxicologic Acute oral toxicity n-Heptane	cal effects : LD50: > 5.000 mg/kg Species: Rat Method: OECD Test Guideline 401 Information given is based on data obtained from similar
1.1 Information on toxicologic Acute oral toxicity n-Heptane Skin irritation	 Formation cal effects : LD50: > 5.000 mg/kg Species: Rat Method: OECD Test Guideline 401 Information given is based on data obtained from similar substances. : Skin irritation Information given is based on data obtained from similar
 1.1 Information on toxicologic Acute oral toxicity n-Heptane Skin irritation n-Heptane Eye irritation 	 Formation cal effects LD50: > 5.000 mg/kg Species: Rat Method: OECD Test Guideline 401 Information given is based on data obtained from similar substances. Skin irritation Information given is based on data obtained from similar substances. No eye irritation Information given is based on data obtained from similar
 1.1 Information on toxicologic Acute oral toxicity n-Heptane Skin irritation n-Heptane Eye irritation n-Heptane 	 Formation cal effects LD50: > 5.000 mg/kg Species: Rat Method: OECD Test Guideline 401 Information given is based on data obtained from similar substances. Skin irritation Information given is based on data obtained from similar substances. No eye irritation Information given is based on data obtained from similar
1.1 Information on toxicologic Acute oral toxicity n-Heptane Skin irritation n-Heptane Eye irritation n-Heptane Sensitization	Formation cal effects : LD50: > 5.000 mg/kg Species: Rat Method: OECD Test Guideline 401 Information given is based on data obtained from similar substances. : Skin irritation Information given is based on data obtained from similar substances. : No eye irritation Information given is based on data obtained from similar substances. : No eye irritation Information given is based on data obtained from similar substances. : Did not cause sensitization on laboratory animals. Information given is based on data obtained from similar

Heptane (Pure Grade	SAFETY DATA SHE
rsion 3.11	Revision Date 2023-05
	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 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
Reproductive toxicity	
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	
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
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n-Heptane (Pure Grade	SAFETY DATA SHEET
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	NOAEL Maternal: 3000 ppm
n-Heptane (Pure Grade) Aspiration toxicity	: May be fatal if swallowed and enters airways.
Specific Target Organ Toxic n-Heptane	 city (Single Exposure) Target Organs: Central nervous system Assessment: May cause drowsiness or dizziness.
CMR effects	
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 hazard	ls
n-Heptane (Pure Grade) 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 informa	ation
12.1 Toxicity	
Toxicity to fish	
n-Heptane	: LL50: 5,738 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data
Toxicity to daphnia and oth	er aquatic invertebrates

n-Heptane (Pure Grade)	SAFETY DATA SHEET
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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	
n-Heptane	: EL50: 4,338 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (microalgae) Method: QSAR
Toxicity to fish (Chronic toxic	ity)
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	
n-Heptane	: Result: Readily biodegradable. 70 % Testing period: 10 d
12.3 Bioaccumulative potential	
Bioaccumulation	
n-Heptane	: Bioconcentration factor (BCF): 552 Method: QSAR modeled data This material is not expected to bioaccumulate.
12.4 Mobility in soil	
Mobility	
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 asse 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
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	0.1% or higher.
12.6	
Endocrine disrupting p	roperties
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.
2.7 Other adverse effects	
Additional ecological information	: Very toxic to aquatic life with long lasting effects.
Additional Information	
Ecotoxicology Assessr	nent
Short-term (acute) aquati n-Heptane	c hazard : Very toxic to aquatic life.
Long-term (chronic) aqua n-Heptane	ntic hazard : Very toxic to aquatic life with long lasting effects.
SECTION 13: Disposal cons	iderations
I3.1 Waste treatment metho The information in this SI	ods DS pertains only to the product as shipped.
may meet the criteria of a other State and local reg regulated components m	ded purpose or recycle if possible. This material, if it must be discarded, a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or ulations. Measurement of certain physical properties and analysis for ay be necessary to make a correct determination. If this material is a waste, federal law requires disposal at a licensed hazardous waste
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	e the Exposure Scenario in the Annex portion

Transport information The shipping descriptions shown here are for bulk shipments only, and may not apply to

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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)** UN1206, HEPTANES, 3, II, MARINE POLLUTANT, (N-HEPTANE) **IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)** UN1206, HEPTANES, 3, II, (-4 °C c.c.), MARINE POLLUTANT, (N-HEPTANE) IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION) UN1206, HEPTANES, 3, II ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE)) UN1206, HEPTANES, 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (N-HEPTANE) **RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF** DANGEROUS GOODS (EUROPE)) 33, UN1206, HEPTANES, 3, II, ENVIRONMENTALLY HAZARDOUS, (N-HEPTANE) ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS) UN1206, HEPTANES, 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 : WGK 2 water endangering (Germany) Classifications, planned by the commission, but not yet included in the VwVwS are classified as "KBwS-Beschluss" : WGK 2 water endangering List with water hazardous substances (Class 1 till 3) in **VwVwS**

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Components : hep	tane	A Chemical Safety Assessment has been carried out for this substance.	205-563-8
Major Accident Hazard Legislation	: 96/82/EC Highly flamm 7b Quantity 1: 5 Quantity 2: 5	.000 t	
	: 96/82/EC Dangerous fo 9a Quantity 1: 1 Quantity 2: 2		
	: ZEU_SEVES FLAMMABLE P5c Quantity 1: 5 Quantity 2: 5	E LIQUIDS .000 t	
	: ZEU_SEVES ENVIRONME E1 Quantity 1: 1 Quantity 2: 2	ENTAL HAZARDS 00 t	
Notification status Europe REACH Switzerland CH INV United States of America (USA TSCA Canada DSL Australia AIIC New Zealand NZIoC Japan ENCS Korea KECI	regula : On the : On or TSCA : All con DSL : On the : On the : On the : All sul to be CPCh K-REA permi includ	product is in full compliance accordination 1907/2006/EC. e inventory, or in compliance with the in compliance with the active portion inventory mponents of this product are on the e inventory, or in compliance with the e inventory, or in compliance with the inventory, or in compliance with the inventory, or in compliance with the stances in this product were registered, or exempted from registered, or exempted from registered, or exempted from registered if the Korean Importer of Recorded on CPChem's notifications or if red themselves notified the substance	he inventory on of the e Canadian he inventory he inventory he inventory tered, notified ration by e according t s product is rd was the Importer
Philippines PICCS Taiwan TCSI China IECSC	: On the	e inventory, or in compliance with th e inventory, or in compliance with th e inventory, or in compliance with th	ne inventory

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SECTION 16: Other information

NFPA Classification	: Health Hazard: 2 Fire Hazard: 3 Reactivity Hazard: 0	2 0
Further information		
Legacy SDS Number	: 133	

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.

ACGIH	American Conference of	LD50	Lethal Dose 50%
	Government Industrial Hygienists		
AIIC	Australian Inventory of Industrial Chemicals	LOAEL	Lowest Observed Adverse Effe
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agenc
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupatio 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 Concentra
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 Substan
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recov 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	TSCA	Toxic Substance Control Act

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	New Chemical Substances		
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.
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- H304 May be fatal if swallowed and enters airways.
- Causes skin irritation. H315
- May cause drowsiness or dizziness. H336
- H400
- Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects. H410

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Short title of Exposure Scenario: N	lanufacture
Main User Groups Sector of use	 SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites SU3, SU8, SU9: Industrial Manufacturing (all), Manufacture o
_	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 sets set	
Environmental release category	: ERC1, ERC4: Manufacture of substances, Industrial use of processing aids in processes and products, not becoming pa 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).
Exposure estimation and refe Guidance to Downstream Use	erence to its source er to evaluate whether he works inside the boundaries so
y the Exposure Scenario	
	iet-ihution
-	listribution
Short title of Exposure Scenario: D Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Short title of Exposure Scenario: D	: SU 3: Industrial uses: Uses of substances as such or in

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	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 PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15: Use as laboratory reagent
Environmental release category	: ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7: Manufacture of substances, Formulation of preparations, Formulation in materials, Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix, Industrial use resulting in manufacture of another substance (use of intermediates), Industrial use of reactive processing aids, Industrial use of monomers for manufacture of thermoplastics, Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers, Industrial use of substances in closed systems
Further information	:
	Bulk loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, maintenance and associated laboratory activities. Excludes emissions during transport.
	Manufacture of polymers from monomers in continuous and batch processes, include sparging, discharging, and reactor maintenance and immediate polymer product formation (i.e. compounding, pelletisation, product off-gassing).
process, no likelihood of expos	olling worker exposure for: PROC1: Use in closed sure
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)
Frequency and duration of use Remarks Other operational conditions affec Remarks	 differently) ting workers exposure Assumes use at not more than 20°C above ambient
Remarks Other operational conditions affec	 differently) ting workers exposure Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

