Scentinel® F-35 Gas Odorant

Version 3.3 Revision Date 2026-11-18

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

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

1.1

Product information

Product Name : Scentinel® F-35 Gas Odorant
Material : 1086514, 1098152, 1086548, 1024699, 1024698, 1024700, 1029446, 1105016, 1105017

EC-No.Registration number

Chemical name	CAS-No. EC-No. Index No.	Legal Entity Registration number
t-Butyl Mercaptan	75-66-1 200-890-2	Chevron Phillips Chemicals International NV 01-2119491288-26-0000
Dimethyl Sulfide	75-18-3 200-846-2	Chevron Phillips Chemicals International NV 01-2119487127-32-0001
Dimethyl Sulfide	75-18-3 200-846-2	Chevron Phillips Chemical Company LP 01-2119487127-32-0001

Unique Formula Identifier : 7410-Q0H5-1002-EP0X

1.2

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

Relevant Identified Uses Supported : Distribution
Formulation
Use as an intermediate
Injection as odorant in fuels – industrial

1.3

Details of the supplier of the safety data sheet

Company : Chevron Phillips Chemical Company LP
Specialty Chemicals
9500 Lakeside Blvd.
The Woodlands, TX 77381

1.4

Emergency telephone:

Health:
866.442.9628 (North America)

1.832.813.4984 (International)
Transport:
CHEMTREC 800.424.9300 or 703.527.3887(int'l)
Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090
Mexico CHEMTREC 01-800-681-9531 (24 hours)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600
Argentina: +(54)-1159839431
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Austria: VIZ +43 1 406 43 43 (24 hours/day, 7 days/week)
Belgium: 070 245 245 (24 hours/day, 7 days/week)
Bulgaria: +359 2 9154 233
Croatia: +3851 2348 342 (24 hours/day, 7 days/week)
Cyprus: 1401
Czech Republic: Toxicological Information Center +420 224 919 293, +420 224 915 402
Denmark: Danish Poison Center (Giftlinjen): +45 8212 1212
Estonia: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Finland: 0800 147 111 09 471 977 (24 hours/day)
France: ORFILA number (INRS): + 33 (0) 1 45 42 59 59 (24 hours/day, 7 days/week)
Germany: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Greece: (0030) 2107793777 (24 hours/day, 7 days/week)
Hungary: +36-80-201-199 (24 hours/day, 7 days/week)
Iceland: 543 2222 (24 hours/day, 7 days/week)
Ireland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Italy: POISON CENTER MILAN – Azienda Ospedaliera Niguarda Ca` Grande Tel. +39 02 66101029; POISON CENTER ROME – Policlinico “Agostino Gemelli”, Servizio di tossicologia clinica Tel. +39 06 3054343; POISON CENTER ROME – Ospedale Pediatrico Bambino Gesù Tel. +39 06 68593726;POISON CENTER ROME – Policlinico “Umberto I” Tel. +39 06 4997 8000; POISON CENTER FOGGIA – Azienda Ospedaliera Universitaria Riuniti Tel. +39 0881 732326; POISON CENTER NAPLES – Azienda Ospedaliera “Antonio Cardarelli” Tel. +39 081 7472870; POISON CENTER FLORENCE – Azienda Ospedaliera universitaria Careggi Tel. +39 055 7947819; POISON CENTER PAVIA – IRCCS Fondazione Salvatore Maugeri Tel. +39 0382 24444; POISON CENTER BERGAMO – Azienda Ospedaliera “Papa Giovanni XXIII” Tel. 800 883 300; POISON CENTER VERONA – Azienda Ospedaliera Universitaria integrata Tel. 800 011 858;
Latvia: State Fire and Rescue Service, phone number: 112; Toxicology and Sepsis Clinic Poisoning and Drug Information Center, Hipokrāta 2, Riga, Latvia, LV-1038, phone number +371 67042473. (24 hours.)
Liechtenstein: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Lithuania: +370 (85) 2362052
Luxembourg: (+352) 8002 5500 (24 hours/day, 7 days/week)
Malta: +356 2395 2000
The Netherlands: NVIC: +31 (0)88 755 8000
Norway: 22 59 13 00 (24 hours/day, 7 days/week)
Poland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Portugal: CIAV phone number: +351 800 250 250
Romania: +40213183606
Slovakia: +421 2 5477 4166
Slovenia: Phone number: 112
Spain: National Emergency Telephone Number of Spanish Poison Centre: +34 91 562 04 20 (24 hours/day, 7 days/week)
Sweden: 112 – ask for Poisons Information

Organization that prepared the SDS	:	Product Safety and Toxicology Group
E-mail address	:	SDS@CPChem.com
Website	:	www.CPChem.com

ODOR-FADE WARNING

A GAS LEAK CAN CAUSE A FIRE OR EXPLOSION RESULTING IN SERIOUS INJURY OR DEATH.

Be aware that the stenching chemical added to gas to make it detectable may not warn of a gas leak or the presence of propane or natural gas to all persons in every instance.

Instances where the odorant in an odorized gas may be undetectable include:

• Odor intensity may fade or be eliminated for a variety of chemical and physical causes, including the oxidation of rusting pipes, adsorption into or sticking onto the interior of pipes or appliances, or absorption into liquids.
• Contact with soil in underground leaks may de-odorize or remove odorant from the gas.
• Some people have a diminished ability, or inability to smell the stench. Factors that negatively affect a person's sense of smell include age, gender, medical conditions, and alcohol/tobacco usage.
• The stench of odorized gas may not awaken sleeping persons.
• Other odors may mask or hide the stench.
• Exposure to the odor for even a short period of time, may cause nasal fatigue, where a person can no longer smell the stench.

Gas detectors listed by the Underwriters Laboratories (UL) can be used as an extra measure of safety for detecting gas leaks, especially under conditions where the odorant alone may not provide an adequate warning. Gas detectors emit a loud, shrill sound when gas is present and do not depend on sense of smell. Because the odor intensity can fade or people may have problems with their sense of smell, we recommend installing, per manufacturer's instructions, one or more combustible gas detectors, in suitable locations to ensure adequate coverage to detect gas leaks.

Educate yourself, your employees, and your customers with the content of this warning and other important facts associated with the so-called "odor-fade phenomenon."

SECTION 2: Hazards identification

2.1

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

Flammable liquids, Category 2	H225: Highly flammable liquid and vapor.
Eye irritation, Category 2	H319: Causes serious eye irritation.
Skin sensitization, Category 1	H317: May cause an allergic skin reaction.
Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

2.2

Labeling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal Word : Danger

Hazard Statements :	H225	Highly flammable liquid and vapor.
	H317	May cause an allergic skin reaction.
	H319	Causes serious eye irritation.
	H411	Toxic to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
Response:	
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.

