SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended by Commission Regulation (EU) 2020/878

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

1.1 Product identifier

Product name:
VPS 7161

Additional identification

Chemical name:	1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione
Chemical formula:	C21H45N3O12Si3
INDEX No.	-
CAS-No.	26115-70-8
EC No.	247-465-8
REACH Registration No.	01-2120807606-55-0001

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

Identified uses:
For industrial use
Additive
Coupling agent

Uses advised against: Not determined.

1.3 Details of the supplier of the safety data sheet

Company Name	:	Evonik Operations GmbH Rellinghauser Str. 1-11 45128 Essen Germany
Telephone	:	+49 6181 59 4787
E-mail	:	sds-hu@evonik.com

1.4 Emergency telephone number:

24-Hour Health Emergency	:	+49 7623 919191

Emergency medical information: 8am-10pm (seven days) contact National Poisons Information Centre, Beaumont Hospital, Dublin 9 DOV2NO, Ireland.
Telephone Number: +353 (0)1 809 2166

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

The product has been classified according to the legislation in force.

Classification according to Regulation (EC) No 1272/2008 as amended.

Health Hazards

Acute toxicity (Oral)	Category 4	H302: Harmful if swallowed.
Acute toxicity (Inhalation - vapor)	Category 4	H332: Harmful if inhaled.

2.2 Label Elements

Signal Words: Warning

Hazard Statement(s): H302+H332: Harmful if swallowed or if inhaled.

Precautionary Statements

Prevention:
P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
P270: Do not eat, drink or smoke when using this product.

Response:
P301+P312: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P330: Rinse mouth.
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312: Call a POISON CENTER or doctor/ physician if you feel unwell.

Disposal:
P501: Dispose of contents/ container to an approved facility in accordance with local, regional, national and international regulations.

Supplemental label information

EUH208: Contains (3-(trimethoxysilyl)propyl isocyanate). May produce an allergic reaction.

2.3 Other hazards

PBT/vPvB data
Not a PBT, vPvB substance as per the criteria of the REACH Regulation.

Endocrine disrupting properties-Toxicity
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.

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

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name 1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione
INDEX No.:
CAS-No.: 26115-70-8
EC No.: 247-465-8
REACH Registration No.: 01-2120807606-55-0001

Chemical name	Concentration	CAS-No.	EC No.	REACH Registration No.	M-Factor:	Notes
1,3,5-tris[3-(trimethoxysilyl) propyl]-1,3,5-triazine-2,4,6(1H,3H,5H) -trione	90 - <100%	26115-70-8	247-465-8	01-2120807606-55;	No data available.	
methanol	<0,6%	67-56-1	200-659-6	01-2119433307-44;	No data available.	#
3-(trimethoxysilyl) propyl isocyanate	0,1 - <1%	15396-00-6	239-415-9	01-2119959861-25;	No data available.	#

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
# This substance has workplace exposure limit(s).
This substance is listed as SVHC.

Classification

Chemical name	Classification	Notes
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	Classification: Acute Tox.: 4: H302 Supplemental label information: None known. Specific concentration limit: None known. Acute toxicity, oral: LD 50: 1.713 mg/kg Acute toxicity, inhalation: None known. Acute toxicity, dermal: LD 50: 19.200 mg/kg	None.
methanol	Classification: Flam. Liq.: 2: H225; Acute Tox.: 3: H301; Acute Tox.: 3: H311; Acute Tox.: 3: H331; STOT SE: 1: H370 Supplemental label information: None known. Specific concentration limit: Specific target organ toxicity - single exposure Category 1, >= 10 %; Specific target organ toxicity - single exposure Category 2, 3 - < 10 %; Acute toxicity, oral: LD 50: 100 mg/kg Acute toxicity, inhalation: LC 50: 3 mg/l Vapour	None.

	Acute toxicity, dermal: LD 50: 300 mg/kg	
3-(trimethoxysilyl)propyl isocyanate	Classification: Acute Tox.: 4: H302; Acute Tox.: 4: H312; Acute Tox.: 1: H330; Skin Corr.: 1B: H314; Eye Dam.: 1: H318; Skin Sens.: 1: H317; Resp. Sens.: 1: H334 Supplemental label information: None known. Specific concentration limit: None known. Acute toxicity, oral: LD 50: 878 mg/kg Acute toxicity, inhalation: LC 50: 0,129 mg/l Vapour Acute toxicity, dermal: LD 50: 1.190 mg/kg	None.

CLP: Regulation No. 1272/2008.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information: Immediately remove contaminated clothing.

Inhalation: If aerosol or mists are formed: Possible discomfort: irritation of mucous lining (nose, throat, eyes) cough, sneezing, flow of tears. Move to fresh air. Get medical attention if any discomfort continues.

Skin Contact: Wash off immediately with plenty of water. In case of discomfort: Supply with medical care.

Eye contact: Keeping eyelid open, immediately rinse thoroughly for at least 5 minutes using plenty of water or, if necessary, eye rinsing solution. In case of persistent discomfort: Consult an ophthalmologist.

Ingestion: Have the mouth rinsed with water. Have patient drink plenty of water in small sips. Get medical attention immediately.

Personal Protection for First-aid Responders: No data available.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: After absorbing large amounts of substance: Liberation of reaction products (Methanol) can lead to symptoms of poisoning. Possible signs of poisoning: daze, dizziness, nausea, colicky abdominal pain, respiratory disturbance. Symptoms upon increasing intoxication: dysopia, loss of eyesight.

Hazards: None known.

4.3 Indication of immediate medical attention and special treatment needed

Treatment: Treatment Immediate gastric lavage. Antidote treatment, correction of acid-base balance. Detection of substance (Methanol) possible in: Blood Antidote treatment: ethanol. Allergic reactions cannot be excluded. Treatment of allergic reaction if necessary.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media: High volume water jet.

5.2 Special hazards arising from the substance or mixture: Hazard-determining flue gases might develop in case of fire: Nitrogen Oxides

5.3 Advice for firefighters

Special fire fighting procedures: Water used to extinguish fire should not enter drainage systems, soil or stretches of water. Ensure there are sufficient retaining facilities for water used to extinguish fire. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for fire-fighters: In case of fire: wear a self contained respiratory apparatus

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes.

6.1.1 For non-emergency personnel: No data available.

6.1.2 For emergency responders: No data available.

6.2 Environmental Precautions: Do not allow entrance in sewage water, soil stretches of water, groundwater, drainage systems.

6.3 Methods and material for containment and cleaning up: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Fill into marked, sealable containers. To be disposed of in compliance with existing regulations.

6.4 Reference to other sections: For personal protection see section 8. For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures: No data available.