n-Heptane (Pure Grade)	
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Handle substance within a closed enclosed lines.	system., Store substance within a closed system., Transfer via
2.2 Contributing scenario cont continuous process with occa	trolling worker exposure for: PROC2: Use in closed, sional 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 affe Remarks	 cting workers exposure 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 measur Store substance within a closed sy	
2.2 Contributing scenario cont Use in closed batch process (s preparation into small contain	trolling worker exposure for: PROC3, PROC9, PROC15: synthesis or formulation), Transfer of substance or ers (dedicated filling line, including weighing), Use as
2.2 Contributing scenario cont Use in closed batch process (s preparation into small contain laboratory reagent	trolling worker exposure for: PROC3, PROC9, PROC15: synthesis or formulation), Transfer of substance or ers (dedicated filling line, including weighing), Use as
2.2 Contributing scenario cont Use in closed batch process (s preparation into small contain laboratory reagent Product characteristics Physical Form (at time of use)	trolling worker exposure for: PROC3, PROC9, PROC15: synthesis or formulation), Transfer of substance or ers (dedicated filling line, including weighing), Use as
2.2 Contributing scenario cont Use in closed batch process (s preparation into small contain laboratory reagent Product characteristics Physical Form (at time of use) Amount used Remarks	trolling worker exposure for: PROC3, PROC9, PROC15: synthesis or formulation), Transfer of substance or ers (dedicated filling line, including weighing), Use as : Liquid substance
 2.2 Contributing scenario cont Use in closed batch process (spreparation into small contain laboratory reagent Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks 	 trolling worker exposure for: PROC3, PROC9, PROC15: synthesis or formulation), Transfer of substance or ers (dedicated filling line, including weighing), Use as : Liquid substance : No limit : Covers daily exposures up to 8 hours (unless stated differently)
 2.2 Contributing scenario cont Use in closed batch process (s preparation into small contain laboratory reagent Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affer Remarks 	 trolling worker exposure for: PROC3, PROC9, PROC15: synthesis or formulation), Transfer of substance or ers (dedicated filling line, including weighing), Use as Liquid substance No limit Covers daily exposures up to 8 hours (unless stated differently) cting workers exposure Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic
 2.2 Contributing scenario cont Use in closed batch process (s preparation into small contain laboratory reagent Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affer Remarks Other operational measures to prevent No specific measures identified. 2.2 Contributing scenario cont 	 trolling worker exposure for: PROC3, PROC9, PROC15: synthesis or formulation), Transfer of substance or ers (dedicated filling line, including weighing), Use as Liquid substance No limit Covers daily exposures up to 8 hours (unless stated differently) cting workers exposure Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.
 2.2 Contributing scenario cont Use in closed batch process (s preparation into small contain laboratory reagent Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affer Remarks Other operational measures to prevent No specific measures identified. 2.2 Contributing scenario cont 	 trolling worker exposure for: PROC3, PROC9, PROC15: synthesis or formulation), Transfer of substance or ers (dedicated filling line, including weighing), Use as : Liquid substance : No limit : Covers daily exposures up to 8 hours (unless stated differently) cting workers exposure : Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented. ent /limit releases, dispersion and exposure trolling worker exposure for: PROC4: Use in batch and bre opportunity for exposure arises
 2.2 Contributing scenario cont Use in closed batch process (s preparation into small contain laboratory reagent Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affer Remarks Other operational measures to prevent No specific measures identified. 2.2 Contributing scenario cont other process (synthesis) whe Product characteristics 	 trolling worker exposure for: PROC3, PROC9, PROC15: synthesis or formulation), Transfer of substance or ers (dedicated filling line, including weighing), Use as : Liquid substance : No limit : Covers daily exposures up to 8 hours (unless stated differently) cting workers exposure : Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented. ent /limit releases, dispersion and exposure trolling worker exposure for: PROC4: Use in batch and bre opportunity for exposure arises

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Remarks	: No limit
Frequency and duration of use Remarks	: Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affeo Remarks	 cting workers exposure 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 Wear suitable gloves tested to EN3	to personal protection, hygiene and health evaluation 374.
	rolling worker exposure for: PROC8a: Transfer of ging/discharging) from/to vessels/large containers at
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 affeo Remarks	 cting workers exposure 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 preve Apply vessel entry procedures inclu	nt /limit releases, dispersion and exposure uding use of forced supplied air.
	to personal protection, hygiene and health evaluation exposure to the skin., Wear suitable gloves tested to EN374.
	rolling worker exposure for: PROC8b: Transfer of ging/ discharging) from/ to vessels/ large containers at
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 affect Remarks	 cting workers exposure Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic

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standard of occupational hygiene is implemented.

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):
ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7	Hydrocarbon Block Method with Petrorisk		Air		0,0023 µg/m3	
			Freshwater		0,0032 µg/L	0,000034
			Freshwater sediment		0,062 µg/kg	0,00002
			Marine water		0,082 ng/L	< 0,00088
			Marine sediment		0,0025 µg/kg	< 0,000099
			Agricultural soil		0,57 ng/kg	< 0,000006

ERC1: Manufacture of substances

ERC2: Formulation of preparations

ERC3: Formulation in materials

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC5: Industrial use resulting in inclusion into or onto a matrix

ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

ERC6b: Industrial use of reactive processing aids

ERC6c: Industrial use of monomers for manufacture of thermoplastics

ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

ERC7: Industrial use of substances in closed systems

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, CS2, 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
PROC9, CS6	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
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		Worker – dermal, long- term – systemic	6,86 mg/kg/d	0,023
		Worker – long-term – systemic Combined routes		0,0121
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
PROC4, CS16	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	81,80 mg/m3	0,039
		Worker – dermal, long- term – systemic	1,372 mg/kg/d	0,005
		Worker – long-term – systemic Combined routes		0,044
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, CS107, CS108	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	204,50 mg/m3	0,098
	Widdinicu	Worker – dermal, long- term – systemic	1,372 mg/kg/d	0,005
		Worker – long-term – systemic Combined routes		0,103
CS67: Storag PROC3: Use CS2: Process CS15: Gener PROC9: Trar weighing) CS6: Drum a PROC15: Use CS36: Labora PROC4: Use CS16: Gener PROC8a: Tra at non-dedica CS39: Equipr PROC8b: Tra	in closed batch p s sampling al exposures (closent nsfer of substance nd small package e as laboratory re atory activities in batch and othe al exposures (ope ansfer of substance dedicated facilities ment cleaning and dedicated facilities ansfers ed systems)	rocess (synthesis or formulation) eed systems) or preparation into small containers filling agent r process (synthesis) where opportu n systems) e or preparation (charging/dischargi maintenance e or preparation (charging/ discharg	unity for exposure	arises Is/large containers
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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 : SU 10: Formulation [mixing] of preparations and/ or re-Sector of use 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 : ERC2: Formulation of preparations Environmental release category 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. SDS Number:10000067062 27/64

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2.1 Contributing scenario contro preparations	lling environmental exposure for:ERC2: Formulation of
Amountusod	
Amount used	450
Annual site tonnage (tonnes/year):	
Maximum daily site tonnage	: 1500
(kg/day):	
Maximum allowable site tonnage	: 220.000
(MSafe) based on release	
following total wastewater	
treatment removal (kg/d):(Msafe)	
Environment factors not influenced	by risk management
Flow rate	: 18.000 m3/d
	: 10
Dilution Factor (River)	
Dilution Factor (Coastal Areas)	: 100
Other given operational conditions a Continuous use/release	affecting environmental exposure
Number of emission days per year	: 100
Emission or Release Factor: Air	
Emission or Release Factor: Water	
Emission or Release Factor: Soil	
Technical conditions and measures	/ Organizational measures
Air	: Treat air emission to provide a typical removal efficiency of
All	
	(%): (Effectiveness: 0 %)
Water	: Treat onsite wastewater (prior to receiving water discharge) to
	provide the required removal efficiency of \geq (%):
	(Effectiveness: 0 %)
Remarks	: Prevent discharge of undissolved substance to or recover
	from onsite wastewater.
Water	: If discharging to domestic sewage treatment plant, provide the
Water	
	required onsite wastewater removal efficiency of \geq (%):
	(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	: 2.000 m3/d
plant effluent	
Effectiveness (of a measure)	: 96,2 %
Percentage removed from waste	
water	. 90,2 %
Conditions and mossures 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	•
Recovery Methods	: External recovery and recycling of waste should comply with
	applicable local and/or national regulations.
2.2 Contributing scenario contro	lling worker exposure for: PROC1, PROC2: Use in
closed process, no likelihood of	exposure, Use in closed, continuous process with
occasional controlled exposure	
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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 affect Remarks	 ing workers exposure 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 sy enclosed lines.	s vstem., Store substance within a closed system., Transfer via
2.2 Contributing scenario contro process (synthesis or formulation	olling worker exposure for: PROC3: Use in closed batch
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 affect Remarks	 ing workers exposure 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 vessels., Avoid dip sampling.	s n by mechanical means., Formulate in enclosed or ventilated mixing
PROC15: Use in batch and other arises, Transfer of substance or	olling worker exposure for: PROC4, PROC9, PROC14, r process (synthesis) where opportunity for exposure preparation into small containers (dedicated filling line, of preparations or articles by tabletting, compression, aboratory 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
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	differently)
Other operational conditions affec Remarks	
Organizational measures to preven No specific measures identified.	nt /limit releases, dispersion and exposure
	olling worker exposure for: PROC5: Mixing or blending in n of preparations and articles (multistage and/ or
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 affect 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 Wear suitable gloves tested to EN3	standard of occupational hygiene is implemented.
Wear suitable gloves tested to EN3 2.2 Contributing scenario contri	standard of occupational hygiene is implemented.
Wear suitable gloves tested to EN3 2.2 Contributing scenario contributing scenario contributing scenario contributing scenarion (char	standard of occupational hygiene is implemented. to personal protection, hygiene and health evaluation 874. rolling worker exposure for: PROC8a: Transfer of
Wear suitable gloves tested to EN3 2.2 Contributing scenario contr substance or preparation (char non-dedicated facilities Product characteristics	standard of occupational hygiene is implemented. to personal protection, hygiene and health evaluation 374. Folling worker exposure for: PROC8a: Transfer of rging/discharging) from/to vessels/large containers at
Wear suitable gloves tested to EN3 2.2 Contributing scenario contributing scenario contributing scenario (char non-dedicated facilities Product characteristics Physical Form (at time of use) Amount used	standard of occupational hygiene is implemented. to personal protection, hygiene and health evaluation 74. rolling worker exposure for: PROC8a: Transfer of rging/discharging) from/to vessels/large containers at : Liquid substance
Wear suitable gloves tested to EN3 2.2 Contributing scenario contr substance or preparation (char non-dedicated facilities Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use	standard of occupational hygiene is implemented. to personal protection, hygiene and health evaluation 74. rolling worker exposure for: PROC8a: Transfer of ging/discharging) from/to vessels/large containers at : Liquid substance : No limit : Covers daily exposures up to 8 hours (unless stated differently)
Wear suitable gloves tested to EN3 2.2 Contributing scenario contr substance or preparation (char non-dedicated facilities Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affec Remarks Technical conditions and measure	 standard of occupational hygiene is implemented. to personal protection, hygiene and health evaluation 174. rolling worker exposure for: PROC8a: Transfer of ging/discharging) from/to vessels/large containers at Liquid substance No limit Covers daily exposures up to 8 hours (unless stated differently) ting workers exposure Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.
Wear suitable gloves tested to EN3 2.2 Contributing scenario contr substance or preparation (char non-dedicated facilities Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affect Remarks Technical conditions and measure Provide extraction ventilation at poi container.	 standard of occupational hygiene is implemented. to personal protection, hygiene and health evaluation 174. rolling worker exposure for: PROC8a: Transfer of ging/discharging) from/to vessels/large containers at Liquid substance No limit Covers daily exposures up to 8 hours (unless stated differently) ting workers exposure Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

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Wear suitable gloves tested to EN374.