Hazardous ingredients which must be listed on the label:
- 75-66-1 t-Butyl Mercaptan

2.3

Other hazards

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

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

SECTION 3: Composition/information on ingredients

Synonyms : Gas Odorant
Mercaptan Mixture

Molecular formula : Mixture

Hazardous ingredients

Chemical name	CAS-No. EC-No. Index No.	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]	Specific Conc. Limits, M-factors and ATEs
t-Butyl Mercaptan	75-66-1 200-890-2	Flam. Liq. 2; H225 Eye Irrit. 2; H319 Skin Sens. 1B; H317 Aquatic Chronic 2; H411	63 - 67	
Dimethyl Sulfide	75-18-3 200-846-2	Flam. Liq. 2; H225 Aquatic Chronic 3; H412	33 - 37	
Carbon disulfide	75-15-0	Flam. Liq. 2; H225	0,1 - 0,5	

	200-843-6 006-003-00-3	Repr. 2; H361fd STOT RE 1; H372 Eye Irrit. 2; H319 Skin Irrit. 2; H315		

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

SECTION 4: First aid measures

4.1
Description of first-aid measures

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

If inhaled : If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of skin contact : If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact : Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear. Do NOT induce vomiting. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

4.2 Most important symptoms and effects, both acute and delayed
Notes to physician

Risks : May cause an allergic skin reaction. Causes serious eye irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

Flash point : -18°C (0°F)
estimated

Autoignition temperature : No data available

5.1
Extinguishing media

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

Unsuitable extinguishing media : High volume water jet.

5.2
Special hazards arising from the substance or mixture

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

5.3

Advice for firefighters

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

SECTION 6: Accidental release measures

6.1

Personal precautions, protective equipment and emergency procedures

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

6.2

Environmental precautions

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

6.3

Methods and materials for containment and cleaning up

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

6.4

Reference to other sections

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

SECTION 7: Handling and storage

7.1

Precautions for safe handling

Handling

Advice on safe handling	:	Avoid formation of aerosol. Do not breathe vapors/dust. Avoid

exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

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

7.2

Conditions for safe storage, including any incompatibilities

Storage

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

SECTION 8: Exposure controls/personal protection

Ingredients with workplace control parameters

Chevron Phillips Chemical Company LP

Components	Basis	Value	Control parameters	Note
t-Butyl Mercaptan	Manufacturer	TWA	0,5 ppm,	

SK

Zložky	Podstata	Hodnota	Kontrolné parametre	Poznámka
Carbon disulfide	SK OEL	NPEL priemerný	5 ppm, 15 mg/m3	K,
Ethyl Mercaptan	SK OEL	NPEL priemerný	0,5 ppm, 1,3 mg/m3	
	SK OEL	NPEL krátkodobý	1 ppm, 2,6 mg/m3	

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

SI

Sestavine	Osnova	Vrednost	Parametri nadzora	Pripomba
Carbon disulfide	SI OEL	MV	5 ppm, 15 mg/m3	RF-2, RD-2, K,
	SI OEL	KTV	10 ppm, 30 mg/m3	RF-2, RD-2, K,
Ethyl Mercaptan	SI OEL	MV	0,5 ppm, 1,3 mg/m3	
	SI OEL	KTV	1 ppm, 2,6 mg/m3	

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

SE

Beståndsdelar	Grundval	Värde	Kontrollparametrar	Anmärkning
Dimethyl Sulfide	AFS 2023:14	NGV	1 ppm,	
Carbon disulfide	AFS 2023:14	NGV	5 ppm, 16 mg/m3	H, R,
	AFS 2023:14	KGV	8 ppm, 25 mg/m3	V, H, R,
Dimethyl Disulfide	AFS 2023:14	NGV	1 ppm,	SH,

H Ämnet tas lätt upp genom huden
R Ämnet är reproduktionsstörande.
SH Sensibiliserande ämnen som kan ge allergi eller annan överkänslighet i huden.

V Vägledande korttidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas

RU

Компоненты	Основа	Величина	Параметры контроля	Заметка
Dimethyl Sulfide	RU OEL	ПДК разовая	50 mg/m3	+, 4, пары и/или газы
	RU OEL	ПДК разовая	50 mg/m3	4, пары и/или газы
	РФ ПДК	ПДК разовая	50 mg/m3	4, +, пары и/или газы
Carbon disulfide	RU OEL	ПДК	3 mg/m3	2, пары и/или газы
	RU OEL	ПДК разовая	10 mg/m3	2, пары и/или газы
	RU OEL	ПДК	3 mg/m3	2, пары и/или газы
	RU OEL	ПДК разовая	10 mg/m3	2, пары и/или газы
	РФ ПДК	ПДК	3 mg/m3	2, пары и/или газы
	РФ ПДК	ПДК разовая	10 mg/m3	2, пары и/или газы
Methyl Mercaptan	RU OEL	ПДК разовая	0,8 mg/m3	2, пары и/или газы
	RU OEL	ПДК разовая	0,8 mg/m3	2, пары и/или газы
	РФ ПДК	ПДК разовая	0,8 mg/m3	2, пары и/или газы
Dimethyl Disulfide	RU OEL	ПДК разовая	1,5 mg/m3	3, Аэрозоль
	РФ ПДК	ПДК разовая	1,5 mg/m3	3, аэрозоль
Ethyl Mercaptan	RU OEL	ПДК разовая	1 mg/m3	+, 2, пары и/или газы
	RU OEL	ПДК разовая	1 mg/m3	2, пары и/или газы
	РФ ПДК	ПДК разовая	1 mg/m3	2, +, пары и/или газы
Toluene	RU OEL	ПДК	50 mg/m3	3,
	RU OEL	ПДК разовая	150 mg/m3	3,
	RU OEL	ПДК	50 mg/m3	3, пары и/или газы
	RU OEL	ПДК разовая	150 mg/m3	3, пары и/или газы
	RU OEL	ПДК	50 mg/m3	3, пары и/или газы
	RU OEL	ПДК разовая	150 mg/m3	3, пары и/или газы
	РФ ПДК	ПДК	50 mg/m3	3, пары и/или газы
	РФ ПДК	ПДК разовая	150 mg/m3	3, пары и/или газы
Benzene	RU OEL	ПДК	5 mg/m3	+, 2, К, пары и/или газы
	RU OEL	ПДК разовая	15 mg/m3	+, 2, К, пары и/или газы
	RU OEL	ПДК	5 mg/m3	2, К, пары и/или газы
	RU OEL	ПДК разовая	15 mg/m3	2, К, пары и/или газы
	РФ ПДК	ПДК	5 mg/m3	2, CANCER, +, пары и/или газы
	РФ ПДК	ПДК разовая	15 mg/m3	2, CANCER, +, пары и/или газы

\+ соединения, при работе с которыми требуется специальная защита кожи и глаз; символ проставлен вслед за наименованием вещества
2 2 класс - высокоопасные
3 3 класс - опасные
4 4 класс - умеренно опасные
CANCER Канцероген
К канцерогены

RS

Компоненты	Основа	Величина	Параметры контроля	Заметка
Дисульфиды углерода	RS OEL	GVI	5 ppm, 15 mg/m3	K,

K This chemical substance can adversely affect the skin.