Local/Total ventilation: Application, processing: Provide good ventilation or extraction.

Safe handling advice: Provide good ventilation or extraction. Avoid contact with skin and eyes.Handle in accordance with good industrial hygiene and safety practice. The personal protective equipment used must meet the requirements of Regulation (EU) 2016/425 and amendments (CE certification). If

workplace exposure limits are exceeded and/or larger amounts are released (leakage, spilling, dust) the indicated respiratory protection should be used. If there is the possibility of skin/eye contact, the indicated hand/eye/body protection should be used. Do not breathe in vapours or aerosols. Avoid contact with skin and eyes.

Contact avoidance measures: No data available.

7.2 Conditions for safe storage, including any incompatibilities

Safe storage conditions: Ensure there is good room ventilation. Normal measures for preventive fire protection.Keep container tightly closed. Suitable materials are: Stainless steel.

Safe packaging materials: No data available.

7.3 Specific end use(s): For more details see annexes Exposure scenario.

SECTION 8: Exposure controls/personal protection

8.1 Control Parameters

Occupational Exposure Limits

Chemical name	Type	Form of exposure	Exposure Limit Values		Source
methanol	TWA		200 ppm	260 mg/m3	ELV (IE) (2016)
	TWA		200 ppm	260 mg/m3	EU ELV (12 2009)

Please refer to the latest edition of the appropriate source text and consult an industrial hygienist or similar professional, or local agencies, for further information.

Biological Limit Values

No biological exposure limits noted for the ingredient(s).

DNEL-Values

Critical component	Type	Route of Exposure	Health Warnings	Remarks
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	Workers	Eyes	Local effect;	No hazard identified
	General population	Inhalation	Systemic, short-term; 26400 mg/m3	Acute toxicity
	Workers	Inhalation	Systemic, short-term;	No hazard identified
	General population	Eyes	Local effect;	No hazard identified
	Workers	Inhalation	Local, long-term;	No hazard identified
	General population	Inhalation	Systemic, long-term; 50 mg/m3	Acute toxicity
	Workers	Inhalation	Local, short-term;	No hazard identified
	General population	Oral	Systemic, long-term; 0,5 mg/kg	Repeated dose toxicity
	Workers	Inhalation	Systemic, long-term; 260 mg/m3	Repeated dose toxicity
	Workers	Dermal	Systemic, long-term; 1 mg/kg	Repeated dose toxicity
	General population	Dermal	Systemic, long-term; 0,5 mg/kg	Repeated dose toxicity
	Workers	Dermal	Local, long-term;	No hazard identified
	Workers	Inhalation	Systemic, long-term; 7,05 mg/m3	Repeated dose toxicity
	Workers	Dermal	Local, short-term;	No hazard identified
	General population	Inhalation	Systemic, long-term; 1,73 mg/m3	Repeated dose toxicity

	General population	Inhalation	Local, long-term;	No hazard identified
	General population	Inhalation	Local, short-term;	No hazard identified
	General population	Dermal	Systemic, short-term;	No hazard identified
	General population	Dermal	Local, long-term;	No hazard identified
	General population	Dermal	Local, short-term;	No hazard identified
	General population	Oral	Systemic, short-term;	No hazard identified
methanol	Workers	Dermal	Systemic, short-term; 20 mg/kg	Acute toxicity
	General population	Inhalation	Local, short-term; 26 mg/m3	Acute toxicity
	General population	Inhalation	Systemic, short-term; 26 mg/m3	Acute toxicity
	General population	Dermal	Systemic, long-term; 4 mg/kg	Acute toxicity
	General population	Dermal	Systemic, short-term; 4 mg/kg	Acute toxicity
	Workers	Inhalation	Systemic, short-term; 130 mg/m3	Acute toxicity
	General population	Inhalation	Systemic, long-term; 26 mg/m3	Acute toxicity
	Workers	Eyes	Local effect;	No hazard identified
	Workers	Dermal	Systemic, long-term; 20 mg/kg	Acute toxicity
	General population	Oral	Systemic, short-term; 4 mg/kg	Acute toxicity
	Workers	Inhalation	Local, short-term; 130 mg/m3	Acute toxicity
	Workers	Inhalation	Systemic, long-term; 130 mg/m3	Acute toxicity
	General population	Inhalation	Local, long-term; 26 mg/m3	Acute toxicity
	General population	Eyes	Local effect;	No hazard identified
	General population	Oral	Systemic, long-term; 4 mg/kg	Acute toxicity
	Workers	Inhalation	Local, long-term; 130 mg/m3	Acute toxicity
3-(trimethoxysilyl)propyl isocyanate	General population	Eyes	Local effect;	No hazard identified
	Workers	Eyes	Local effect;	Medium hazard (no threshold derived)
	Workers	Inhalation	Local, long-term; 0,05 mg/m3	Repeated dose toxicity
	General population	Oral	Systemic, short-term; 0,5 mg/kg	Repeated dose toxicity
	Workers	Eyes	Local effect;	No hazard identified
	General population	Oral	Systemic, long-term; 0,5 mg/kg	Repeated dose toxicity
	Workers	Dermal	Systemic, long-term; 1 mg/kg	Repeated dose toxicity
	Workers	Inhalation	Systemic, long-term; 7,1 mg/m3	Repeated dose toxicity
	Workers	Dermal	Systemic, short-term; 1 mg/kg	Repeated dose toxicity

PNEC-Values

Critical component	Environmental compartment	PNEC-Values	Remarks
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	Sewage treatment plant	14,3 mg/l	
3-(trimethoxysilyl)propyl isocyanate	Sediment (marine water)	0,18 mg/kg	
	Aquatic (freshwater)	0,5 mg/l	
	Soil	0,069 mg/kg	Soil
	Sewage treatment plant	0,94 mg/l	
	Sediment (freshwater)	1,8 mg/kg	
	Aquatic (marine water)	0,05 mg/l	

8.2 Exposure controls

Appropriate Engineering Controls: Application, processing: Provide good ventilation or extraction.