	ting scenario co r preparation (ch cilities					
Product chara Physical Fo	acteristics rm (at time of use)	: Liqu	id substance			
Amount used Remarks	l	: No l	imit			
F requency a r Remarks	nd duration of use		ers daily exposu rently)	res up to 8 ł	nours (unless	stated
Other operati Remarks	onal conditions aff	: Assute	ters exposure umes use at not perature, unless dard of occupation	stated differ	ently., Assum	ies a good basic
	nditions and measu action ventilation at p		emissions occur	., Use drum	pumps or ca	refully pour from
	nd measures relate e gloves tested to E	•	al protection, hy	ygiene and	health evalu	ation
3. Exposure	estimation and r	eference to	o 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 Freshwater		0,57 µg/L 0,017 mg/kg	0,0061 0,0069

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
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sediment Marine water

Marine sediment

Agricultural soil

0,057 µg/L

0,0017 mg/kg 0,02 µg/kg 0,00061

0,00069

0,000038

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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- term – systemic	3,43 mg/kg/d	0,011
		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
	Woundu	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
JUL		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
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			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		0,005
CS15: Gener CS67: Storaç		sed systems)	·		<u> </u>]
	ral exposures (clos		th occasional control	led exposure	
	in closed batch p ral exposures (clos		sis or formulation)		
	in closed batch p h processes at ele				
	in batch and othe ral exposures (ope		hesis) where opportu	inity for exposure	arises
weighing)	nsfer of substance Ind small package		into small containers	(dedicated filling	g line, including
			s by tabletting, comp y tabletting, compres		
	e as laboratory re atory activities	agent			
and/ or signif	ing or blending in l icant contact) g operations (oper	•	s for formulation of p	reparations and a	articles (multistage
at non-dedica CS34: Manua	ated facilities		n (charging/dischargi	ng) from/to vesse	els/large containers
at non-dedica			n (charging/dischargi	ng) from/to vesse	els/large containers
	dedicated facilitie		n (charging/ discharg	ing) from/ to ves	sels/ large
containers at	ansfer of substanc dedicated facilitie atch transfers		n (charging/ discharg	ing) from/ to ves	sels/ large
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4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Measures/Operational Conditions of Available hazard data do not enable Risk Management Measures are be Where other Risk Management Me ensure that risks are managed to a operating conditions which may no define appropriate site-specific risk Required removal efficiency for wa either alone or in combination. Required removal efficiency for air combination. Further details on scaling and conta (http://cefic.org/en/reach-for-indust	stewater can be achieved using onsite/offsite technologies, can be achieved using on-site technologies, either alone or in rol technologies are provided in SpERC factsheet ries-libraries.html).
1. Short title of Exposure Scenario: Use	e as a cleaning agent – industrial
Main User Groups Sector of use Process category Environmental release category	 SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites SU3: Industrial Manufacturing (all) 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
	products, not becoming part of articles
	: 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.
Maximum allowable site tonnage (MSafe) based on release	: 1.800 tonnes/day
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Version 3.11 following total wastewater treatment removal (kg/d):(Msafe) Environment factors not influenced I Flow rate Dilution Factor (River) Dilution Factor (Coastal Areas) Other given operational conditions a Continuous use/release Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil Technical conditions and measures	 18.000 m3/d 10 100 affecting environmental exposure 20 100 % 3 ppm
treatment removal (kg/d):(Msafe) Environment factors not influenced I Flow rate Dilution Factor (River) Dilution Factor (Coastal Areas) Other given operational conditions a Continuous use/release Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil	 18.000 m3/d 10 100 affecting environmental exposure 20 100 % 3 ppm
Flow rate Dilution Factor (River) Dilution Factor (Coastal Areas) Other given operational conditions a Continuous use/release Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil	 18.000 m3/d 10 100 affecting environmental exposure 20 100 % 3 ppm
Dilution Factor (River) Dilution Factor (Coastal Areas) Other given operational conditions a Continuous use/release Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil	: 10 : 100 affecting environmental exposure : 20 : 100 % : 3 ppm
Dilution Factor (Coastal Areas) Other given operational conditions a Continuous use/release Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil	 100 affecting environmental exposure 20 100 % 3 ppm
Continuous use/release Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil	: 20 : 100 % : 3 ppm
Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil	: 100 % : 3 ppm
Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil	: 100 % : 3 ppm
Emission or Release Factor: Water Emission or Release Factor: Soil	: 3 ppm
Emission or Release Factor: Soil	
Technical conditions and measures	: 0 %
	/ 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.
Flow rate of sewage treatment	: Municipal sewage treatment plant
plant effluent Effectiveness (of a measure)	: 96,2 %
Percentage removed from waste water	
Conditions and measures related to Waste treatment	external treatment of waste for disposal : External treatment and disposal of waste should comply with
Conditions and measures related to	applicable local and/or national regulations.
Recovery Methods	: External recovery of waste applicable local and/or national regulations.
2.2 Contributing scenario control continuous process with occasio	lling worker exposure for: PROC2: Use in closed, onal 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 affectir	ng workers exposure
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n Llantana (Dura Ora I-)	
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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 preve No specific measures identified.	ent /limit releases, dispersion and exposure
2.2 Contributing scenario cont process (synthesis or formula	trolling worker exposure for: PROC3: Use in closed batch tion)
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 affe Remarks	 cting workers exposure 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 preve No specific measures identified.	ent /limit releases, dispersion and exposure
No specific measures identified. 2.2 Contributing scenario cont	trolling worker exposure for: PROC4, PROC13: Use in hesis) where opportunity for exposure arises, Treatment of
No specific measures identified. 2.2 Contributing scenario cont batch and other process (synt articles by dipping and pourin	trolling worker exposure for: PROC4, PROC13: Use in hesis) where opportunity for exposure arises, Treatment of
No specific measures identified. 2.2 Contributing scenario cont batch and other process (synt articles by dipping and pourin Product characteristics Physical Form (at time of use)	trolling worker exposure for: PROC4, PROC13: Use in hesis) where opportunity for exposure arises, Treatment of g
No specific measures identified. 2.2 Contributing scenario cont batch and other process (synt articles by dipping and pourin Product characteristics Physical Form (at time of use) Amount used Remarks	trolling worker exposure for: PROC4, PROC13: Use in hesis) where opportunity for exposure arises, Treatment of g
No specific measures identified. 2.2 Contributing scenario cont batch and other process (synt articles by dipping and pourin Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use	trolling worker exposure for: PROC4, PROC13: Use in hesis) where opportunity for exposure arises, Treatment of g : Liquid substance : No limit : Covers daily exposures up to 8 hours (unless stated differently)
No specific measures identified. 2.2 Contributing scenario cont batch and other process (synt articles by dipping and pourin Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affe Remarks	 trolling worker exposure for: PROC4, PROC13: Use in hesis) where opportunity for exposure arises, Treatment of g Liquid substance No limit Covers daily exposures up to 8 hours (unless stated differently) ting workers exposure Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.
No specific measures identified. 2.2 Contributing scenario cont batch and other process (synt articles by dipping and pourin Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affe Remarks Technical conditions and measur Provide extraction ventilation at po	 trolling worker exposure for: PROC4, PROC13: Use in hesis) where opportunity for exposure arises, Treatment of g Liquid substance No limit Covers daily exposures up to 8 hours (unless stated differently) ting workers exposure Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.
No specific measures identified. 2.2 Contributing scenario cont batch and other process (synt articles by dipping and pourin Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affe Remarks Technical conditions and measur Provide extraction ventilation at po	 trolling worker exposure for: PROC4, PROC13: Use in hesis) where opportunity for exposure arises, Treatment of g Liquid substance No limit Covers daily exposures up to 8 hours (unless stated differently) cting workers exposure Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

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n-Heptane (Pure Grade)	
Version 3.11	Revision Date 2023-05-19
Amount used	
Remarks	: No limit
Frequency and duration of use Remarks	: Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affect Remarks	 ing workers exposure 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 ventilatio	-
Organizational measures to preven Avoid carrying out operation for mor	t /limit releases, dispersion and exposure e than 4 hours.
	b personal protection, hygiene and health evaluation ested to EN374) in combination with 'basic' employee training., Wear th Type A filter or better.
	olling worker exposure for: PROC8a, PROC8b: Transfer
of substance or preparation (chan non-dedicated facilities, Transfe from/ to vessels/ large contained Product characteristics	arging/discharging) from/to vessels/large containers at er of substance or preparation (charging/ discharging) rs at dedicated facilities
of substance or preparation (chanon-dedicated facilities, Transfer from/ to vessels/ large contained Product characteristics Physical Form (at time of use)	arging/discharging) from/to vessels/large containers at er of substance or preparation (charging/ discharging) rs at dedicated facilities
of substance or preparation (chanon-dedicated facilities, Transfer from/ to vessels/ large contained Product characteristics Physical Form (at time of use) Amount used Remarks	arging/discharging) from/to vessels/large containers at er of substance or preparation (charging/ discharging) rs at dedicated facilities : Liquid substance
of substance or preparation (chanon-dedicated facilities, Transfer from/ to vessels/ large contained Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use	 arging/discharging) from/to vessels/large containers at pr of substance or preparation (charging/ discharging) rs at dedicated facilities : Liquid substance : No limit : Covers daily exposures up to 8 hours (unless stated differently)
of substance or preparation (chanon-dedicated facilities, Transfer from/ to vessels/ large contained Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affect Remarks	 arging/discharging) from/to vessels/large containers at er of substance or preparation (charging/ discharging) rs at dedicated facilities Liquid substance No limit Covers daily exposures up to 8 hours (unless stated differently) ing workers exposure Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented. personal protection, hygiene and health evaluation
of substance or preparation (chanon-dedicated facilities, Transfer from/ to vessels/ large contained Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affect Remarks Conditions and measures related to Wear suitable gloves tested to EN37 2.2 Contributing scenario control	 arging/discharging) from/to vessels/large containers at pr of substance or preparation (charging/ discharging) rs at dedicated facilities : Liquid substance : No limit : Covers daily exposures up to 8 hours (unless stated differently) ing workers exposure : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented. o personal protection, hygiene and health evaluation 74.
of substance or preparation (chanon-dedicated facilities, Transfer from/ to vessels/ large contained Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affect Remarks Conditions and measures related to Wear suitable gloves tested to EN37 2.2 Contributing scenario controbrushing	 arging/discharging) from/to vessels/large containers at pr of substance or preparation (charging/ discharging) rs at dedicated facilities : Liquid substance : No limit : Covers daily exposures up to 8 hours (unless stated differently) ing workers exposure : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented. o personal protection, hygiene and health evaluation 74.
of substance or preparation (chanon-dedicated facilities, Transfer from/ to vessels/ large contained Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affect Remarks Conditions and measures related to Wear suitable gloves tested to EN37 2.2 Contributing scenario contro brushing Product characteristics	 arging/discharging) from/to vessels/large containers at er of substance or preparation (charging/ discharging) rs at dedicated facilities : Liquid substance : No limit : Covers daily exposures up to 8 hours (unless stated differently) ing workers exposure : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented. o personal protection, hygiene and health evaluation 74.
of substance or preparation (chanon-dedicated facilities, Transfer from/ to vessels/ large contained Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affect Remarks Other operational conditions affect Remarks Conditions and measures related to Wear suitable gloves tested to EN37 2.2 Contributing scenario contro- brushing Product characteristics Physical Form (at time of use) Amount used	 arging/discharging) from/to vessels/large containers at er of substance or preparation (charging/ discharging) rs at dedicated facilities : Liquid substance : No limit : Covers daily exposures up to 8 hours (unless stated differently) ing workers exposure : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented. o personal protection, hygiene and health evaluation 74. : Liquid substance : Liquid substance