RO

Componente	Sursă	Valoare	Parametri de control	Notă
Carbon disulfide	RO OEL	TWA	5 ppm, 15 mg/m3	R2, P,
Ethyl Mercaptan	RO OEL	STEL	1 mg/m3	

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

PT

Componentes	Base	Valor	Parâmetros de controle	Nota
Dimethyl Sulfide	PT OEL	VLE-MP	10 ppm,	
Carbon disulfide	PT OEL	VLE-MP	1 ppm,	P, A4,
	PT DL 305/2007	oito horas	5 ppm, 15 mg/m3	Cutânea,
Dimethyl Disulfide	PT OEL	VLE-MP	0,5 ppm,	P,
Ethyl Mercaptan	PT OEL	VLE-MP	0,5 ppm,	

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

PL

Składniki	Podstawa	Wartość	Parametry dotyczące kontroli	Uwaga
Carbon disulfide	PL NDS	NDS	12,5 mg/m3	
Dimethyl Disulfide	PL NDS	NDS	2,5 mg/m3	
	PL NDS	NDSch	5 mg/m3	

Ethyl Mercaptan	PL NDS	NDS	1 mg/m3	
	PL NDS	NDSch	2 mg/m3	

NO

Komponenter	Grunnlag	Verdi	Kontrollparametrer	Nota
Carbon disulfide	FOR-2011-12-06-1358	GV	5 ppm, 15 mg/m3	R, H,
Ethyl Mercaptan	FOR-2011-12-06-1358	GV	0,5 ppm, 1 mg/m3	

H Kjemikalier som kan tas opp gjennom huden.
R Kjemikalier som skal betraktes som reproduksjonstoksiske.

NL

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
Carbon disulfide	NL WG	TGG-8 uur	5 ppm, 15 mg/m3	H,

H Huidopname

MT

Components	Basis	Value	Control parameters	Note
Carbon disulfide	MT OEL	TWA	5 ppm, 15 mg/m3	Skin,

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

MK

Съставки	Основа	Стойност	Параметри на контрол	Бележка
Carbon disulfide	MK OEL	MV	10 ppm, 30 mg/m3	RF3, K,
Ethyl Mercaptan	MK OEL	MV	0,5 ppm, 1,3 mg/m3	

K The properties of easier transport of substances into organism through (via) the skin
RF3 Teratogenic RF3 - may be harmful for fertiliy. Numbers 1, 2 and 3 may the class of carcinogenicity or mutagenicity according to the EU classification of carcinogenic or mutagenic substances. Carcinogenic or mutagenic substances are in EU classified in separate groups, according to the fulfilling of criteria, set in the EU directive 67/548/EEC.

LV

Sastāvdaļas	Bāze	Vērtība	Kontroles parametri	Piezīme
Dimethyl Sulfide	LV OEL	AER 8 st	50 mg/m3	
Carbon disulfide	LV OEL	AER 8 st	5 ppm, 15 mg/m3	Āda,
Ethyl Mercaptan	LV OEL	AER 8 st	1 mg/m3	

Āda Āda

LU

Composants	Base	Valeur	Paramètres de contrôle	Note
Carbon disulfide	LU OEL	TWA	5 ppm, 15 mg/m3	Peau,

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

LT

Komponentai	Šaltinis	Verté	Kontrolės parametrai	Pastaba
Dimethyl Sulfide	LT OEL	IPRD	1 ppm,	
Carbon disulfide	LT OEL	IPRD	5 ppm, 15 mg/m3	O,
	LT OEL	TPRD	8 ppm, 25 mg/m3	O,
Dimethyl Disulfide	LT OEL	IPRD	1 ppm,	
Ethyl Mercaptan	LT OEL	IPRD	1 mg/m3	O,

O patekimas per nepažeistą odą

IT

Componenti	Base	Valore	Parametri di controllo	Nota
Carbon disulfide	IT VLEP	TWA	1 ppm, 3 mg/m3	Cute,

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

IS

Komponenter	Grunnlag	Verdi	Kontrollparametrer	Nota
Carbon disulfide	IS OEL	TWA	5 ppm, 15 mg/m3	H,
Ethyl Mercaptan	IS OEL	TWA	0,5 ppm, 1 mg/m3	

H Skin notation

IE

Components	Basis	Value	Control parameters	Note
Dimethyl Sulfide	IE OEL	OELV - 8 hrs (TWA)	10 ppm,	
Carbon disulfide	IE OEL	OELV - 8 hrs (TWA)	5 ppm, 15 mg/m3	Skin,
Dimethyl Disulfide	IE OEL	OELV - 8 hrs (TWA)	0,5 ppm, 1,9 mg/m3	
Ethyl Mercaptan	IE OEL	OELV - 8 hrs (TWA)	0,5 ppm,	

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

HU

Komponensek	Bázis	Érték	Ellenőrzési	Megjegyzés

			paraméterek	
Carbon disulfide	HU OEL	AK-érték	5 ppm, 15 mg/m3	EU3, R+T, b, i, m,
Ethyl Mercaptan	HU OEL	AK-érték	0,5 ppm, 1 mg/m3	N, i,
	HU OEL	CK-érték	2 mg/m3	N, i,

b Bőrön át is felszívódik.
EU3 2009/161/EK irányelvben közölt érték
i Ingerlő anyag (izgatja a bőrt, nyálkahártyát, szemet vagy mindhármat)
m Maró hatású anyag (felmarja a bőrt, nyálkahártyát, szemet vagy mindhármat)
N Irritáló anyagok, egyszerű fojtógázok, csekély egészségkárosító hatással bíró anyagok. Korrekció NEM szükséges.
R+T Azok az anyagok, amelyek RÖVID és TARTÓS expozíciója is egészségkárosodást okoz. Korrigált ÁK = ÁK x 8/a napi óraszám; Korrigált ÁK = ÁK x 40/a heti óraszám. A két faktor közül a szigorúbb (kisebb) értéket kell alkalmazni

HR

Sastojci	Temelj	Vrijednost	Nadzorni parametri	Bilješka
Dimethyl Sulfide	HR OEL	GVI	5 ppm, 13 mg/m3	koža,
Carbon disulfide	HR OEL	GVI	5 ppm, 15 mg/m3	koža,
Ethyl Mercaptan	HR OEL	GVI	0,5 ppm, 1,3 mg/m3	
	HR OEL	KGVI	2 ppm, 5,2 mg/m3	

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

GR

Συστατικά	Βάση	Τιμή	Παράμετροι ελέγχου	Σημείωση
Carbon disulfide	GR OEL	TWA	5 ppm, 15 mg/m3	Δ,
Ethyl Mercaptan	GR OEL	TWA	10 ppm, 25 mg/m3	
	GR OEL	STEL	10 ppm, 25 mg/m3	

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

GB

Components	Basis	Value	Control parameters	Note
Ethyl Mercaptan	GB EH40	TWA	0,5 ppm, 1,3 mg/m3	
	GB EH40	STEL	2 ppm, 5,2 mg/m3	