Individual protection measures, such as personal protective equipment

Eye/face protection:	close-fitting protective goggles (e.g. closed goggles)
Hand Protection:	Material: Butyl rubber. Break-through time: >= 480 min Glove thickness: 0,5 mm Material: Fluorinated rubber (Viton) Break-through time: >= 480 min Glove thickness: 0,4 mm Additional Information: Selection of protective gloves to meet the requirements of specific workplaces., The suitability for a specific workplace should be discussed with the producers of the protective gloves., The information is based on our own tests, references from the literature and information from glove manufacturers, or derived by analogy with similar materials., Be aware that in daily use the durability of a chemical resistant protective glove can be notably shorter than the break through time measured according to EN 374, due to the numerous outside influences (e.g. temperature).
Skin and Body Protection:	suitable protective clothing - Use disposable clothing if appropriate.
Respiratory Protection:	In case of dusts/vapours/aerosols being formed or if the limit values like TLV are exceeded: use respiratory equipment with suitable filter (filter type ABEK) or wear a self contained respiratory apparatus Use only respiratory protection equipment with CE-symbol including four digit test number. The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used. Note time limit for wearing respiratory protective equipment.
Hygiene measures:	When using, do not eat, drink or smoke. Wash face and/or hands before break and end of work. Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.
Environmental Controls:	see section 6.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state:	liquid
Form:	liquid
Color:	Yellow
Odor:	Characteristic
Odor Threshold:	No data available.
Freezing point:	-25 °C Setting point
Boiling Point:	237,0 - 247,0 °C (35 hPa)

Flammability:	No data available.
Upper/lower limit on flammability or explosive limits	
Explosive limit - upper:	No data available.
Explosive limit - lower:	No data available.
Flash Point:	> 95 °C Method: DIN EN ISO 2719
Auto-ignition temperature:	350 °C 966 - 970 hPa
Decomposition Temperature:	No data available.
pH:	8,6 (20 °C) Concentration: 1.000 g/l
Viscosity	
Dynamic viscosity:	Approximate 430 mPa.s (20 °C) Method: DIN 53015
Kinematic viscosity:	No data available.
Solubility(ies)	
Solubility in Water:	not miscible decomposition by hydrolysis
Partition coefficient (n-octanol/water):	2,4 (20 °C) Method: QSAR
Vapor pressure:	0,11 hPa (20 °C) Method: EC Method A.4
Relative density:	No data available.
Density:	1,176 g/cm3 (20 °C) Method: DIN 51757
Relative vapor density:	No data available.

9.2 Other information

Explosive properties:	Method: EC Method A.14 Not explosive
Oxidizing properties:	not oxidizing
Peroxides:	Not applicable
Evaporation Rate:	No data available.

SECTION 10: Stability and reactivity

10.1	**Reactivity:**	No dangerous reaction known under conditions of normal use.
10.2	**Chemical Stability:**	Stable under recommended storage conditions.
10.3	**Possibility of hazardous reactions:**	No dangerous reactions known.
10.4	**Conditions to avoid:**	Protect from moisture.
10.5	**Incompatible Materials:**	Water.
10.6	**Hazardous Decomposition Products:**	Methanol in case of hydrolysis. Alcohol formed by hydrolysis lowers the flash point of the product.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure

Inhalation: Information on effects are given below.

Skin Contact: Information on effects are given below.

Eye contact: Information on effects are given below.

Ingestion: Information on effects are given below.

Acute toxicity (list all possible routes of exposure)

Oral

Product:	LD 50, Rat, Female, Male, 1.713 mg/kg, OECD 401
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	LD 50, Rat, Female, Male, 1.713 mg/kg, OECD 401
methanol	LD 50, Rat, 100 mg/kg
3-(trimethoxysilyl)propyl isocyanate	LD 50, Rat, Female, Male, 878 mg/kg, OECD 401

Dermal

Product:	LD 50, Rabbit, Female, Male, 19.200 mg/kg, OECD 402
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	LD 50, Rabbit, Female, Male, 19.200 mg/kg, OECD 402
methanol	LD 50, Rat, 300 mg/kg
3-(trimethoxysilyl)propyl isocyanate	LD 50, Rabbit, Female, Male, 1.190 mg/kg, OECD 402

Inhalation

Product:	ATEmix, 13,93 mg/l, Vapour
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	Vapour, Not toxic after single exposure, No classification Dust and mist, Not toxic after single exposure, Not applicable
methanol	LC 50, Acute toxicity estimate, 4 h, 3 mg/l, Vapour LC 50, Acute toxicity estimate, 4 h, > 0,5 mg/l, Dust and mist EU-CLP as per Regulation (EU) No. 1272/2008, Annex VI, Toxic by inhalation.
3-(trimethoxysilyl)propyl isocyanate	LC 50, Rat, Female, Male, 4 h, 0,129 mg/l, Vapour, OECD 403 Dust and mist, Not toxic after single exposure, Not applicable

Repeated dose toxicity

Product:	No data available.
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-	NOAEL Rat, Female, Male, Oral, 90 day, daily, Approximate, 300 mg/kg

2,4,6(1H,3H,5H)-trione	
methanol	No data available.
3-(trimethoxysilyl)propyl isocyanate	NOAEL Rat, Female, Male, Oral, 90 day, 7 days a week, 100 mg/kg, (analogy)

Skin Corrosion/Irritation

Product:	Not irritating, OECD 404, (Rabbit)
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	Not irritating, OECD 404, Rabbit
methanol	Not irritating, Rabbit, Literature
3-(trimethoxysilyl)propyl isocyanate	Corrosive., OECD 404, Rabbit, < 1 h

Serious Eye Damage/Eye Irritation

Product:	Not irritating, OECD 405, Rabbit
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	Not irritating, OECD 405, Rabbit
methanol	Not irritating, Rabbit
3-(trimethoxysilyl)propyl isocyanate	Risk of serious damage to eyes., OECD 405, Rabbit

Respiratory or Skin Sensitization

Product:	Buehler Test, OECD 406, Guinea Pig, Not a skin sensitizer.
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	Buehler Test, OECD 406, Guinea Pig, Not a skin sensitizer.
methanol	Maximization Test, OECD 406, Guinea Pig, Not a skin sensitizer.
3-(trimethoxysilyl)propyl isocyanate	May cause sensitization by skin contact. May cause sensitization by inhalation., (analogy)

Carcinogenicity

Product:	An Expert Judgment stated that no classification is necessary based on present knowledge.
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	No data available.
methanol	Not classified
3-(trimethoxysilyl)propyl isocyanate	No data available.

Germ Cell Mutagenicity

no evidence of mutagenic effects

In vitro

Product:	gene mutation test, OECD 471: , negative gene mutation test, OECD 490: , negative Micronucleus test, OECD 487: , negative
Components:	

1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	gene mutation test, OECD 471: , negative gene mutation test, OECD 490: , negative Micronucleus test, OECD 487: , negative
methanol	Ames test, OECD 471: , negative gene mutation test, OECD 476: , negative Micronucleus test: , negative
3-(trimethoxysilyl)propyl isocyanate	Ames test, OECD 471: , positive and negative gene mutation test, OECD 476: , positive Chromosomal aberration, OECD 473: , negative, (analogy)

In vivo

Product:	No data available.
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	No data available.
methanol	Micronucleus test, OECD 474, Intraperitoneal, Mouse, Female, Male, negative Chromosomal aberration, Intraperitoneal, Mouse, Female, Male, negative
3-(trimethoxysilyl)propyl isocyanate	Micronucleus test, OECD 474, Oral, Mouse, Male, negative

Reproductive toxicity

Product:	Oral
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	no evidence of reproductiontoxic properties
methanol	Not classified
3-(trimethoxysilyl)propyl isocyanate	no evidence of reproductiontoxic properties Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity - Single Exposure

Product:	No data available.
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	No data available.
methanol	Dermal Oral Inhalation - vapor, optic nerve, Central nervous system., Category 1 Causes damage to organs.
3-(trimethoxysilyl)propyl isocyanate	An Expert Judgment stated that no classification is necessary based on present knowledge.