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Remarks			ers daily exposur ently)	es up	o to 8 h	iours (unles	s stated
Remarks	onal conditions af	: Assu temp stand	mes use at not r erature, unless s lard of occupatic	stated onal h	d differ lygiene	ently., Assu e is impleme	mes a good basic ented.
	ad measures relate ally resistant glove						
3. Exposure	estimation and	reference to	its source				
Environment							
Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Valu	e type	Level of Exposure	Risk characterization ratio (PEC/PNEC)
ERC4	Hydrocarbon Block Method with Petrorisk		Air			0,23 µg/m3	
			Freshwater Freshwater			0,0027 µg/L 0,046 µg/kg	
			sediment			0,040 µg/kg	0,000013
			Marine water Marine sediment			0,028 ng/L 0,87 ng/kg	< 0,000003 < 0,000004
	strial use of proces	sing aids in pro	Marine water Marine sediment Agricultural soil	ducts	s, not b	0,87 ng/kg 0,0016 μg/kg	< 0,000004 c 0,000003
	Sumers Exposure Assessment	sing aids in pro Specific conditions	Marine water Marine sediment Agricultural soil	ducts		0,87 ng/kg 0,0016 μg/kg	<0,000004 <0,000003 art of articles Risk characterizatio
Workers/Cons Contributing Scenario PROC2, CS93,	Exposure Assessment Method ECETOC TRA	Specific	Marine water Marine sediment Agricultural soil ocesses and pro Value type Worker – inhala	tion,	Level	0,87 ng/kg 0,0016 µg/kg ecoming pa	<0,000004 <0,000003 art of articles Risk characterization
Workers/Cons Contributing Scenario	Sumers Exposure Assessment Method	Specific	Marine water Marine sediment Agricultural soil DCESSES and pro Value type Worker – inhalar long-term – syste Worker – dermal,	tion, emic long-	Level 40,9	0,87 ng/kg 0,0016 µg/kg ecoming pa	 < 0,000004 < 0,000003 art of articles Risk characterizatio ratio (PEC/PNEC):
Workers/Cons Contributing Scenario PROC2, CS93,	Exposure Assessment Method ECETOC TRA	Specific	Marine water Marine sediment Agricultural soil DCESSES and pro Value type Worker – inhalar long-term – system Worker – dermal, term – system	tion, emic long- ic tion,	Level 40,9	0,87 ng/kg 0,0016 µg/kg ecoming pa of Exposure 90 mg/m3	 < 0,000004 < 0,000003 art of articles Risk characterization ratio (PEC/PNEC): 0,020
Workers/Cons Contributing Scenario PROC2, CS93,	Exposure Assessment Method ECETOC TRA Modified ECETOC TRA	Specific	Marine water Marine sediment Agricultural soil DCESSES and pro Value type Worker – inhalar long-term – system Worker – dermal, term – system Worker – inhalar long-term – system	tion, emic long- ic tion, emic tion,	Level 40,8	0,87 ng/kg 0,0016 µg/kg ecoming pa of Exposure 90 mg/m3	 < 0,000004 < 0,000003 art of articles Risk characterization ratio (PEC/PNEC): 0,020 0,005
Workers/Cons Contributing Scenario PROC2, CS93, CS101	Exposure Assessment Method ECETOC TRA Modified	Specific	Marine water Marine sediment Agricultural soil DCesses and pro Value type Worker – inhalar long-term – system Worker – inhalar long-term – system Worker – inhalar long-term – system Worker – inhalar long-term – system	tion, emic long- ic tion, emic tion, emic long-	Level 40,8 1,37	0,87 ng/kg 0,0016 µg/kg ecoming pa of Exposure 90 mg/m3 7 mg/kg/d	< 0,000004
Workers/Cons Contributing Scenario PROC2, CS93, CS101	Exposure Assessment Method ECETOC TRA Modified ECETOC TRA	Specific	Marine water Marine sediment Agricultural soil DCESSES and pro Value type Worker – inhalar long-term – syster Worker – inhalar long-term – syster Worker – inhalar long-term – syster Worker – dermal, term – system Worker – dermal,	tion, emic long- ic tion, emic long- ic tion,	Level 40,8 1,37	0,87 ng/kg 0,0016 µg/kg ecoming pa of Exposure 00 mg/m3 7 mg/kg/d ,5 mg/m3	< 0,000004
Workers/Cons Contributing Scenario PROC2, CS93, CS101	Exposure Assessment Method ECETOC TRA Modified ECETOC TRA Modified	Specific	Marine water Marine sediment Agricultural soil DCESSES and pro Value type Worker – inhalar long-term – syster Worker – dermal, term – system Worker – inhalar long-term – syster Worker – dermal, term – system Worker – dermal, term – system Worker – inhalar long-term – system Worker – inhalar	tion, emic long- ic tion, emic long- ic tion, emic tion, emic	Level 40,9 1,3 102 0,34	0,87 ng/kg 0,0016 µg/kg ecoming pa of Exposure 00 mg/m3 7 mg/kg/d ,5 mg/m3	< 0,000004
Workers/Cons Contributing Scenario PROC2, CS93, CS101 PROC3, CS93	Exposure Assessment Method ECETOC TRA Modified ECETOC TRA Modified	Specific	Marine water Marine sediment Agricultural soil DCESSES and pro Value type Worker – inhalar long-term – system Worker – dermal, term – system Worker – inhalar long-term – system Worker – dermal, term – system Worker – dermal, term – system Worker – inhalar long-term – system Worker – inhalar long-term – system Worker – inhalar long-term – system	tion, emic long- ic tion, emic tion, emic tion, emic tion, emic long- ic tion, emic	Level 40,9 40,9 1,37 102 0,34 8,1	0,87 ng/kg 0,0016 µg/kg ecoming pa of Exposure 30 mg/m3 7 mg/kg/d ,5 mg/m3 4 mg/kg/d	 < 0,000004 < 0,000003 art of articles Risk characterizatio ratio (PEC/PNEC): 0,020 0,020 0,024 0,049 0,001 0,050
Workers/Cons Contributing Scenario PROC2, CS93, CS101 PROC3, CS93	Exposure Assessment Method ECETOC TRA Modified ECETOC TRA Modified	Specific	Marine water Marine sediment Agricultural soil DCESSES and pro Value type Value type Worker – inhalat long-term – system Worker – dermal, term – system Worker – inhalat long-term – systet Worker – dermal, term – system Worker – inhalat long-term – systet Worker – inhalat long-term – systet Worker – inhalat long-term – systet Worker – inhalat long-term – system Worker – inhalat	tion, emic long- ic tion, emic long- ic tion, emic tion, emic long- ic tion, emic	Level 40,9 40,9 1,37 102 0,34 8,1	0,87 ng/kg 0,0016 µg/kg ecoming pa of Exposure 30 mg/m3 7 mg/kg/d ,5 mg/m3 4 mg/kg/d 8 mg/m3	< 0,000004
Workers/Cons Contributing Scenario PROC2, CS93, CS101 PROC3, CS93	Exposure Assessment Method ECETOC TRA Modified ECETOC TRA Modified ECETOC TRA Modified	Specific	Marine water Marine sediment Agricultural soil DCESSES and pro Value type Value type Worker – inhalat long-term – system Worker – dermal, term – system Worker – inhalat long-term – system Worker – dermal, term – system Worker – dermal, term – system Worker – dermal, term – system	tion, emic long- ic tion, emic long- ic tion, emic long- ic tion, emic tion, emic tion, emic tion, emic	Level (40,9 1,37 102 0,34 8,1 0,68	0,87 ng/kg 0,0016 µg/kg ecoming pa of Exposure 30 mg/m3 7 mg/kg/d ,5 mg/m3 4 mg/kg/d 8 mg/m3	< 0,000004
Workers/Cons Contributing Scenario PROC2, CS93, CS101 PROC3, CS93 PROC4, CS37	Exposure Assessment Method ECETOC TRA Modified ECETOC TRA Modified	Specific	Marine water Marine sediment Agricultural soil DCesses and pro DCesses and pro Value type Worker – inhalar long-term – system Worker – dermal, term – system Worker – inhalar long-term – system	tion, emic long- ic tion, emic long- tion long- tion long long long long long long long lo	Level 40,9 40,9 1,37 102 0,34 8,1 0,68 20,4	0,87 ng/kg 0,0016 µg/kg ecoming pa of Exposure 00 mg/m3 7 mg/kg/d ,5 mg/m3 4 mg/kg/d 8 mg/m3 6 mg/kg/d	< 0,000004
Workers/Cons Contributing Scenario PROC2, CS93, CS101 PROC3, CS93 PROC4, CS37	Exposure Assessment Method ECETOC TRA Modified ECETOC TRA Modified ECETOC TRA Modified	Specific	Marine water Marine sediment Agricultural soil DCESSES and pro Value type Worker – inhalar long-term – syster Worker – dermal, term – system Worker – inhalar long-term – system	tion, emic long- ic tion, emic tion, emic tion, emic long- ic tion, emic long- ic tion, emic long- ic tion, emic	Level 40,9 40,9 1,37 102 0,34 8,1 0,68 20,4	0,87 ng/kg 0,0016 µg/kg ecoming pa of Exposure 00 mg/m3 7 mg/kg/d ,5 mg/m3 4 mg/kg/d 8 mg/m3 6 mg/kg/d 15 mg/m3	< 0,000004
Workers/Cons Contributing Scenario PROC2, CS93, CS101 PROC3, CS93 PROC4, CS37	Exposure Assessment Method ECETOC TRA Modified ECETOC TRA Modified ECETOC TRA Modified	Specific	Marine water Marine sediment Agricultural soil DCESSES and pro Value type Worker – inhalar long-term – system Worker – dermal, term – system Worker – inhalar long-term – system Worker – inhalar long-term – system Worker – dermal, term – system Worker – inhalar long-term – system Worker – dermal, term – system Worker – dermal, term – system Worker – dermal, term – system Worker – dermal, term – system Worker – long-te systemic Combi routes	tion, emic long- ic tion, emic long- ic tion, emic long- ic tion, emic long- ic tion, emic long- ic tion, emic long- ic tion, emic	Level 40,9 40,9 1,3 102 0,3 4 0,68 20,4 0,68	0,87 ng/kg 0,0016 µg/kg ecoming pa of Exposure 00 mg/m3 7 mg/kg/d ,5 mg/m3 4 mg/kg/d 8 mg/m3 6 mg/kg/d 15 mg/m3	 < 0,000004 < 0,000003 art of articles Risk characterization ratio (PEC/PNEC): 0,020 0,020 0,005 0,024 0,049 0,001 0,002 0,002 0,002 0,006 0,002
Norkers/Cons Contributing Scenario PROC2, CS93, CS101 PROC3, CS93 PROC4, CS37 PROC4, CS37	Exposure Assessment Method ECETOC TRA Modified ECETOC TRA Modified ECETOC TRA Modified	Specific	Marine water Marine sediment Agricultural soil DCESSES and pro Value type Worker – inhalar long-term – system Worker – dermal, term – system Worker – inhalar long-term – system Worker – dermal, term – system Worker – dermal, term – system Worker – long-te systemic Combi routes	tion, emic long- ic tion, emic tion, emic tion, emic tion, emic tion, emic long- ic tion, emic	Level 40,9 40,9 1,3 102 0,3 4 0,68 20,4 0,68 20,4 184,	0,87 ng/kg 0,0016 µg/kg ecoming pa of Exposure 30 mg/m3 7 mg/kg/d ,5 mg/m3 4 mg/kg/d 8 mg/m3 6 mg/kg/d 45 mg/m3 6 mg/kg/d	 < 0,000004 < 0,000003 art of articles Risk characterization ratio (PEC/PNEC): 0,020 0,020 0,005 0,024 0,049 0,001 0,001 0,002 0,004 0,002 0,006 0,010 0,002 0,012