FR

Composants	Base	Valeur	Paramètres de contrôle	Note
t-Butyl Mercaptan	FR VLE	VME	0,5 ppm, 1,5 mg/m3	Valeurs limites admises (circulaires),
Carbon disulfide	FR VLE	VME	5 ppm, 15 mg/m3	R2, Peau, VLR contraignantes,
	FR VLE	VLCT (VLE)	25 ppm, 75 mg/m3	R2, Peau, Valeurs limites admises (circulaires),
Ethyl Mercaptan	FR VLE	VME	0,5 ppm, 1 mg/m3	Valeurs limites admises (circulaires),

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

FI

Aineosat	Peruste	Arvo	Valvontaa koskevat muuttujat	Huomautus
Carbon disulfide	FI OEL	HTP-arvot 8h	5 ppm, 15 mg/m3	melu, iho,
Ethyl Mercaptan	FI OEL	HTP-arvot 15 min	0,5 ppm, 1,3 mg/m3	

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

ES

Componentes	Base	Valor	Parámetros de control	Nota
Dimethyl Sulfide	ES VLA	VLA-ED	10 ppm,	
Carbon disulfide	ES VLA	VLA-ED	5 ppm, 15 mg/m3	vía dérmica,
Ethyl Mercaptan	ES VLA	VLA-ED	0,5 ppm, 1,3 mg/m3	

vía dérmica Vía dérmica

EE

Komponendid, osad	Alused	Väärtus	Kontrolliparameetrid	Märkused
Dimethyl Sulfide	EE OEL	Piirnorm	1 ppm,	
Carbon disulfide	EE OEL	Piirnorm	5 ppm, 15 mg/m3	A, R,
Dimethyl Disulfide	EE OEL	Piirnorm	1 ppm,	
Ethyl Mercaptan	EE OEL	Piirnorm	0,5 ppm, 1 mg/m3	C,

A Naha kaudu kergesti absorbeeruvad ained

C Kantserogeensed ained
R Reproduktiivset funktsiooni kahjustavad ained

DK

Komponenter	Basis	Værdi	Kontrolparametre	Note
Carbon disulfide	DK OEL	GV	5 ppm, 15 mg/m3	H,
	DK OEL	S	10 ppm, 30 mg/m3	H,
Ethyl Mercaptan	DK OEL	GV	0,5 ppm, 1 mg/m3	
	DK OEL	S	1 ppm, 2 mg/m3	

H Betyder, at stoffet kan optages gennem huden.

DE

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
t-Butyl Mercaptan	DE DFG MAK	MAK	1 ppm, 3,7 mg/m3	Sh, H, C,
	DE TRGS 900	AGW	1 ppm, 3,7 mg/m3	H, Y, Sh,
Carbon disulfide	DE TRGS 900	AGW	10 ppm, 30 mg/m3	H,
	DE DFG MAK	MAK	5 ppm, 16 mg/m3	H, B,
Ethyl Mercaptan	DE TRGS 900	AGW	0,5 ppm, 1,3 mg/m3	H,
	DE DFG MAK	MAK	0,5 ppm, 1,3 mg/m3	H, D,

B Eine fruchtschädigende Wirkung ist nach den vorliegenden Informationen bei Exposition in Höhe des MAK- und BAT-Wertes nicht auszuschließen
C Eine fruchtschädigende Wirkung ist bei Einhaltung des MAK- und BATWertes nicht anzunehmen
D Für die Beurteilung der fruchtschädigenden Wirkung ggf. inklusive der entwicklungsneurotoxischen Wirkung liegen entweder keine Daten vor oder die vorliegenden Daten reichen für eine Einstufung in eine der Gruppen A, B oder C nicht aus
H Hautresorptiv
Sh Hautsensibilisierender Stoff
Y Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden

CZ

Složky	Základ	Hodnota	Kontrolní parametry	Poznámka
Carbon disulfide	CZ OEL	PEL	3,16 ppm, 10 mg/m3	I, D,
	CZ OEL	NPK-P	6,32 ppm, 20 mg/m3	I, D,

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

CY

Συστατικά	Βάση	Τιμή	Παράμετροι ελέγχου	Σημείωση
Carbon disulfide	CY OEL	TWA	5 ppm, 15 mg/m3	

CH

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
t-Butyl Mercaptan	CH SUVA	MAK-Wert	2 ppm, 7 mg/m3	H, S, SSc,
	CH SUVA	KZGW	4 ppm, 15 mg/m3	H, S, SSc,
Carbon disulfide	CH SUVA	MAK-Wert	5 ppm, 15 mg/m3	R2, H, SSb, NIOSH, HSE,
	CH SUVA	KZGW	10 ppm, 30 mg/m3	R2, H, SSb, NIOSH, HSE,
Ethyl Mercaptan	CH SUVA	MAK-Wert	0,5 ppm, 1,3 mg/m3	
	CH SUVA	KZGW	1 ppm, 2,6 mg/m3	

H Vergiftung durch Hautresorption möglich; Bei Stoffen, welche die Haut leicht zu durchdringen vermögen, kann durch die zusätzliche Hautresorption die innere Belastung wesentlich höher werden als bei alleiniger Aufnahme durch die Atemwege.
HSE Gesundheits- und Sicherheitsbeauftragter (Labor für Arbeitsmedizin und Hygiene)
NIOSH Nationales Institut für Arbeitssicherheit und Gesundheit
R2 Möglicherweise reproduktionstoxischer Stoff
S Sensibilisatoren, die mit S gekennzeichneten Substanzen führen besonders häufig zu Überempfindlichkeitsreaktionen (allergischen Krankheiten).
SSb Eine Schädigung der Leibesfrucht kann auch bei Einhaltung des MAK-Wertes nicht ausgeschlossen werden.
SSc Eine Schädigung der Leibesfrucht braucht bei Einhaltung des MAK-Wertes nicht befürchtet zu werden.

BG

Съставки	Основа	Стойност	Параметри на контрол	Бележка
Carbon disulfide	BG OEL	TWA	5 ppm, 15 mg/m3	
Ethyl Mercaptan	BG OEL	TWA	1 mg/m3	

BE

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
Dimethyl Sulfide	BE OEL	TGG 8 hr	10 ppm, 26 mg/m3	
Carbon disulfide	BE OEL	TGG 8 hr	1 ppm, 3,16 mg/m3	D,
Dimethyl Disulfide	BE OEL	TGG 8 hr	0,5 ppm, 2 mg/m3	D,
Ethyl Mercaptan	BE OEL	TGG 8 hr	0,5 ppm, 1,3 mg/m3	

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

AT

Inhaltsstoffe	Grundlage	Wert	Zu überwachende	Bemerkung

			Parameter	
Carbon disulfide	AT OEL	MAK-TMW	5 ppm, 15 mg/m3	H,
	AT OEL	MAK-KZW	20 ppm, 60 mg/m3	H,
Ethyl Mercaptan	AT OEL	MAK-KZW	0,5 ppm, 1,3 mg/m3	
	AT OEL	MAK-TMW	0,5 ppm, 1,3 mg/m3	