Specific Target Organ Toxicity - Repeated Exposure

Product:	No data available.
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	No data available.

methanol	No data available.
3-(trimethoxysilyl)propyl isocyanate	An Expert Judgment stated that no classification is necessary based on present knowledge.

Aspiration Hazard

Product:	No evidence of aspiration toxicity
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	No evidence of aspiration toxicity
methanol	Not classified
3-(trimethoxysilyl)propyl isocyanate	Not classified

11.2 Information on other hazards

Endocrine disrupting properties

Product:	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.;
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	No data available.
methanol	No data available.
3-(trimethoxysilyl)propyl isocyanate	No data available.

Other information

Product:	No data available.

SECTION 12: Ecological information

12.1 Toxicity:

Acute hazards to the aquatic environment:

Fish

Product:	LD 50, species not listed, 96 h, > 100 mg/l QSAR
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	LC 50, species not listed, 96 h, > 100 mg/l QSAR
methanol	LC 50, Bluegill Sunfish, 96 h, 15.400 mg/l US-EPA-method, Literature
3-(trimethoxysilyl)propyl isocyanate	LC 50, Oncorhynchus mykiss, 96 h, > 100 mg/l OECD 203

Aquatic Invertebrates

Product:	EC 50, Daphnia magna, 48 h, > 100 mg/l OECD 202
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-	EC 50, Daphnia magna, 48 h, > 100 mg/l OECD 202

2,4,6(1H,3H,5H)-trione	
methanol	EC 50, Daphnia magna, 96 h, 18.260 mg/l OECD 202, Literature
3-(trimethoxysilyl)propyl isocyanate	EC 50, Daphnia magna, 48 h, > 100 mg/l OECD 202

Toxicity to Aquatic Plants

Product:	No data available.
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	No data available.
methanol	EC 50 (Selenastrum capricornutum (green algae), 96 h): Approximate 22.000 mg/l (OECD 201) Literature
3-(trimethoxysilyl)propyl isocyanate	EC 50 (Desmodesmus subspicatus (green algae), 72 h): > 1.000 mg/l (OECD 201) (analogy)

Toxicity to microorganisms

Product:	EC 10, local activated sludge, 3 h, 218 mg/l, OECD 209
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	EC 10, local activated sludge, 3 h, 218 mg/l, OECD 209
methanol	EC 50, activated sludge, 3 h, > 1.000 mg/l, OECD 209, Literature
3-(trimethoxysilyl)propyl isocyanate	EC 50, local activated sludge, 3 h, 180 mg/l, OECD 209, (analogy)

Chronic hazards to the aquatic environment:

Fish

Product:	No data available.
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	No data available.
methanol	No data available.
3-(trimethoxysilyl)propyl isocyanate	No data available.

Aquatic Invertebrates

Product:	No data available.
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	No data available.
methanol	No data available.
3-(trimethoxysilyl)propyl isocyanate	No data available.

Toxicity to Aquatic Plants

Product:	No data available.
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-	No data available.

2,4,6(1H,3H,5H)-trione	
methanol	No data available.
3-(trimethoxysilyl)propyl isocyanate	No data available.

Toxicity to microorganisms

Product:	EC 10, local activated sludge, 3 h, 218 mg/l, OECD 209
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	EC 10, local activated sludge, 3 h, 218 mg/l, OECD 209
methanol	EC 50, activated sludge, 3 h, > 1.000 mg/l, OECD 209, Literature
3-(trimethoxysilyl)propyl isocyanate	EC 50, local activated sludge, 3 h, 180 mg/l, OECD 209, (analogy)

12.2 Persistence and Degradability

Biodegradation

Product:	34 %, 28 d, OECD 301 B, Not readily degradable.
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	34 %, 28 d, OECD 301 B, The product is not biodegradable.
methanol	98 %, 28 d, (DOC; modif. OECD screening test / OECD 301 E), Own study The product is easily biodegradable., aerobic
3-(trimethoxysilyl)propyl isocyanate	54 %, 28 d, OECD 301 C, The product is not biodegradable. (analogy)

12.3 Bioaccumulative potential

Bioconcentration Factor (BCF)

Product:	Low bioaccumulation potential.
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	Low bioaccumulation potential.
methanol	Leuciscus idus (Golden orfe), < 10, Measured, No significant bioaccumulation.
3-(trimethoxysilyl)propyl isocyanate	Not expected due to rapid hydrolysis.

Partition Coefficient n-octanol / water (log Kow)

Product:	2,4, 20 °C, QSAR
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	No data available.
methanol	-0,77
3-(trimethoxysilyl)propyl isocyanate	2,3, 25 °C, OECD 117

12.4 Mobility in soil:

Product	Adsorption on the floor: low.
Components:	

1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	Adsorption on the floor: low.
methanol	soil - Log Koc: 1 calculated) Not expected to adsorb on soil.
3-(trimethoxysilyl)propyl isocyanate	Hydrolysis

12.5 Results of PBT and vPvB assessment:

Product	Not a PBT, vPvB substance as per the criteria of the REACH Regulation.
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	Non-classified vPvB substance, Non-classified PBT substance
methanol	Non-classified vPvB substance, Non-classified PBT substance
3-(trimethoxysilyl)propyl isocyanate	Non-classified vPvB substance, Non-classified PBT substance

12.6 Endocrine disrupting properties:

Product:	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.
Components:	
1,3,5-tris[3-(trimethoxysilyl)propyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	No data available.
methanol	No data available.
3-(trimethoxysilyl)propyl isocyanate	No data available.

12.7 Other adverse effects:

Other hazards

Product:	The data we have at our disposal do not necessitate identification concerning environmental hazard.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

General information:	No data available.
Disposal methods:	With respect to local regulations, e.g. dispose of to waste incineration plant No waste key number as per the European Waste Types List can be assigned to this product, since such classification is based on the (as yet undetermined) use to which the product is put by the consumer. The waste key number must be determined as per the European Waste Types List (decision on EU Waste Types List 2000/532/EC) in cooperation with the disposal firm / producing firm / official authority.