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		long-term – systemic		
PROC7, CS44	ECETOC TRA	Worker – inhalation,	30,67 mg/m3	0,015
	Modified	long-term – systemic		
		Worker – dermal, long-	4,286 mg/kg/d	0,014
		term – systemic		
		Worker – long-term –		0,029
		systemic Combined		
		routes		
PROC8a, CS14,	ECETOC TRA	Worker – inhalation,	204,50 mg/m3	0,098
PROC8b, CS45	Modified	long-term – systemic		
		Worker – dermal, long-	2,742 mg/kg/d	0,009
		term – systemic		
		Worker – inhalation,		0,107
		long-term – systemic		
PROC8b, CS45	ECETOC TRA	Worker – inhalation,	204,50 mg/m3	0,098
	Modified	long-term – systemic		
		Worker – dermal, long-	1,372 mg/kg/d	0,005
		term – systemic		
		Worker – long-term –		0,103
		systemic Combined		
		routes		
PROC10, CS34,	ECETOC TRA	Worker – inhalation,	204,50 mg/m3	0,098
CS42	Modified	long-term – systemic		
		Worker – dermal, long-	2,743 mg/kg/d	0,009
		term – systemic		
		Worker – inhalation,		0,107
		long-term – systemic		
PROC2: Use	in closed, continuous p	process with occasional controll	ed exposure	
	ated process with (sem		•	
	cation of cleaning prod			
COTOT. Appli	cation of cleaning prou	ucia in ciuseu systemis		
PROC3: Use	in closed batch proces	s (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

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by the Exposure Scenario	
Measures/Operational Condition Available hazard data do not en Risk Management Measures ar Where other Risk Management ensure that risks are managed t	bected to exceed the DN(M)EL when the Risk Management as outlined in Section 2 are implemented. able the derivation of a DNEL for dermal irritant effects. based on qualitative risk characterisation. Measures/Operational Conditions are adopted, then users should o at least equivalent levels.Guidance is based on assumed not be applicable to all sites; thus, scaling may be necessary to risk management measures.
either alone or in combination. Required removal efficiency for combination.	wastewater can be achieved using onsite/offsite technologies, air can be achieved using on-site technologies, either alone or in ontrol technologies are provided in SpERC factsheet
(http://cefic.org/en/reach-for-ind	
1. Short title of Exposure Scenario: I	Jse 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).
	olling environmental exposure for:ERC8a, ERC8d: Wide ssing aids in open systems, Wide dispersive outdoor use
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Flow rate	: 18.000 m3/d
Dilution Factor (River)	: 10
Dilution Factor (Coastal Areas)	
Other given operational conditions	affecting environmental exposure
Continuous use/release	005
Number of emission days per year	
Emission or Release Factor: Air	
Emission or Release Factor: Soil	
Remarks	: Emission or Release Factor: Air : < 0.001 %
Technical conditions and 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	o municipal sewage treatment plant
	: Onsite sewage treatment plant
Flow rate of sewage treatment	
plant effluent	. 2.000 mo/a
	: 96,2 %
Percentage removed from waste	: 96,2 %
water	. 30,2 /0
Conditions and measures related to	o 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	o 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 contro	olling worker exposure for: PROC2, PROC3: Use in
closed, continuous process with	n occasional controlled exposure, Use in closed batch
closed, continuous process with	n occasional controlled exposure, Use in closed batch
closed, continuous process with process (synthesis or formulation	n occasional controlled exposure, Use in closed batch
closed, continuous process with process (synthesis or formulation	n occasional controlled exposure, Use in closed batch
closed, continuous process with process (synthesis or formulation Product characteristics Physical Form (at time of use)	n occasional controlled exposure, Use in closed batch on)
closed, continuous process with process (synthesis or formulation Product characteristics Physical Form (at time of use) Amount used	n occasional controlled exposure, Use in closed batch on)
closed, continuous process with process (synthesis or formulation Product characteristics Physical Form (at time of use)	n occasional controlled exposure, Use in closed batch on)
closed, continuous process with process (synthesis or formulation Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use	n occasional controlled exposure, Use in closed batch on)
closed, continuous process with process (synthesis or formulation Product characteristics Physical Form (at time of use) Amount used Remarks	n occasional controlled exposure, Use in closed batch on)
closed, continuous process with process (synthesis or formulation Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affect	 in occasional controlled exposure, Use in closed batch Liquid substance No limit Covers daily exposures up to 8 hours (unless stated differently) ing workers exposure
closed, continuous process with process (synthesis or formulation Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use	 i. Liquid substance i. No limit i. Covers daily exposures up to 8 hours (unless stated differently) ing workers exposure i. Assumes use at not more than 20°C above ambient
closed, continuous process with process (synthesis or formulation Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affect	 in occasional controlled exposure, Use in closed batch batch Liquid substance No limit Covers daily exposures up to 8 hours (unless stated differently) ing workers exposure Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic
closed, continuous process with process (synthesis or formulation Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affect	 i. Liquid substance i. No limit i. Covers daily exposures up to 8 hours (unless stated differently) ing workers exposure i. Assumes use at not more than 20°C above ambient

SAFETY DATA SHEET n-Heptane (Pure Grade) Version 3.11 Revision Date 2023-05-19 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 : No limit Remarks 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 : Assumes use at not more than 20°C above ambient Remarks 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. SDS Number:10000067062 42/64

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	lling worker exposure for: PROC8b: Transfer of ing/ discharging) from/ to vessels/ large containers at
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 affectin Remarks	 ng workers exposure 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 Wear suitable gloves tested to EN374	personal protection, hygiene and health evaluation 4.
2.2 Contributing scenario contro brushing	Iling worker exposure for: PROC10: Roller application or
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 affection Remarks	 ng workers exposure 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 where emissions occur., Ensure door	by mechanical means., Provide extraction ventilation at points
	/limit releases, dispersion and exposure it the substance content in the product to 25%
	personal protection, hygiene and health evaluation 4., Wear chemically resistant gloves (tested to EN374) in aining.
2.2 Contributing scenario contro spraying	lling worker exposure for: PROC11: Non industrial
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SUS INUTIDEL. 10000007062	43/64