H Besondere Gefahr der Hautresorption

Biological exposure indices

SK

Názov látky	Č. CAS	Kontrolné parametre	Doba odberu vzorky	Aktualizácia
Carbon disulfide	75-15-0	2-tio-tiazolidín-4-karboxylová kyselina (TTCA): 2 mg/g kreatinínu (moč)	Koniec vystavenia alebo pracovnej zmeny	2011-11-23
		2-tio-tiazolidín-4-karboxylová kyselina (TTCA): 1.42 µmol/mmol kreatinínu (moč)	Koniec vystavenia alebo pracovnej zmeny	2011-11-23

SI

Ime snovi	Št. CAS	Parametri nadzora	Čas vzorčenja	Sprememba
Carbon disulfide	75-15-0	2-tio-tiazolidin-4-karboksilna kislina (TTCA): 4 mg/g kreatinina (Urin)	Ob koncu delovne izmene	2018-12-04

RO

Numele substanţei	Nr. CAS	Parametri de control	Timp de prelevare a probei	Adus la zi
Carbon disulfide	75-15-0	acid 2-tiotiazolidin 4 carboxilic: 4 mg/l (Urină)	Sfârşit schimb	2012-01-19
		Testul iodazidă: Coeficientul de expunere E = 6.5 (Urină)	Sfârşit schimb	2012-01-19

PT

Nome da substância	Número de registro CAS	Parâmetros de controle	Tempo de amostragem	Atualização
Carbon disulfide	75-15-0	Ácido 2-Tiotiazolidina-4-carboxílico (TTCA): 0.5 mg/g creatinina Valor basal (Urina) Não específico () Correction: Notação 'Ns' replaced with 'Ne' ()	Fim do turno	2014-11-14

IT

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

HR

Naziv tvari	CAS-br.	Nadzorni parametri	Vrijeme uzorkovanja	Ažurirati
Carbon disulfide	75-15-0	2-tiotiazolidin-4-karboksilna kiselina: 1.04 mmol/mol kreatinina Računato na prosječnu vrijednost kreatinina od 1,2 g/L urina. Za sve rezultate koji se izražavaju na kreatinin, koncentracije kreatinina < 0,5 g/L i > 3,0 g/L ne mogu se uzeti u obzir. (Urin)	na kraju radne smjene	2018-10-12
		2-tiotiazolidin-4-karboksilna kiselina: 1.5 mg/g kreatinina Računato na prosječnu vrijednost kreatinina od 1,2 g/L urina. Za sve rezultate koji se izražavaju na kreatinin, koncentracije kreatinina < 0,5 g/L i > 3,0 g/L ne mogu se uzeti u obzir. (Urin)	na kraju radne smjene	2018-10-12

FI

Aineen nimi	CAS-Nro.	Valvontaa koskevat muuttujat	Näytteenottoaika	Päivämäärä
Carbon disulfide	75-15-0	2-tiotiatsolidiini-4-karboksyylihappo: 1 mmol/mol kreatiniinia (Virtsa)	Työvuoron päätyttyä työviikon tai altistumisjakson loputtua	2016-12-22

ES

Nombre de la sustancia	No. CAS	Parámetros de control	Hora de muestreo	Puesto al día
Carbon disulfide	75-15-0	ácido 2-tiotiazolidín-4-carboxílico (TTCA): 1.5 mg/g creatinina Cuando el final de la exposición no coincida con el final de la jornada laboral, la muestra se tomará lo antes posible después de que cese la exposición real (Orina)	Final de la jornada laboral	2012-01-01

DE

Stoffname	CAS-Nr.	Zu überwachende Parameter	Probennahmezeit punkt	Stand
Carbon disulfide	75-15-0	2-Thiothiazolidin-4-carboxylsäure (TTCA): 4 mg/g Kreatinin Ableitung des BGW als Höchstwert wegen akut toxischer Effekte (Urin)	Expositionsende, bzw. Schichtende	2013-04-04
		2-Thio-thiazolidin-4-carboxylsäure (TTCA): 2 mg/g Kreatinin vgl. Abschn. XIII.1 (Urin)	Expositionsende, bzw. Schichtende	2023-07-01

CZ

Název látky	Č. CAS	Kontrolní parametry	Doba odběru vzorku	Aktualizace
Carbon disulfide	75-15-0	2-Thiothiazolidin-4-karboxylová kyselina: 1.5 mg/g kreatininu (moč)	Konec směny	2013-04-22
		2-Thiothiazolidin-4-karboxylová kyselina: 1.04 µmol/mmol kreatininu (moč)	Konec směny	2013-04-22

CH

Stoffname	CAS-Nr.	Zu überwachende Parameter	Probennahmezeit punkt	Stand
Carbon disulfide	75-15-0	2-Thio-thiazolidin-4-carboxylsäure (TTCA): 1.38 µmol/mmol Kreatinin (Urin)	Expositionsende, bzw. Schichtende	2022-05-10
		2-Thio-thiazolidin-4-carboxylsäure (TTCA): 2 mg/g Kreatinin (Urin)	Expositionsende, bzw. Schichtende	2022-05-10

BG

Наименование на веществото	CAS номер	Параметри на контрол	Време на взимане на пробата	Последна актуализация
Carbon disulfide	75-15-0	2-тио-4-тиазолидин карбоксилова киселина (TTCA): 4 mg/g креатинин (Урина)	В края на експозицията или в края на работната смяна	2007-08-17

AT

Stoffname	CAS-Nr.	Zu überwachende Parameter	Probennahmezeit punkt	Stand
Carbon disulfide	75-15-0	TTCA: 2 mg/g Kreatinin (Urin)	Nach Ablauf einer Arbeitswoche/am Ende des Arbeitstages/am Schichtende	2014-02-18

8.2

Exposure controls
Engineering measures

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

Personal protective equipment

Respiratory protection	:	If ventilation or other engineering controls are not adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure, a supplied-air NIOSH approved respirator may be appropriate. If exposure to harmful levels of airborne material may occur, a NIOSH approved respirator that provides protection may be appropriate, such as:. Air-Purifying Respirator for Organic Vapors. A positive pressure, air-supplying respirator may be appropriate if there is potential for uncontrolled release, aerosolization, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.
Hand protection	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Eye protection	:	Eye wash bottle with pure water. Tightly fitting safety goggles.
Skin and body protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Remove and wash contaminated clothing before re-use. Skin should be washed after contact. Footwear protecting against chemicals.
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	:	liquid
Physical state	:	liquid
Color	:	Clear
Odor	:	Repulsive

Safety data

Flash point	:	-18°C (0°F)

		estimated
Lower explosion limit	:	No data available
Upper explosion limit	:	No data available
Oxidizing properties	:	no
Autoignition temperature	:	No data available
Molecular formula	:	Mixture
Molecular weight	:	Not applicable
pH	:	Not applicable
Freezing point	:	-45,6°C (-50,1°F)
Pour point		No data available
Boiling point/boiling range	:	42,2-93,3°C (108,0-199,9°F)
Vapor pressure	:	9,40 PSI at 38°C (100°F) estimated
Relative density	:	0,822 at 15,6 °C (60,1 °F)
Density	:	819,6 g/l
Water solubility	:	negligible
Partition coefficient: n-octanol/water	:	No data available
Viscosity, kinematic	:	No data available
Relative vapor density	:	2 (Air = 1.0)
Evaporation rate	:	No data available
Percent volatile	:	0,01 %

9.2

Other information

Conductivity	:	No data available

SECTION 10: Stability and reactivity

10.1

Reactivity : Stable under recommended storage conditions.