Contaminated Packaging: Do not reuse empty containers and dispose of in accordance with the regulations issued by the appropriate local authorities. If there is product residue in the emptied container, follow directions for handling on the container's label. Incorrect disposal or reuse of this container is illegal and can be dangerous. Other countries: observe the national regulations.

SECTION 14: Transport information

14.1 UN/ID No.

Not regulated as a dangerous good

14.2 UN proper shipping name

Not regulated as a dangerous good

14.3 Transport hazard class(es)

Not regulated as a dangerous good

14.4 Packing group

Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Not applicable

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

EU Regulations

EU. REACH Annex XIV, Substances Subject to Authorization: None present or none present in regulated quantities (on the basis of current knowledge of the product composition).

EU. Directive 2010/75/EU on Industrial Emissions (IPPC), Annex II, L 334/17: None present or none present in regulated quantities (on the basis of current knowledge of the product composition).

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended: None present or none present in regulated quantities (on the basis of current knowledge of the product composition).

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended: None present or none present in regulated quantities (on the basis of current knowledge of the product composition).

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended: None present or none present in regulated quantities (on the basis of current knowledge of the product composition).

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended: None present or none present in regulated quantities (on the basis of current knowledge of the

product composition).

EU. REACH Candidate List of Substances of Very High Concern for Authorization (SVHC): None present or none present in regulated quantities (on the basis of current knowledge of the product composition).

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use:

Chemical name	CAS-No.	Entry No:
methanol	67-56-1	69 3 40

Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work.: None present or none present in regulated quantities (on the basis of current knowledge of the product composition).

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breast feeding.:

Chemical name	CAS-No.	Concentration
methanol	67-56-1	0,1 - <0,6%

EU. Directive 2012/18/EU (SEVESO III) on major accident hazards involving dangerous substances, Annex I: Not applicable

Directive 98/24/EC on the protection of workers from the risks related to chemical agents at work:

Chemical name	CAS-No.	Concentration
methanol	67-56-1	0,1 - <0,6%

15.2 Chemical safety assessment: Chemical Safety Assessment has been carried out.

International regulations

Montreal protocol
Not applicable

Stockholm convention
Not applicable

Rotterdam convention
Not applicable

Kyoto protocol
Not applicable

SECTION 16: Other information

Abbreviations and acronyms:

ECTLV:	EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended
IR_OEL:	Ireland. OELVs, Schedule 1 (Code of Practice for Chemical Agents Regulations), as amended
ECTLV / SKIN_DES:	Skin designation:
ECTLV / TWA:	Time Weighted Average (TWA):
IR_OEL / SKIN_DES:	Skin designation:

IR_OEL / TWA: Time Weighted Average (TWA):

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; EIGA - European Industrial Gases Association; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Key literature references and sources for data: No data available.

Training information: No data available.

Revision Information Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Disclaimer: This information and all further technical advice is based on our present knowledge and experience. However, it implies no liability or other legal responsibility on our part, including with regard to existing third party intellectual property rights, especially patent rights. In particular, no warranty, whether express or implied, or guarantee of product properties in the legal sense is intended or implied. We reserve the right to make any changes according to technological progress or further developments. The customer is not released from the obligation to conduct careful inspection and testing of incoming goods. Performance of the product described herein should be verified by testing, which should be carried out only by qualified experts in the sole responsibility of a customer. Reference to trade names used by other companies is neither a recommendation, nor does it imply that similar products could not be used.

Annex to the extended Safety Data Sheet (eSDS)

Content

Exposure Scenario I.

Exposure scenario worker

1.Manufacturing and on-site use

List of use descriptors	
Life Cycle Stage	
Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Product categories [PC]:	

Name of contributing environmental scenario and corresponding ERC	Manufacturing and on-site use: ERC1: Manufacture of the substance

List of names of contributing worker scenarios and corresponding PROCs	Manufacturing and on-site use: 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) PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

2.1.Contributing exposure scenario controlling environmental exposure for:
Manufacturing and on-site use

Environmental Release Category (ERC)	ERC1: Manufacture of the substance

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.

Physical state	liquid

Viscosity:	
Kinematic viscosity:	Not determined.
Dynamic viscosity:	> 430 mPa.s (20 °C, DIN 53015)

Amounts used

Daily amount per site	5 tonnes/day
Annual amount per site	99 t(onnes)/year
Fraction tonnage per region	100 %

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m^3/d):	1.170.000 m3/d
Local freshwater dilution factor	not relevant
Local marine water dilution factor	1.000

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
Continuous	20	0,00005 %	0,01 %	0,003 %	

Other relevant operational conditions	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	All equipments must be thoroughly dried, and enclosed to prevent contact with atmospheric moisture., Prevent leakage or spillage., Exhaust gas disposal: combustion or other adequate exhaust gas treatment, Exhaust air scrubber, Biological waste water treatment plant
Soil	The expected exposure level is minimal.
Water	Prevent substance from entering water., Consult water

	purification plant operator before discharging into sewage.
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m³/d):	
type:	sewage treatment plant
Discharge rate:	1.300 m3/d
Treatment effectiveness:	0,001 %
Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant
Remarks:	Stream water

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
With respect to local regulations, e.g. dispose of to suitable waste incineration plant.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: Manufacturing and on-site use

Process Categories:	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) PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.

Physical form of the product:	liquid
Vapour pressure:	0,11 hPa
Process temperature:	20 °C
Remarks	not relevant

Amounts used

Frequency and duration of use

	Use duration:	**Frequency of use:**	**Remarks**
duration of activity	480 min		

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Other relevant operational conditions:	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	**Route of Exposure**	**Protective Measures**	**Effectiveness**	**Remarks**
Industrial uses:	Inhalation	General ventilation		

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:	Dermal	The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene has been implemented.	

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Dermal	Wear suitable gloves (tested to EN374) and eye protection.		
	Inhalation	For personal protection see section 8.		

Additional good practice advice beyond the REACH CSA

This information is not available.

3. Exposure estimation

Environment:

Manufacturing and on-site use:

ERC1:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
freshwater sediment		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
marine water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
Marine sediments		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
Sewage treatment plant	0,046 mg/l	0,029	EUSES v2.1.2	none

soil		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.

Health:

Manufacturing and on-site use:

PROC1, PROC2, PROC3, PROC9:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor		0	EUSES v2.1.2	Not relevant for this exposure scenario.
Worker - combined, long-term - systemic	indoor		0	EUSES v2.1.2	Not relevant for this exposure scenario.