	e (Pure Grad	e)				SAL	TY DATA SHEE
- Version 3.11	(*	-)				Revisior	n Date 2023-05-1
Product chara Physical For	ncteristics m (at time of use)	: Liqui	d substance				
Amount used Remarks		: No li	mit				
Frequency an Remarks	d duration of use	: Cove	ers daily exposur rently)	es up	to 8 h	nours (unless	stated
Other operatic Remarks	onal conditions a	: Assu temp	imes use at not r	stated	differ	ently., Assur	nes a good basic
	ditions and meas nced general vent		nanical means., I	Ensure	e opei	ration is unde	ertaken outdoors
	d measures relat gloves tested to l		al protection, hy	giene	and	health evalu	uation
B. Exposure	estimation and	reference to	its source				
Environment							
Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	e type	Level of Exposure	Risk characterization ratio (PEC/PNEC)
ERC8a, ERC8d	Hydrocarbon Block Method with Petrorisk		Air			0,0022 µg/m3	
			Freshwater Freshwater sediment			0,0024 μg/L 0,037 μg/kg	0,000025 0,000009
						0.0070 //	0.000007
EDC90: Wid		r upp of propp	Marine water Marine sediment Agricultural soil			0,0078 ng/L 0,085 ng/kg 0,57 ng/kg	< 0,000007 < 0,000002 < 0,000006
ERC8d: Wid	Exposure Assessment		Marine water Marine sediment Agricultural soil ssing aids in ope		stems	0,085 ng/kg 0,57 ng/kg	< 0,000002 < 0,000006
ERC8d: Wid	e dispersive outdo sumers Exposure Assessment Method ECETOC TRA	oor use of proc	Marine water Marine sediment Agricultural soil ssing aids in ope essing aids in op Value type Worker – inhalar	tion,	Level	0,085 ng/kg 0,57 ng/kg	< 0,000002 < 0,000006 Risk characterization
ERC8d: Wid	e dispersive outdo sumers Exposure Assessment Method	oor use of proc	Marine water Marine sediment Agricultural soil ssing aids in ope essing aids in op Value type Worker – inhalar long-term – syste Worker – dermal,	tion, emic long-	Level 81,8	0,085 ng/kg 0,57 ng/kg of Exposure	< 0,000002 < 0,000006 Risk characterizatior ratio (PEC/PNEC):
ERC8d: Wid	e dispersive outdo sumers Exposure Assessment Method ECETOC TRA	oor use of proc	Marine water Marine sediment Agricultural soil ssing aids in ope essing aids in ope value type Worker – inhalar long-term – syster Worker – dermal, term – system Worker – long-te systemic Combi	tion, emic long- ic rm –	Level 81,8	0,085 ng/kg 0,57 ng/kg of Exposure 30 mg/m3	<0,000002 <0,000006 Risk characterizatior ratio (PEC/PNEC): 0,039
ERC8d: Wid	e dispersive outdo sumers Exposure Assessment Method ECETOC TRA	oor use of proc	Marine water Marine sediment Agricultural soil ssing aids in ope essing aids in ope essing aids in op Value type Worker – inhalar long-term – system Worker – long-te systemic Combi routes Worker – inhalar	tion, emic long- ic rm – ned tion,	Level 6 81,8 1,37	0,085 ng/kg 0,57 ng/kg of Exposure 30 mg/m3	<0,000002 <0,000006 Risk characterizatior ratio (PEC/PNEC): 0,039 0,005
ERC8d: Wid	e dispersive outdo	oor use of proc	Marine water Marine sediment Agricultural soil ssing aids in ope essing aids in op essing aids in op Worker – inhalar long-term – syster Worker – long-te systemic Combi routes Worker – inhalar long-term – syster	tion, emic long- ic rm – ned tion, emic long-	Level 81,8 1,3 102,	0,085 ng/kg 0,57 ng/kg of Exposure 80 mg/m3 7 mg/kg/d	< 0,000002
ERC8d: Wid	e dispersive outdo	oor use of proc	Marine water Marine sediment Agricultural soil ssing aids in ope essing aids in op essing aids in op worker – inhalar long-term – system Worker – dermal, term – system Worker – long-te systemic Combi routes Worker – dermal, term – system Worker – inhalar long-term – system Worker – dermal,	tion, emic long- ic rm – ned tion, emic long- ic rm –	Level 81,8 1,3 102,	0,085 ng/kg 0,57 ng/kg of Exposure 30 mg/m3 7 mg/kg/d 25 mg/m3	<0,000002 <0,000006 Risk characterizatior ratio (PEC/PNEC): 0,039 0,005 0,044 0,049
ERC8d: Wid	e dispersive outdo	oor use of proc	Marine water Marine sediment Agricultural soil ssing aids in ope essing aids in op essing aids in op Value type Worker – inhalat long-term – system Worker – dermal, term – system Worker – long-te systemic Combi routes Worker – inhalat long-term – system Worker – dermal, term – system	tion, emic long- ic rm – ned long- ic rm – ned tion, emic	Level 6 81,8 1,3 102, 0,3 61,3	0,085 ng/kg 0,57 ng/kg of Exposure 30 mg/m3 7 mg/kg/d 25 mg/m3	<0,000002 <0,000006 Risk characterization ratio (PEC/PNEC): 0,039 0,005 0,044 0,049 0,001

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I	I	term – systemic	I	
		Worker – long-term –		0,034
		systemic Combined routes		
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 –		0,076

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		systemic Combined routes		
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
		us process with occasional control semi) closed systems.	led exposure	
		cess (synthesis or formulation) semi) closed systems.		
		process (synthesis) where opportu (e.g.: Semi automatic application		
		process (synthesis) where opportu roducts in closed systems	nity for exposure a	rises
	in batch and other ing of medical devi	process (synthesis) where opportu es	nity for exposure a	rises
at non-dedica	ated facilities	or preparation (charging/dischargi ipment from drums or containers.	ng) from/to vessels	/large container
containers at	dedicated facilities	or preparation (charging/ discharg ipment from drums or containers.	ing) from/ to vesse	ls/ large
	ller application or b ing with low-pressu			
PROC10: Ro CS34: Manua	iller application or b al	rushing		
	ller application or b c manual applicatic	rushing n via trigger sprays, dipping, etc.		
	ller application or b c manual applicatic	rushing n via trigger sprays, dipping, etc.		
	on industrial sprayin ing with high press			
	on industrial sprayin ing with high press	-		
	on industrial sprayin ing with high press			
	to Downstream (ure Scenario	ser to evaluate whether he w	orks inside the	boundaries se
DS Numbor:1	00000067062	46/6	SA	

SDS Number:100000067062

46/64

n-Heptane (Pure Grade)	SAFETY DATA SHEE
Version 3.11	Revision Date 2023-05-1
Predicted exposures are not expe Measures/Operational Conditions Available hazard data do not ena Risk Management Measures are Where other Risk Management M ensure that risks are managed to operating conditions which may r define appropriate site-specific ris Required removal efficiency for w either alone or in combination. Required removal efficiency for a combination.	ected to exceed the DN(M)EL when the Risk Management s outlined in Section 2 are implemented. ble the derivation of a DNEL for dermal irritant effects. based on qualitative risk characterisation. Measures/Operational Conditions are adopted, then users should at least equivalent levels.Guidance is based on assumed not be applicable to all sites; thus, scaling may be necessary to
(http://cefic.org/en/reach-for-indu	
1. Short title of Exposure Scenario: A	grochemical 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 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.
	olling environmental exposure for:ERC8a, ERC8d: Wide sing aids in open systems, Wide dispersive outdoor use ems : 4.300
(MSafe) based on release following total wastewater treatment removal (kg/d):(Msafe)	. 4.000
Environment factors not influenced Flow rate Dilution Factor (River)	by risk management : 18.000 m3/d : 10
SDS Number:100000067062	47/64

n-Heptane (Pure Grade)	SAFETY DATA SHEE
Version 3.11	Revision Date 2023-05-1
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	
Emission or Release Factor: Water	
Emission or Release Factor: Soil	: 9%
Technical conditions and measures	s / 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 \geq (%): (Effectiveness: 0 %)
Conditions and measures related to	o municipal sewage treatment plant
	: Municipal sewage treatment plant
Flow rate of sewage treatment	: 2.000 m3/d
plant effluent	. 2.000 m3/d
Effectiveness (of a measure)	. 06.2.%
Percentage removed from waste	· 96,2 %
water	. 50,2 /0
Conditions and measures related to Waste treatment	 external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to	
Recovery Methods	: External recovery and recycling of waste should comply with
	applicable local and/or national regulations.
•	olling worker exposure for: PROC1, PROC2: Use in f exposure, Use in closed, continuous process with
closed process, no likelihood of	olling worker exposure for: PROC1, PROC2: Use in f exposure, Use in closed, continuous process with
closed process, no likelihood of occasional controlled exposure Product characteristics	olling worker exposure for: PROC1, PROC2: Use in f exposure, Use in closed, continuous process with
closed process, no likelihood of occasional controlled exposure Product characteristics Physical Form (at time of use)	olling worker exposure for: PROC1, PROC2: Use in f exposure, Use in closed, continuous process with
closed process, no likelihood of occasional controlled exposure Product characteristics Physical Form (at time of use) Amount used	billing worker exposure for: PROC1, PROC2: Use in f exposure, Use in closed, continuous process with : Liquid substance
closed process, no likelihood of occasional controlled exposure Product characteristics Physical Form (at time of use) Amount used Remarks	billing worker exposure for: PROC1, PROC2: Use in f exposure, Use in closed, continuous process with : Liquid substance
closed process, no likelihood of occasional controlled exposure Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use	 billing worker exposure for: PROC1, PROC2: Use in fexposure, Use in closed, continuous process with : Liquid substance : No limit : Covers daily exposures up to 8 hours (unless stated differently)
closed process, no likelihood of occasional controlled exposure Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affect	 billing worker exposure for: PROC1, PROC2: Use in fexposure, Use in closed, continuous process with : Liquid substance : No limit : Covers daily exposures up to 8 hours (unless stated differently) ing workers exposure
closed process, no likelihood of occasional controlled exposure Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affect	 Dilling worker exposure for: PROC1, PROC2: Use in fexposure, Use in closed, continuous process with : Liquid substance : No limit : Covers daily exposures up to 8 hours (unless stated differently) ing workers exposure : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.
closed process, no likelihood of occasional controlled exposure Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affect Remarks Technical conditions and measures Store substance within a closed syst	 billing worker exposure for: PROC1, PROC2: Use in fexposure, Use in closed, continuous process with : Liquid substance : No limit : Covers daily exposures up to 8 hours (unless stated differently) ing workers exposure : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented. s tem.
closed process, no likelihood of occasional controlled exposure Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affect Remarks Technical conditions and measures Store substance within a closed syst	 Diling worker exposure for: PROC1, PROC2: Use in fexposure, Use in closed, continuous process with : Liquid substance : No limit : Covers daily exposures up to 8 hours (unless stated differently) ing workers exposure : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