10.2

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

10.3

Possibility of hazardous reactions

Hazardous reactions : Hazardous reactions: Hazardous polymerization does not occur., Vapors may form explosive mixture with air.

10.4

Conditions to avoid : Heat, flames and sparks.

10.5

Materials to avoid : No data available.

10.6

Hazardous decomposition products : Carbon oxides
Sulfur oxides

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

SECTION 11: Toxicological information

11.1

Information on toxicological effects

Acute oral toxicity

t-Butyl Mercaptan : LD50: 4.729 mg/kg
Species: Rat
Sex: male

Dimethyl Sulfide LD50: > 2.000 mg/kg
Species: Rat
Method: OECD Test Guideline 423

Carbon disulfide LD50: 3.188 mg/kg
Species: Rat

LD50: 2.780 mg/kg
Species: Mouse

Acute inhalation toxicity

t-Butyl Mercaptan : LC50: 98,3 mg/l
Exposure time: 4 h
Species: Rat
Sex: male and female
Test atmosphere: vapor
Method: OECD Test Guideline 403

LC50: 81,9 mg/l
Exposure time: 4 h
Species: Rat
Sex: male
Test atmosphere: vapor
Method: OECD Test Guideline 403

LC50: 60,9 mg/l
Exposure time: 4 h
Species: Mouse
Sex: male
Test atmosphere: vapor
Method: OECD Test Guideline 403

Dimethyl Sulfide — LC50: 102 mg/l
Exposure time: 4 h
Species: Rat
Sex: male and female
Test atmosphere: vapor
Method: OECD Test Guideline 403

Carbon disulfide — LC50: 1250 ppm
Exposure time: 4 h

Acute dermal toxicity

t-Butyl Mercaptan : LD50: > 2.000 mg/kg
Species: Rabbit

Dimethyl Sulfide — LD50: > 2.000 mg/kg
Method: OECD Test Guideline 402

Scentinel® F-35 Gas Odorant
Skin irritation : May cause skin irritation and/or dermatitis.

Scentinel® F-35 Gas Odorant
Eye irritation : Vapors may cause irritation to the eyes, respiratory system and the skin.

Scentinel® F-35 Gas Odorant
Sensitization : Causes sensitization.

Repeated dose toxicity

t-Butyl Mercaptan : Species: Rat, Male and female
Sex: Male and female
Application Route: Inhalation
Dose: 9, 97, 196 ppm
Exposure time: 13 wks
Number of exposures: 6 hrs/d, 5 d/wk
NOEL: > 196 ppm

	Species: Rat, Male and female Sex: Male and female Application Route: oral gavage Dose: 10, 50, 200 mg/kg bw/day Exposure time: 42-53 days Number of exposures: Daily NOEL: 50 mg/kg bw/day Lowest observable effect level: 200 mg/kg bw/day Method: OECD Guideline 422
	Species: Rat, Male and female Sex: Male and female Application Route: Inhalation Dose: 25.1, 99.6, 403.4 ppm Exposure time: 13 wks Number of exposures: 6 hrs/d, 5 d/wk NOEL: 99.6 ppm Lowest observable effect level: 403.4 ppm Method: OECD Guideline 413 Target Organs: Liver, Kidney, Blood, Upper respiratory tract Information given is based on data obtained from similar substances.
Dimethyl Sulfide	Species: Rat, Male and female Sex: Male and female Application Route: Oral diet Dose: 0, 2.5, 25, 250 mg/kg bw/day Exposure time: 14 wk Number of exposures: daily NOEL: 250 mg/kg Method: OECD Test Guideline 408 No adverse effects expected

Genotoxicity in vitro

t-Butyl Mercaptan : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: Mouse lymphoma assay
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: Sister Chromatid Exchange Assay
Metabolic activation: with and without metabolic activation
Result: negative

Dimethyl Sulfide Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: Mouse lymphoma assay
Metabolic activation: with and without metabolic activation
Method: OECD Guideline 476
Result: negative

Genotoxicity in vivo

t-Butyl Mercaptan : Test Type: Mouse micronucleus assay
Species: Mouse
Dose: 1250, 2500, 5000 mg/kg
Method: OECD Test Guideline 474
Result: negative

Dimethyl Sulfide Test Type: In vivo micronucleus test
Species: Mouse
Cell type: Bone marrow
Route of Application: Oral
Dose: 1250, 2500, 5000 mg/kg
Method: OECD Test Guideline 474
Result: negative

Reproductive toxicity

t-Butyl Mercaptan : Species: Rat
Sex: male and female
Application Route: oral gavage
Dose: 10, 50, 200 mg/kg bw/day
Number of exposures: Daily
Test period: 42 -53 days
Method: OECD Guideline 422
NOAEL Parent: 200 mg/kg bw/day
NOAEL F1: 50 mg/kg bw/day
No adverse effects expected

Developmental Toxicity

t-Butyl Mercaptan : Species: Mouse
Application Route: Inhalation
Dose: 11, 99, 195 ppm

Exposure time: GD 6-16
Number of exposures: 6 hrs/d
NOAEL Teratogenicity: > = 195 ppm
NOAEL Maternal: > = 195 ppm

Species: Rat
Application Route: Inhalation
Dose: 11, 99, 195 ppm
Exposure time: GD6-19
Number of exposures: 6 hrs/d
NOAEL Teratogenicity: > =195 ppm
NOAEL Maternal: > = 195 ppm

Species: Rat
Application Route: oral gavage
Dose: 10, 50, 200 mg/kg bw/day
Exposure time: 42-53 days
Number of exposures: Daily
NOAEL Teratogenicity: 50 mg/kg bw /day
NOAEL Maternal: 200 mg/kg bw /day

Dimethyl Sulfide

Species: Rat
Application Route: oral gavage
Dose: 100, 500, 1000 mg/kg
Exposure time: GD 6 - 19
Number of exposures: daily
Test period: 20 d
Method: OECD Guideline 414
NOAEL Teratogenicity: 1.000 mg/kg
NOAEL Maternal: 1.000 mg/kg

Aspiration toxicity

t-Butyl Mercaptan : May be harmful if swallowed and enters airways.
Dimethyl Sulfide May be harmful if swallowed and enters airways.