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

Information on Scaling: http://www.umweltbundesamt.de/publikationen/scaling-unter-reach Generic exposure tools such as ECETOC Targeted Risk Assessment Tool (TRA), are currently widely used for chemical safety assessments under REACH: http://www.ecetoc.org/tra This document aims to explain in simple terms the obligations which downsteam users have to fulfil to comply with the REACH Regulation: http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool (“scaling tool”), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates.

Exposure Scenario II.

Exposure scenario worker

1.Formulation & (re)packing of substances and mixtures

List of use descriptors	
Life Cycle Stage	
Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Product categories [PC]:	PC1: Adhesives, sealants

Name of contributing environmental scenario and corresponding ERC	Formulation & (re)packing of substances and mixtures: ERC2: Formulation into mixture (mixtures)

List of names of contributing worker scenarios and corresponding PROCs	Formulation & (re)packing of substances and mixtures: 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 Formulation & (re)packing of substances and mixtures: PROC2: Use in closed, continuous process with occasional controlled exposure 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 mixture into small containers (dedicated filling line, including weighing)

2.1.Contributing exposure scenario controlling environmental exposure for: Formulation & (re)packing of substances and mixtures

Environmental Release Category (ERC)	ERC2: Formulation into mixture (mixtures)

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 5%.

Physical state	liquid

Viscosity:	
Kinematic viscosity:	Not determined.
Dynamic viscosity:	> 430 mPa.s (20 °C, DIN 53015)

Amounts used

Daily amount per site	0,17 tonnes/day
Annual amount per site	50 t(onnes)/year
Fraction tonnage per region	100 %

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m³/d):	1.170.000 m3/d
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
Continuous	100	0,6 %	0,01 %	0,5 %	

Other relevant operational conditions	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	All equipments must be thoroughly dried, and enclosed to prevent contact with atmospheric moisture., Prevent leakage or spillage., Exhaust gas disposal: combustion or other adequate exhaust gas treatment, Exhaust air scrubber, Biological waste water treatment plant
Soil	The expected exposure level is minimal.
Water	Prevent substance from entering water., Consult water purification plant operator before discharging into sewage.
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m³/d):	
type:	sewage treatment plant
Discharge rate:	1.300 m3/d
Treatment effectiveness:	0,001 %
Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant
Remarks:	Stream water

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
With respect to local regulations, e.g. dispose of to suitable waste incineration plant.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: Formulation & (re)packing of substances and mixtures

Process Categories:	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

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 5%.

Physical form of the product:	liquid
Vapour pressure:	0,11 hPa
Process temperature:	20 °C
Remarks	not relevant

Amounts used

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	480 min		

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
indoor		40 °C		

Other relevant operational conditions:	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	General ventilation, Handle substance within a closed system.		PROC3
	Inhalation	General ventilation		PROC4, PROC5

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:	Dermal	The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene has been implemented.	

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Dermal	Wear suitable gloves (tested to EN374) and eye protection.		
	Inhalation	For personal protection see section 8.		PROC3
	Inhalation	For personal protection see section 8.		PROC4, PROC5

Additional good practice advice beyond the REACH CSA

This information is not available.

2.3. Contributing exposure scenario controlling worker exposure for: Formulation & (re)packing of substances and mixtures

Process Categories:	PROC2: Use in closed, continuous process with occasional controlled exposure 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 mixture into small containers (dedicated filling line, including weighing)

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.

Physical form of the product:	liquid
Vapour pressure:	0,11 hPa
Process temperature:	20 °C
Remarks	not relevant

Amounts used

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	480 min		

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Other relevant operational conditions:	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	General ventilation		

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:	Dermal	The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene has been implemented.	

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Dermal	Wear suitable gloves (tested to EN374) and eye protection.		
	Inhalation	For personal protection see section 8.		

Additional good practice advice beyond the REACH CSA

This information is not available.

3. Exposure estimation

Environment:

Formulation & (re)packing of substances and mixtures:

ERC2:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
freshwater sediment		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
marine water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.

Marine sediments		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
Sewage treatment plant	0,511 mg/l	0,232	EUSES v2.1.2	none
soil		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.

Health:

Formulation & (re)packing of substances and mixtures:

PROC3, PROC4, PROC5:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor		0	EUSES v2.1.2	Not relevant for this exposure scenario.
Worker - combined, long-term - systemic	indoor		0	EUSES v2.1.2	Not relevant for this exposure scenario.

Formulation & (re)packing of substances and mixtures:

PROC2, PROC8a, PROC8b, PROC9:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor		0	EUSES v2.1.2	Not relevant for this exposure scenario.
Worker - combined, long-term - systemic	indoor		0	EUSES v2.1.2	Not relevant for this exposure scenario.

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

Information on Scaling: http://www.umweltbundesamt.de/publikationen/scaling-unter-reach Generic exposure tools such as ECETOC Targeted Risk Assessment Tool (TRA), are currently widely used for chemical safety assessments under REACH: http://www.ecetoc.org/tra This document aims to explain in simple terms the obligations which downsteam users have to fulfil to comply with the REACH Regulation: http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool (“scaling tool”), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates.

Exposure Scenario III.

Exposure scenario worker

1.Formulation of sealants and adhesives

List of use descriptors	
Life Cycle Stage	
Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Product categories [PC]:	PC1: Adhesives, sealants

Name of contributing environmental scenario and corresponding ERC	Formulation of sealants and adhesives: ERC2: Formulation into mixture (mixtures)

List of names of contributing worker scenarios and corresponding PROCs	Formulation of sealants and adhesives: PROC2: Use in closed, continuous process with occasional controlled exposure PROC5: Mixing or blending in batch processes Formulation of sealants and adhesives: 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 mixture into small containers (dedicated filling line, including weighing)

2.1.Contributing exposure scenario controlling environmental exposure for: Formulation of sealants and adhesives

Environmental Release Category (ERC)	ERC2: Formulation into mixture (mixtures)

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 5%.

Physical state	liquid

Viscosity:	
Kinematic viscosity:	Not determined.
Dynamic viscosity:	> 430 mPa.s (20 °C, DIN 53015)

Amounts used

Daily amount per site	0,69 tonnes/day
Annual amount per site	69 t(onnes)/year
Fraction tonnage per region	20 %

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m^3/d):	18.000 m3/d
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
Continuous	100	0,6 %	0,01 %	0 %	

Other relevant operational conditions	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	All equipments must be thoroughly dried, and enclosed to prevent contact with atmospheric moisture., Prevent leakage or spillage., Exhaust gas disposal: combustion or other adequate exhaust gas treatment, Exhaust air scrubber, Biological waste water treatment plant
Soil	The expected exposure level is minimal.
Water	Prevent substance from entering water., Consult water purification plant operator before discharging into sewage.

Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m³/d):	
type:	sewage treatment plant
Discharge rate:	2.000 m3/d
Treatment effectiveness:	0,002 %
Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant
Remarks:	Stream water

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
With respect to local regulations, e.g. dispose of to suitable waste incineration plant.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: Formulation of sealants and adhesives

Process Categories:	PROC2: Use in closed, continuous process with occasional controlled exposure PROC5: Mixing or blending in batch processes

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.

Physical form of the product:	liquid
Vapour pressure:	0,11 hPa
Process temperature:	20 °C
Remarks	not relevant

Amounts used

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	480 min		

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature:	Ventilation rate	Remarks
indoor		40 °C		

Other relevant operational conditions:	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	General ventilation, Handle substance within a closed system.		PROC2
	Inhalation	General ventilation		PROC5

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:	Dermal	The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene has been implemented.	

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Dermal	Wear suitable gloves (tested to EN374) and eye protection.		
	Inhalation	For personal protection see section 8.		PROC2
	Inhalation	For personal protection see section 8.		PROC5

Additional good practice advice beyond the REACH CSA

This information is not available.

2.3. Contributing exposure scenario controlling worker exposure for: Formulation of sealants and adhesives

Process Categories:	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 mixture into small containers (dedicated filling line, including weighing)

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.

Physical form of the product:	liquid
Vapour pressure:	0,11 hPa
Process temperature:	20 °C
Remarks	not relevant

Amounts used

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	480 min		

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Other relevant operational conditions:	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	General ventilation		

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:	Dermal	The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene has been implemented.	

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Dermal	Wear suitable gloves (tested to EN374) and eye protection.		
	Inhalation	For personal protection see section 8.		

Additional good practice advice beyond the REACH CSA

This information is not available.

3. Exposure estimation

Environment:

Formulation of sealants and adhesives:

ERC2:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
all		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.

Health:

Formulation of sealants and adhesives:

PROC2, PROC5:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor		0	EUSES v2.1.2	Not relevant for this exposure scenario.
Worker - combined, long-term - systemic	indoor		0	EUSES v2.1.2	Not relevant for this exposure scenario.

Formulation of sealants and adhesives:

PROC3, PROC4, PROC8a, PROC8b, PROC9:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor		0	EUSES v2.1.2	Not relevant for this exposure scenario.
Worker - combined, long-term - systemic	indoor		0	EUSES v2.1.2	Not relevant for this exposure scenario.

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

Information on Scaling: http://www.umweltbundesamt.de/publikationen/scaling-unter-reach Generic exposure tools such as ECETOC Targeted Risk Assessment Tool (TRA), are currently widely used for chemical safety assessments under REACH: http://www.ecetoc.org/tra This document aims to explain in simple terms the obligations which downsteam users have to fulfil to comply with the REACH Regulation: http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool ("scaling tool"), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates.

Exposure Scenario IV.

Exposure scenario worker

1.Industrial use of sealants and adhesives

List of use descriptors	
Life Cycle Stage	
Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites SU16: Manufacture of computer, electronic and optical products, electrical equipment SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment SU19: Building and construction work
Product categories [PC]:	PC1: Adhesives, sealants

Name of contributing environmental scenario and corresponding ERC	Industrial use of sealants and adhesives: ERC5: Industrial use resulting in inclusion into or onto a matrix

List of names of contributing worker scenarios and corresponding PROCs	Industrial use of sealants and adhesives: PROC5: Mixing or blending in batch processes 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

2.1.Contributing exposure scenario controlling environmental exposure for: Industrial use of sealants and adhesives

Environmental Release Category (ERC)	ERC5: Industrial use resulting in inclusion into or onto a matrix

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 5%.

Physical state	liquid

Viscosity:	
Kinematic viscosity:	Not determined.
Dynamic viscosity:	> 430 mPa.s (20 °C, DIN 53015)

Amounts used

Daily amount per site	0,14 tonnes/day
Annual amount per site	30 t(onnes)/year
Fraction tonnage per region	100 %

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m³/d):	18.000 m3/d
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
Continuous	220	0,1 %	1 %	0 %	

Other relevant operational conditions	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	All equipments must be thoroughly dried, and enclosed to prevent contact with atmospheric moisture., Prevent leakage or spillage., Exhaust gas disposal: combustion or other adequate exhaust gas treatment, Exhaust air scrubber, Biological waste water treatment plant
Soil	The expected exposure level is minimal.
Water	Prevent substance from entering water., Consult water purification plant operator before discharging into sewage.
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m^3/d):	
type:	sewage treatment plant
Discharge rate:	2.000 m3/d
Treatment effectiveness:	0,002 %
Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant
Remarks:	Stream water

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
With respect to local regulations, e.g. dispose of to suitable waste incineration plant.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: Industrial use of sealants and adhesives

Process Categories:	PROC5: Mixing or blending in batch processes 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

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 5%.

Physical form of the product:	liquid
Vapour pressure:	0,11 hPa
Process temperature:	20 °C
Remarks	not relevant

Amounts used

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	480 min		

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Other relevant operational conditions:	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	General ventilation		

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:	Dermal	The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene has been implemented.	

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Dermal	Wear suitable gloves (tested to EN374) and eye protection.		
	Inhalation	For personal protection see section 8.		

Additional good practice advice beyond the REACH CSA

This information is not available.

3. Exposure estimation

Environment:

Industrial use of sealants and adhesives:

ERC5:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
all		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.

Health:

Industrial use of sealants and adhesives:

PROC5, PROC8a, PROC8b, PROC10, PROC13:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor		0	EUSES v2.1.2	Not relevant for this exposure scenario.
Worker - combined, long-term - systemic	indoor		0	EUSES v2.1.2	Not relevant for this exposure scenario.

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

Information on Scaling: http://www.umweltbundesamt.de/publikationen/scaling-unter-reach Generic exposure tools such as ECETOC Targeted Risk Assessment Tool (TRA), are currently widely used for chemical safety assessments under REACH: http://www.ecetoc.org/tra This document aims to explain in simple terms the obligations which downsteam users have to fulfil to comply with the REACH Regulation: http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool ("scaling tool"), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates.

Exposure Scenario V.

Exposure scenario worker

1.Professional use of sealants and adhesives

List of use descriptors	
Life Cycle Stage	
Sector(s) of use	SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) SU16: Manufacture of computer, electronic and optical products, electrical equipment SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment SU19: Building and construction work
Product categories [PC]:	PC1: Adhesives, sealants

Name of contributing environmental scenario and corresponding ERC	Professional use of sealants and adhesives: ERC8c: Wide dispersive indoor use resulting in inclusion into or

	onto a matrix

List of names of contributing worker scenarios and corresponding PROCs	Professional use of sealants and adhesives: PROC5: Mixing or blending in batch processes PROC13: Treatment of articles by dipping and pouring Professional use of sealants and adhesives: PROC10: Roller application or brushing Professional use of sealants and adhesives: PROC19: Hand-mixing with intimate contact and only PPE available

2.1.Contributing exposure scenario controlling environmental exposure for: Professional use of sealants and adhesives

Environmental Release Category (ERC)	ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 5%.