SAFETY DATA SHEET

Version 3.11

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 affeo Remarks	 cting workers exposure 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 preve No specific measures identified.	ent /limit releases, dispersion and exposure
•	rolling worker exposure for: PROC8a: Transfer of rging/discharging) from/to vessels/large containers at
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 affect	cting workers exposure : Assumes use at not more than 20°C above ambient
Remarks	temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.
Technical conditions and measure	temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.
Technical conditions and measure Provide enhanced general ventilati Organizational measures to preve	 temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented. es ion by mechanical means., Ensure operation is undertaken outdoors ent /limit releases, dispersion and exposure product to 25%, Avoid carrying out operation for more than 1 hour.,
Technical conditions and measure Provide enhanced general ventilati Organizational measures to preve Limit the substance content in the Avoid carrying out operation for mo	 temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented. es ion by mechanical means., Ensure operation is undertaken outdoors ent /limit releases, dispersion and exposure product to 25%, Avoid carrying out operation for more than 1 hour., ore than 4 hours. to personal protection, hygiene and health evaluation
Technical conditions and measure Provide enhanced general ventilati Organizational measures to preve Limit the substance content in the Avoid carrying out operation for mo Conditions and measures related Wear suitable gloves tested to ENS 2.2 Contributing scenario cont	temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented. es ion by mechanical means., Ensure operation is undertaken outdoors ent /limit releases, dispersion and exposure product to 25%, Avoid carrying out operation for more than 1 hour., ore than 4 hours. to personal protection, hygiene and health evaluation 374. rolling worker exposure for: PROC13: Treatment of
Technical conditions and measure Provide enhanced general ventilati Organizational measures to preve Limit the substance content in the Avoid carrying out operation for mo Conditions and measures related Wear suitable gloves tested to ENS	temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented. es ion by mechanical means., Ensure operation is undertaken outdoors ent /limit releases, dispersion and exposure product to 25%, Avoid carrying out operation for more than 1 hour., ore than 4 hours. to personal protection, hygiene and health evaluation 374. rolling worker exposure for: PROC13: Treatment of

n-Hentano	(Pure Grade		
Version 3.11		Revision Date 2023-0	5-19
Amount used Remarks		: No limit	
F requency and Remarks	duration of use	: Covers daily exposures up to 8 hours (unless stated differently)	
Other operatio Remarks	nal conditions af	 ecting workers exposure Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good ba standard of occupational hygiene is implemented. 	asic
	ditions and meas tion is undertaken		
		vent /limit releases, dispersion and exposure e product to 25%, Avoid carrying out operation for more than 4 hou	rs.
	d measures relate gloves tested to E	d to personal protection, hygiene and health evaluation N374.	
2.2 Contribut spraying	ing scenario co	ntrolling worker exposure for: PROC11: Non industrial	
Product chara Physical For	cteristics m (at time of use)	: Liquid substance	
Amount used Remarks		: No limit	
Frequency and Remarks	d duration of use	: Covers daily exposures up to 8 hours (unless stated differently)	
Other operatio Remarks	nal conditions af	 ecting workers exposure Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good ba standard of occupational hygiene is implemented. 	asic
Ensure opera			
Ensure opera positive press Organizational	tion is undertaken ure and with a pro I measures to pre	ires butdoors., Apply within a vented cab supplied with filtered air under	
Ensure opera positive press Organizationa Limit the subs Conditions an Wear a respir	tion is undertaken ure and with a pro- I measures to pre- stance content in th d measures relate ator conforming to be skin., Wear cher	ires butdoors., Apply within a vented cab supplied with filtered air under ection factor of >20. vent /limit releases, dispersion and exposure	irs.
Ensure opera positive press Organizationa Limit the subs Conditions an Wear a respir exposure to th activity trainin	tion is undertaken ure and with a pro- I measures to pre- stance content in th d measures relate ator conforming to be skin., Wear cher g.	 ares butdoors., Apply within a vented cab supplied with filtered air under ection factor of >20. vent /limit releases, dispersion and exposure e product to 25%, Avoid carrying out operation for more than 4 hou d to personal protection, hygiene and health evaluation EN140 with Type A filter or better., Wear suitable coveralls to prevent 	irs.
Ensure opera positive press Organizationa Limit the subs Conditions an Wear a respir exposure to th activity trainin	tion is undertaken ure and with a pro- I measures to pre- stance content in th d measures relate ator conforming to be skin., Wear cher g.	Tres butdoors., Apply within a vented cab supplied with filtered air under ection factor of >20. Vent /limit releases, dispersion and exposure e product to 25%, Avoid carrying out operation for more than 4 hou d to personal protection, hygiene and health evaluation EN140 with Type A filter or better., Wear suitable coveralls to preven nically resistant gloves (tested to EN374) in combination with speci	irs.
Ensure opera positive press Organizational Limit the subs Conditions and Wear a respir exposure to the activity trainin 3. Exposure of	tion is undertaken ure and with a pro- I measures to pre- stance content in th d measures relate ator conforming to be skin., Wear cher g.	Tres butdoors., Apply within a vented cab supplied with filtered air under ection factor of >20. Vent /limit releases, dispersion and exposure e product to 25%, Avoid carrying out operation for more than 4 hou d to personal protection, hygiene and health evaluation EN140 with Type A filter or better., Wear suitable coveralls to preven nically resistant gloves (tested to EN374) in combination with speci	rrs. ent fic

SAFETY DATA SHEET

Version 3.11

Revision Date 2023-05-19

Scenario	Method	conditions		Exposure	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

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 routes		0,121
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
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			Worker – dermal, long- term – systemic	1,2857 mg/kg/d	0,004
			Worker – long-term – systemic Combined		0,075
PROC1: Use i CS67: Storage	n closed process	, no likelihood (routes of exposure		
PROC2: Use i CS67: Storage		ious process wi	th occasional contro	lled exposure	
CS23: Mixing a PROC8b: Trar containers at c	and blending.	e or preparation s	hesis) where opportu n (charging/ discharg		
at non-dedicat	ed facilities		n (charging/dischargi ine oils and similar	ing) from/to vesse	ls/large containers
PROC8a: Trar at non-dedicat CS28: Disposa	ed facilities	e or preparatior	n (charging/dischargi	ing) from/to vesse	els/large containers
	atment of articles manual applicati		l pouring prays, dipping, etc.		
	industrial sprayi g/ fogging by ma		n		
	industrial sprayi g/ fogging by ma		on		
4. Guidance to by the Exposu		User to evalu	late whether he w	orks inside the	e boundaries set
Measures/C Available ha Risk Manag Where other ensure that operating co	perational Cond azard data do not ement Measures r Risk Managem risks are manage	itions outlined in enable the der are based on o ent Measures/C ed to at least ec nay not be appli	ceed the DN(M)EL w in Section 2 are imple- ivation of a DNEL fo qualitative risk chara operational Condition quivalent levels.Guida icable to all sites; thu ment measures.	emented. r dermal irritant ef cterisation. Is are adopted, the ance is based on	fects. en users should assumed
either alone	or in combinatio	n.	can be achieved usi chieved using on-site	0	0
combination Further deta	l.	d control techno	ologies are provided	-	
1. Short title of E	xposure Scenari	o: Use as a la	boratory agent –	industrial	
Main User Gro	oups		Industrial uses: Use rations at industrial s		s such or in
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n-Heptane (Pure Grade)	SAFETY DATA SHEE
Version 3.11	Revision Date 2023-05-
Sector of use Process category	 SU3: Industrial Manufacturing (all) 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 pa of articles
Further information	: Use of the substance within laboratory settings, including material transfers and equipment cleaning.
	Wiping
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d):(Msafe)	ustrial use of processing aids in processes and rticles : 2.200
Environment factors not influenced Flow rate Dilution Factor (River) Dilution Factor (Coastal Areas)	by risk management : 18.000 m3/d : 10 : 100
Other given operational conditions a Continuous use/release Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil	: 20 : 2,5 % : 2 %
Fechnical conditions and measures	/ Organizational measures
Air Water	 Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %) Treat onsite wastewater (prior to receiving water discharge) to the typical removal efficiency of typical removal efficiency of the typical removal efficiency of ty
Remarks	 provide the required removal efficiency of ≥ (%): (Effectiveness: 17,4 %) Risk from environmental exposure is driven by freshwater
Water	 sediment. If discharging to domestic sewage treatment plant, provide th required onsite wastewater removal efficiency of ≥ (%):
Remarks	 (Effectiveness: 0 %) If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
Conditions and measures related to Type of Sewage Treatment Plant Flow rate of sewage treatment plant effluent	
Effectiveness (of a measure) Percentage removed from waste water	: 96,2 % : 96,2 %

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 : 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 : Evel of Risk	Version 3.11 Revision Date 2023-05 Conditions and measures related to external treatment of waste for disposal Waste treatment 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 Recovery Methods External recovery of waste Remarks No limit Frequency and duration of use Remarks Remarks In personal protection, hygiene and health evaluation Wear suitable glov	n-Hentane (Plire (Frade)			SAFET	Y DATA SHEET
Waste treatment : External treatment and disposal of waste should comply with Conditions and measures related to external recovery of waste Recovery Methods : External recovery of waste Recovery Methods : External recovery of maste : 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 of brushing Product characteristics Physical Form (at time of use) : Liquid substance Amount used Remarks : No limit Frequency and duration of use : 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 : Covers daily exposures up to 8 hours (unless stated differently). Other operati	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 of waste 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 brushing Product characteristics Physical Form (at time of use) 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 bas 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 wor				Revision I	Date 2023-05-19
brushing Forduct characteristics Physical Form (at time of use) : Liquid substance Amount used Remarks : No limit Frequency and duration of use : 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 : Covers daily exposures up to 8 hours (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented. Other operational conditions affecting workers exposure : Remarks Remarks : No limit Frequency and duration of use : Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented. Other operational conditions affecting workers exposure : Ass	brushing Image: Constraint of the second	Waste treatment Conditions and measures related	: External treatment a applicable local and/ to external recovery of w : External recovery an	nd disposal of or national reg aste id recycling of	f waste shou gulations. waste shoul	
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 : No limit Frequency and duration of use : Covers daily exposures up to 8 hours (unless stated differently) Other operational conditions affecting workers exposure Remarks : Saumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented. Other operational conditions affecting workers exposure Remarks : Saumes 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.	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 bas 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 : 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 bas standard of occupational hygiene is implemented. Organizational measures to prevent /limit releases, dispersion and exposure No specific measures identified. : Asumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good bas standard of occupational hygiene is implemented. <td< td=""><td>-</td><td>rolling worker exposur</td><td>e for: PROC</td><td>10: Roller</td><td>application or</td></td<>	-	rolling worker exposur	e for: PROC	10: Roller	application or
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 : No limit Remarks : No limit Other operational conditions affecting workers exposure 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	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 bas 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 : 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 bas standard of occupational hygiene is implemented. Organizational measures to prevent //imit releases, dispersion and exposure No specific measures identified. : 3. Exposure estimation and reference to its source : : Environment Yalue type Level of Risk	Product characteristics Physical Form (at time of use)	: Liquid substance			
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0	Martha al	a sus all'el sus s		F	
Scenario	Method	conditions		Exposure	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	< 0,00008

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 gualitative 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**