CMR effects

t-Butyl Mercaptan : Carcinogenicity: Not available
Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects., In vivo tests did not show mutagenic effects
Reproductive toxicity: No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

Dimethyl Sulfide

Carcinogenicity: Not available
Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects., In vivo tests did not show mutagenic effects
Reproductive toxicity: No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

Carbon disulfide

Reproductive toxicity: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

11.2 Information on other hazards

Scentinel® F-35 Gas Odorant

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

SECTION 12: Ecological information

12.1

Toxicity

Toxicity to fish

t-Butyl Mercaptan	:	LC50: 34 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) semi-static test Method: OECD Test Guideline 203
Dimethyl Sulfide		LC50: 213 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

t-Butyl Mercaptan	:	EC50: 6,7 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Method: OECD Test Guideline 202
Dimethyl Sulfide		EC50: 29 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Method: OECD Test Guideline 202

Toxicity to algae

t-Butyl Mercaptan	:	EC50: 24 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Method: OECD Test Guideline 201
Dimethyl Sulfide		IC50: > 113,7 mg/l Exposure time: 72 h Species: Selenastrum capricornutum (algae) Method: OECD Test Guideline 201

12.2

Persistence and degradability

Biodegradability

t-Butyl Mercaptan	:	aerobic Result: Not readily biodegradable. 6 % Testing period: 63 d Method: OECD Test Guideline 301
Dimethyl Sulfide	:	aerobic Result: Readily biodegradable. 77 % Method: OECD Test Guideline 301

12.3
Bioaccumulative potential

Bioaccumulation

t-Butyl Mercaptan	:	Bioconcentration factor (BCF): 12 Method: QSAR modeled data This material is not expected to bioaccumulate.
Dimethyl Sulfide	:	No bioaccumulation is to be expected (log Pow <= 4).

12.4
Mobility in soil

Mobility

t-Butyl Mercaptan	:	Method: Calculation, Mackay Level III Fugacity Model The product will be dispersed amongst the various environmental compartments (soil/ water/ air).
Dimethyl Sulfide	:	Method: Calculation, Mackay Level III Fugacity Model The product will be dispersed amongst the various environmental compartments (soil/ water/ air).

12.5
Results of PBT and vPvB assessment

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

12.6
Endocrine disrupting properties

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

12.7
Other adverse effects

Additional ecological information	:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Toxic to aquatic life with

long lasting effects.

12.8

Additional Information

Ecotoxicology Assessment

Short-term (acute) aquatic hazard

t-Butyl Mercaptan	:	Toxic to aquatic life.
Dimethyl Sulfide	:	Harmful to aquatic life.

Long-term (chronic) aquatic hazard

t-Butyl Mercaptan	:	Toxic to aquatic life with long lasting effects.
Dimethyl Sulfide	:	This material is not expected to be harmful to aquatic organisms.

SECTION 13: Disposal considerations

13.1

Waste treatment methods

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

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

Product	:	The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

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

SECTION 14: Transport information

14.1 - 14.7

Transport information

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

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

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
UN3336, MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, DIMETHYL SULFIDE), 3, II

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN3336, MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, DIMETHYL SULFIDE), 3, II, (-18 °C c.c.), MARINE POLLUTANT, (TERTIARY BUTYL MERCAPTAN)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN3336, MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, DIMETHYL SULFIDE), 3, II

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN3336, MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, DIMETHYL SULFIDE), 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (TERTIARY BUTYL MERCAPTAN)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
33,UN3336,MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, DIMETHYL SULFIDE), 3, II, ENVIRONMENTALLY HAZARDOUS, (TERTIARY BUTYL MERCAPTAN)

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN3336, MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, DIMETHYL SULFIDE), 3, II, ENVIRONMENTALLY HAZARDOUS, (TERTIARY BUTYL MERCAPTAN)

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)

15.2

Major Accident Hazard Legislation	:	96/82/EC Update: 2003 Highly flammable 7b Quantity 1: 5.000 t

Quantity 2: 50.000 t

: 96/82/EC Update: 2003
Dangerous for the environment
9b
Quantity 1: 200 t
Quantity 2: 500 t

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

: ZEU_SEVES3 Update:
ENVIRONMENTAL HAZARDS
E2
Quantity 1: 200 t
Quantity 2: 500 t

Notification status

Europe EU REACH	:	This mixture contains only ingredients which have been registered according to Regulation (EU) No. 1907/2006 (REACH).
Switzerland CH INV	:	On the inventory, or in compliance with the inventory
United States of America (USA) US TSCA	:	All substances listed as active on the TSCA inventory
Canada CA. DSL	:	All components of this product are on the Canadian DSL
Australia AU AIIC	:	On the inventory, or in compliance with the inventory
New Zealand NZ NZIoC	:	Not in compliance with the inventory
Japan JP ENCS	:	On the inventory, or in compliance with the inventory
Japan JP ISHL	:	On the inventory, or in compliance with the inventory
Korea KR KECI	:	A substance(s) in this product was not registered, notified to be registered, or exempted from registration by CPChem according to K-REACH regulations.
Philippines PH PICCS	:	On the inventory, or in compliance with the inventory
China CN IECSC	:	On the inventory, or in compliance with the inventory
Taiwan TW TCSI	:	On the inventory, or in compliance with the inventory

SECTION 16: Other information

Revision Date : 2026-11-18
Date of last issue : 2023-08-03

Print Date : 2026-11-19

Further information

Legacy SDS Number : 34290

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

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

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

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

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

H225	Highly flammable liquid and vapor.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Annex

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

Main User Groups	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU3:** Industrial Manufacturing (all)
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **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	:	Lead substance(s) EC-No. 200-890-2 Ec-No. 200-846-2 Distribution of Substance: loading (including marine vessel/barge, rail/road car IBC loading), and repacking including drums and small packs of substance, including its distribution and associated laboratory activities.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Use as laboratory reagent

Amount used
Remarks : Not applicable

2.1 Contributing scenario controlling environmental exposure for: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

Product characteristics
Viscosity, dynamic : 1,6 mPa.s at 20 °C

Environment factors not influenced by risk management
Flow rate : 18.000 m3/d
Dilution Factor (River) : 10
Dilution Factor (Coastal Areas) : 100

Other given operational conditions affecting environmental exposure

Number of emission days per year : 300
Emission or Release Factor: Air : 0,01 %
Emission or Release Factor: Water : 0,001 %
Emission or Release Factor: Soil : 0,001 %

Technical conditions and measures / Organizational measures
Air : Treat air emission to provide the required removal efficiency of (%): (Effectiveness: > 99,9 %)
Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 99,9 %)
Remarks : Negligible wastewater emissions as process operates without water contact.

Conditions and measures related to municipal sewage treatment plant
Flow rate of sewage treatment plant effluent : 2.000 m3/d
Remarks : Not applicable as there is no release to wastewater.

Conditions and measures related to external treatment of waste for disposal
Waste treatment : External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste
Recovery Methods : External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities,

Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Use as laboratory reagent

Organizational measures to prevent /limit releases, dispersion and exposure
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

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	EUSES		Freshwater		0,107 µg/L	0,016
			Marine water		0,10 µg/L	0,149
			Freshwater sediment		0,44 µg/kg	0,0379
			Marine sediment		0,411 µg/kg	0,354
			Soil		1,63 µg/kg	0,236

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

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

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterization ratios are expected to be less than 1.
RMMs and OCs are described in adequate documentation at site level and efficiency is checked on a regular basis.RMMs and OCs are described in adequate documentation at site level and efficiency is checked on a regular basis.When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterization ratios are expected to be less than 1.