SDS Number:10000067062

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n Llantana (Dura Crada)	SAFETY DATA SHEE
n-Heptane (Pure Grade) Version 3.11	Revision Date 2023-05-1
Main User Groups Sector of use	 SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) SU 22: Professional uses: Public domain (administration,
Process category	 education, entertainment, services, craftsmen) 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 contro dispersive indoor use of process Daily amount per site(Msafe)	Iling environmental exposure for:ERC8a: Wide sing aids in open systems : 87
Environment factors not influenced	by risk management : 18.000 m3/d
Flow rate Dilution Factor (River)	: 18.000 m3/a : 10
Dilution Factor (Coastal Areas)	: 100
Continuous use/release Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil	: 50 %
Technical conditions and measures	/ Organizational measures
Air	: Treat air emission to provide a typical removal efficiency of
Water	 (%): (Effectiveness: 0 %) : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%):
Remarks	(Effectiveness: 0 %)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 Flow rate of sewage treatment plant effluent	: Municipal sewage treatment plant : 2.000 m3/d
Effectiveness (of a measure) Percentage removed from waste water	: 96,2 % : 96,2 %
Conditions and measures related to Waste treatment	 external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to	
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brushing Product charac	hods ng scenario co	: ontrollin	applic	nal recovery an cable local and/o rker exposure	or national r	of waste shou egulations.	
Recovery Met 2.2 Contributi brushing Product charac Physical Form Amount used Remarks Frequency and	ng scenario co teristics	ontrollin	applic	cable local and/o	or national r	of waste shou egulations.	uld comply with
brushing Product charac Physical Form Amount used Remarks Frequency and	teristics		g wo	rker exposure	e for: PRO	C10: Roller	
Physical Form Amount used Remarks Frequency and		:					application o
Remarks Frequency and			Liquio	d substance			
		:	No lir	nit			
	duration of use		Cove differ	rs daily exposur ently)	es up to 8 h	ours (unless	stated
Other operatior Remarks	al conditions a		Assu temp	mes use at not i	stated differ	ently., Assum	nes a good basic
	itions and meas ne cupboard or ι		ract ve	entilation.			
reagent Product charac	ng scenario co teristics (at time of use)			d substance	e for: PRO	C15: Use a:	s laboratory
Amount used Remarks		:	No lir	nit			
Frequency and Remarks	duration of use		Cove differ	rs daily exposur ently)	res up to 8 h	ours (unless	stated
Other operatior Remarks	al conditions a	-	Assu temp	mes use at not i	stated differ	ently., Assum	nes a good basic
	measures to pro asures identified		nit rel	eases, dispers	ion and exp	osure	
3. Exposure e	stimation and	referen	ce to	its source			
Environment							
Contributing Scenario	Exposure Assessment Method	Specif conditio		Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
	Hydrocarbon Block Method with Petrorisk			Air		0,0029 µg/m3	
ERC8a	T ELIONSK					0,0071 µg/L	<u> </u>

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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	0,00083

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

Workers/Consumers

Contributing	Exposure	Specific	Value type	Level of Exposure	Risk characterization
Scenario	Assessment Method	conditions			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		0,021
			routes		

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 fuel - industrial

Main User Groups Sector of use Process category	 SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites SU3: Industrial Manufacturing (all) PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure
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-Hontono (Duro Grado)	
n-Heptane (Pure Grade) Version 3.11	Revision Date 2023-05-1
	 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.
substances in open systems	 sed systems, Wide dispersive indoor use of reactive 4.300 tonnes/day
following total wastewater treatment removal (tonnes/day): (Msafe)	
following total wastewater treatment removal (tonnes/day): (Msafe) Environment factors not influenced b Flow rate Dilution Factor (River)	by risk management : 18.000 m3/d : 10 : 100
following total wastewater treatment removal (tonnes/day): (Msafe) Environment factors not influenced b Flow rate Dilution Factor (River) Dilution Factor (Coastal Areas)	: 18.000 m3/d : 10 : 100
following total wastewater treatment removal (tonnes/day): (Msafe) Environment factors not influenced b Flow rate Dilution Factor (River) Dilution Factor (Coastal Areas) Other given operational conditions af	: 18.000 m3/d : 10 : 100
following total wastewater treatment removal (tonnes/day): (Msafe) Environment factors not influenced b Flow rate Dilution Factor (River) Dilution Factor (Coastal Areas)	: 18.000 m3/d : 10 : 100 ffecting environmental exposure
following total wastewater treatment removal (tonnes/day): (Msafe) Environment factors not influenced b Flow rate Dilution Factor (River) Dilution Factor (Coastal Areas) Other given operational conditions af Continuous use/release Number of emission days per year Emission or Release Factor: Air	 18.000 m3/d 10 100 ffecting environmental exposure 20 5 %
following total wastewater treatment removal (tonnes/day): (Msafe) Environment factors not influenced b Flow rate Dilution Factor (River) Dilution Factor (Coastal Areas) Other given operational conditions af Continuous use/release Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water	 18.000 m3/d 10 100 ffecting environmental exposure 20 5 %
following total wastewater treatment removal (tonnes/day): (Msafe) Environment factors not influenced b Flow rate Dilution Factor (River) Dilution Factor (Coastal Areas) Other given operational conditions af Continuous use/release Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil	 18.000 m3/d 10 100 ffecting environmental exposure 20 5 % 0,001 % 0 %
following total wastewater treatment removal (tonnes/day): (Msafe) Environment factors not influenced b Flow rate Dilution Factor (River) Dilution Factor (Coastal Areas) Other given operational conditions af Continuous use/release Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil	 18.000 m3/d 10 100 ffecting environmental exposure 20 5 % 0,001 % 0 % Organizational measures Treat air emission to provide a typical removal efficiency of
following total wastewater treatment removal (tonnes/day): (Msafe) Environment factors not influenced b Flow rate Dilution Factor (River) Dilution Factor (Coastal Areas) Other given operational conditions af Continuous use/release Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil	 18.000 m3/d 10 100 ffecting environmental exposure 20 5 % 0,001 % 0 % Organizational measures Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 95 %) Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%):
following total wastewater treatment removal (tonnes/day): (Msafe) Environment factors not influenced b Flow rate Dilution Factor (River) Dilution Factor (Coastal Areas) Other given operational conditions af Continuous use/release Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil Technical conditions and measures / Air Water	 18.000 m3/d 10 100 ffecting environmental exposure 20 5 % 0,001 % 0 % Organizational measures Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 95 %) Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 0 %) Risk from environmental exposure is driven by freshwater
following total wastewater treatment removal (tonnes/day): (Msafe) Environment factors not influenced b Flow rate Dilution Factor (River) Dilution Factor (Coastal Areas) Other given operational conditions af Continuous use/release Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil Technical conditions and measures / Air Water	 18.000 m3/d 10 100 ffecting environmental exposure 20 5 % 0,001 % 0 % Organizational measures Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 95 %) Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 0 %) Risk from environmental exposure is driven by freshwater sediment. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%):
following total wastewater treatment removal (tonnes/day): (Msafe) Environment factors not influenced b Flow rate Dilution Factor (River) Dilution Factor (Coastal Areas) Other given operational conditions af Continuous use/release Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil Fechnical conditions and measures / Air Water Remarks	 18.000 m3/d 10 100 ffecting environmental exposure 20 5 % 0,001 % 0 % Organizational measures Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 95 %) Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 0 %) Risk from environmental exposure is driven by freshwater sediment. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): (Effectiveness: 0 %)
following total wastewater treatment removal (tonnes/day): (Msafe) Environment factors not influenced b Flow rate Dilution Factor (River) Dilution Factor (Coastal Areas) Other given operational conditions af Continuous use/release Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil Technical conditions and measures / Air Water Remarks Water	 18.000 m3/d 10 100 ffecting environmental exposure 20 5 % 0,001 % 0 % Organizational measures Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 95 %) Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 0 %) Risk from environmental exposure is driven by freshwater sediment. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%):

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n-Heptane (Pure Grade)

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controls. Conditions and measures related to external recovery of waste Recovery Methods : This substance is consumed during use and no waste of is 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 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 : No limit Frequency and duration of use : Covers daily exposures up to 8 hours (unless stated differently) Other operational conditions affecting workers exposure : Covers dail		
Effectiveness (of a measure) : 96.2 % Percentage removed from waste : 96.2 % water 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 emissi controls. Conditions and measures related to external recovery of waste Recovery Methods : This substance is consumed during use and no waste of i 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) Physical Form (at time of use) Remarks : No limit Frequency and duration of use Remarks : Covers daily exposures up to 8 hours (unless stated differently) Other operational conditions affecting worker exposure Remarks : Assumes a good basic standard of occupational hygiene 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 </th <th>Flow rate of sewage treatment</th> <th></th>	Flow rate of sewage treatment	
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Technical conditions and measures	Technical conditions and measures	3
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	system., Store substance within a closed system., Transfer via
2.2 Contributing scenario cont process (synthesis or formulat	rolling worker exposure for: PROC3: Use in closed batch tion)
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 affeo Remarks	 cting workers exposure Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.
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No specific measures identified. 2.2 Contributing scenario cont substance or preparation (chai non-dedicated facilities	ent /limit releases, dispersion and exposure rolling worker exposure for: PROC8a: Transfer of rging/discharging) from/to vessels/large containers at
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No specific measures identified. 2.2 Contributing scenario cont substance or preparation (char non-dedicated facilities Product characteristics Physical Form (at time of use) Amount used	rolling worker exposure for: PROC8a: Transfer of rging/discharging) from/to vessels/large containers at
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No specific measures identified. 2.2 Contributing scenario cont substance or preparation (char non-dedicated facilities Product characteristics Physical Form (at time of use) Amount used Remarks Frequency and duration of use Remarks Other operational conditions affect Remarks Technical conditions and measure Drain down and flush system prior Organizational measures to preve Apply vessel entry procedures incl Conditions and measures related	 rolling worker exposure for: PROC8a: Transfer of rging/discharging) from/to vessels/large containers at Liquid substance No limit Covers daily exposures up to 8 hours (unless stated differently) cting workers exposure Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently. es to equipment opening or maintenance. ent /limit releases, dispersion and exposure

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	eteriotie -						
Product chara Physical For	m (at time of use)	:	Liquid	substance			
Amount used							
Remarks		:	No lim	nit			
requency an	d duration of use						
Remarks			Cover differe	rs daily exposur ently)	es up to 8 h	nours (unless	stated
Other operation	onal conditions a						
Remarks		:	impler	nes a good bas mented., Assun ent temperature	nes use at r	ot more than	20°C above
	ditions and meas ance within a clos		n.				
	d measures relate gloves tested to l		rsonal	protection, hy	/giene and	health evalu	ation
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fuel sources	, limited exposu	ure to ur	nburn				
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	Freshwater	0,0043 µg/L	0,000046
	Freshwater	0,13 µg/kg	0,000052
	sediment		
	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

SDS Number:100000067062

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterizatior 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
	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 routes		0,103
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
CS15: Gener	in closed process al exposures (clos contained batch p je	ed systems)	of exposure		

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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) 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).