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

Main User Groups : **SU 3:** Industrial uses: Uses of substances as such or in

		preparations at industrial sites
Sector of use	:	**SU 10:** Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC5:** Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC9:** Transfer of substance or preparation into small containers (dedicated filling line, including weighing) **PROC15:** Use as laboratory reagent
Environmental release category	:	**ERC2:** Formulation of preparations
Further information	:	Lead substance(s) EC-No. 200-890-2 Ec-No. 200-846-2 Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials, transfers, mixing, large and small scale packing, maintenance and associated laboratory activities.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Use as laboratory reagent

Amount used

Remarks	:	Not applicable

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

Product characteristics

Viscosity, dynamic	:	1,6 mPa.s at 20 °C

Environment factors not influenced by risk management

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

Other given operational conditions affecting environmental exposure

Number of emission days per year	:	365
Emission or Release Factor: Air	:	0,25 %
Emission or Release Factor: Water	:	0,001 %
Emission or Release Factor: Soil	:	0,01 %

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide the required removal efficiency of (%): (Effectiveness: > 99,8 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 99,9 %)
Remarks	:	Negligible wastewater emissions as process operates without water contact.

Conditions and measures related to municipal sewage treatment plant

Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Remarks	:	Not applicable as there is no release to wastewater.

Conditions and measures related to external treatment of waste for disposal

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

Conditions and measures related to external recovery of waste

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

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Use as laboratory reagent

Organizational measures to prevent /limit releases, dispersion and exposure

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

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

Wear suitable gloves tested to EN374.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC2	EUSES		Freshwater		0,0395 µg/L	0,00589
			Marine water		0,0367 µg/L	0,0548
			Freshwater sediment		0,162 µg/kg	0,0140
			Marine sediment		0,151 µg/kg	0,130
			Soil		1,71 µg/kg	0,248

ERC2: Formulation of preparations

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

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterization ratios are expected to be less than 1.
RMMs and OCs are described in adequate documentation at site level and efficiency is checked on a regular basis.RMMs and OCs are described in adequate documentation at site level and efficiency is checked on a regular basis.When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterization ratios are expected to be less than 1.

1. Short title of Exposure Scenario: **Use as an intermediate**

Main User Groups	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU3, SU8, SU9:** Industrial Manufacturing (all), Manufacture of bulk, large scale chemicals (including petroleum products), Manufacture of fine chemicals
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC15:** Use as laboratory reagent
Environmental release category	:	**ERC6a:** Industrial use resulting in manufacture of another substance (use of intermediates)
Further information	:	Lead substance(s) EC-No. 200-890-2 Ec-No. 200-846-2 Use as an isolated intermediate under strictly controlled conditions

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Use as laboratory reagent

Amount used

Remarks : Not applicable

2.1 Contributing scenario controlling environmental exposure for:ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

Product characteristics

Viscosity, dynamic : 1,6 mPa.s at 20 °C

Environment factors not influenced by risk management

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

Other given operational conditions affecting environmental exposure

Number of emission days per year : 300
Emission or Release Factor: Air : 0,5 %
Emission or Release Factor: Water : 1,0 %
Emission or Release Factor: Soil : 0,1 %

Technical conditions and measures / Organizational measures

Air : Treat air emission to provide the required removal efficiency of (%): (Effectiveness: > 99,5 %)
Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 99 %)
Remarks : Negligible wastewater emissions as process operates without water contact.

Conditions and measures related to municipal sewage treatment plant

Flow rate of sewage treatment plant effluent : 2.000 m3/d
Remarks : Not applicable as there is no release to wastewater.

Conditions and measures related to external treatment of waste for disposal

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

Conditions and measures related to external recovery of waste

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

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3,

PROC4, PROC8a, PROC8b, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Use as laboratory reagent

Organizational measures to prevent /limit releases, dispersion and exposure
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

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):
ERC6a	EUSES		Freshwater		0,178 µg/L	0,0266
			Marine water		0,167 µg/L	0,249
			Freshwater sediment		0,732 µg/kg	0,0631
			Marine water		0,685 µg/kg	0,590
			Soil		2,52 µg/kg	0,364

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

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

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterization ratios are expected to be less than 1.
RMMs and OCs are described in adequate documentation at site level and efficiency is checked on a regular basis.RMMs and OCs are described in adequate documentation at site level and efficiency is checked on a regular basis.When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterization ratios are expected to be less than 1.

1. Short title of Exposure Scenario: **Injection as odorant in fuels – industrial**

Main User Groups	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU3:** Industrial Manufacturing (all)
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at

non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
PROC15: Use as laboratory reagent

Environmental release category : **ERC7:** Industrial use of substances in closed systems

Further information : Lead substance(s)
EC-No. 200-890-2
Ec-No. 200-846-2

Covers injection as odourant in fuel and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Use as laboratory reagent

Amount used
Remarks : Not applicable

2.1 Contributing scenario controlling environmental exposure for:ERC7: Industrial use of substances in closed systems

Product characteristics
Viscosity, dynamic : 1,6 mPa.s at 20 °C

Environment factors not influenced by risk management
Flow rate : 18.000 m3/d
Dilution Factor (River) : 10
Dilution Factor (Coastal Areas) : 100

Other given operational conditions affecting environmental exposure

Number of emission days per year : 365
Emission or Release Factor: Air : 0,25 %
Emission or Release Factor: Water : 0,001 %
Emission or Release Factor: Soil : 0 %

Technical conditions and measures / Organizational measures
Air : Treat air emission to provide the required removal efficiency of (%): (Effectiveness: > 99,8 %)
Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 99,9 %)
Remarks : Soil emission controls are not applicable as there is no direct release to soil.
Remarks : Negligible wastewater emissions as process operates without

water contact.
Remarks : Wastewater emissions generated from equipment cleaning with water.

Conditions and measures related to municipal sewage treatment plant
Flow rate of sewage treatment plant effluent : 2.000 m3/d
Remarks : Not applicable as there is no release to wastewater.

Conditions and measures related to external treatment of waste for disposal
Waste treatment : External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste
Recovery Methods : External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Use as laboratory reagent

Organizational measures to prevent /limit releases, dispersion and exposure
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
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):
ERC7	EUSES		Freshwater		0,0324 µg/L	0,00484
			Marine water		0,0301 µg/L	0,0449
			Marine sediment		0,124 µg/kg	0,107
			Freshwater sediment		0,133 µg/kg	0,0115
			Soil		1,61 µg/kg	0,233

ERC7: Industrial use of substances in closed systems

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

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterization ratios are expected to be less than 1.
RMMs and OCs are described in adequate documentation at site level and efficiency is checked on a regular basis.RMMs and OCs are described in adequate documentation at site level and efficiency is checked on a regular basis.When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterization ratios are expected to be less than 1.