Physical state	liquid

Viscosity:	
Kinematic viscosity:	Not determined.
Dynamic viscosity:	> 430 mPa.s (20 °C, DIN 53015)

Amounts used

Daily amount per site	0,01 tonnes/day
Annual amount per site	0,005 t(onnes)/year
Fraction tonnage per region	10 %

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m^3/d):	not relevant
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
Continuous	365	0 %	0 %	1,5 %	

Other relevant operational conditions	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	All equipments must be thoroughly dried, and enclosed to prevent contact with atmospheric moisture., Prevent leakage or spillage., Exhaust gas disposal: combustion or other adequate exhaust gas treatment, Exhaust air scrubber, Biological waste water treatment plant
Soil	The expected exposure level is minimal.
Water	Prevent substance from entering water., Consult water purification plant operator before discharging into sewage.
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m^3/d):	
type:	sewage treatment plant
Discharge rate:	not relevant
Treatment effectiveness:	0,002 %
Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant
Remarks:	not relevant

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
With respect to local regulations, e.g. dispose of to suitable waste incineration plant.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: Professional use of sealants and adhesives

Process Categories:	PROC5: Mixing or blending in batch processes PROC13: Treatment of articles by dipping and pouring

Product characteristics

Concentration of the substance in a mixture:	Registers proportion of substance in product up to 2,5%.

Physical form of the product:	liquid
Vapour pressure:	0,11 hPa
Process temperature:	20 °C
Remarks	not relevant

Amounts used

Frequency and duration of use

	Use duration:	**Frequency of use:**	**Remarks**
duration of activity	480 min		

Human factors not influenced by risk management

Exposed skin areas:

Palm of both hands	480 cm²
bodyweight:	70 kg
Breathing volume:	10 m3/8 hours

Other given operational conditions affecting workers exposure

Area of use	**Room size:**	**Temperature :**	**Ventilation rate**	**Remarks**
Indoor or outdoor use		40 °C	1	

Other relevant operational conditions:	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	General ventilation, Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:	Dermal	The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene has been implemented.	

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Dermal	For personal protection see section 8.		

Additional good practice advice beyond the REACH CSA

This information is not available.

2.3. Contributing exposure scenario controlling worker exposure for: Professional use of sealants and adhesives

Process Categories:	PROC10: Roller application or brushing

Product characteristics

Concentration of the substance in a mixture:	Registers proportion of substance in product up to 2,5%.

Physical form of the product:	liquid
Vapour pressure:	0,11 hPa
Process temperature:	20 °C
Remarks	not relevant

Amounts used

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	480 min		

Human factors not influenced by risk management

Exposed skin areas:

Palm of both hands	960 cm²
bodyweight:	70 kg
Breathing volume:	10 m3/8 hours

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature:	Ventilation rate	Remarks
Indoor or outdoor use		40 °C		

Other relevant operational conditions:	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	General ventilation		

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:	Dermal	The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene has been implemented.	

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training., Wear suitable eye protection, face shield or goggles, to avoid eye contact.	90 %	

Additional good practice advice beyond the REACH CSA

This information is not available.

2.4. Contributing exposure scenario controlling worker exposure for: Professional use of sealants and adhesives

Process Categories:	PROC19: Hand-mixing with intimate contact and only PPE available

Product characteristics

Concentration of the substance in a mixture:	Registers proportion of substance in product up to 2,5%.

Physical form of the product:	liquid
Vapour pressure:	0,11 hPa
Process temperature:	20 °C
Remarks	not relevant

Amounts used

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	480 min		

Human factors not influenced by risk management

Exposed skin areas:

Palm of both hands	1980 cm²
bodyweight:	70 kg
Breathing volume:	10 m3/8 hours

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature:	Ventilation rate	Remarks
Indoor or outdoor use		40 °C	1	

Other relevant operational conditions:	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	General ventilation, Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:	Dermal	The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene has been implemented.	

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Dermal	For personal protection see section 8.		

Additional good practice advice beyond the REACH CSA

This information is not available.

3. Exposure estimation

Environment:

Professional use of sealants and adhesives:

ERC8c:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
freshwater sediment		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
marine water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
Marine sediments		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
Sewage treatment plant	0,06 mg/l	0,027	EUSES v2.1.2	none
soil		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.

Health:

Professional use of sealants and adhesives:

PROC5:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	Indoor or outdoor use	133,6 mg/m³	0,514	EUSES v2.1.2	Assessment based on: Methanol
Worker - combined, long-term - systemic	Indoor or outdoor use		0,514	EUSES v2.1.2	none

PROC13:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	Indoor or outdoor use	66,81 mg/m³	0,257	EUSES v2.1.2	Assessment based on: Methanol
Worker - combined, long-term - systemic	Indoor or outdoor use		0,257	EUSES v2.1.2	none

Professional use of sealants and adhesives:

PROC10:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	Indoor or outdoor use	93,54 mg/m³	0,36	EUSES v2.1.2	Assessment based on: Methanol
Worker - combined, long-term - systemic	Indoor or outdoor use		0,36	EUSES v2.1.2	none

Professional use of sealants and adhesives:

PROC19:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	Indoor or outdoor use	133,6 mg/m³	0,514	EUSES v2.1.2	Assessment based on: Methanol
Worker - combined, long-term - systemic	Indoor or outdoor use		0,514	EUSES v2.1.2	none

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

Information on Scaling: http://www.umweltbundesamt.de/publikationen/scaling-unter-reach Generic exposure tools such as ECETOC Targeted Risk Assessment Tool (TRA), are currently widely used for chemical safety assessments under REACH: http://www.ecetoc.org/tra This document aims to explain in simple terms the obligations which downsteam users have to fulfil to comply with the REACH Regulation: http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool ("scaling tool"), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates.

Exposure Scenario VI.

Exposure scenario consumer

1.Professional and consumer use in sealants, Adhesive:

List of use descriptors	
Life Cycle Stage	
Sector(s) of use	SU21: Consumer uses: Private households (= general public = consumers)
Product Categories:	PC1: Adhesives, sealants

Name of contributing environmental scenario and corresponding ERC	Professional and consumer use in sealants: ERC8c: Widespread use leading to inclusion into/onto article (indoor) ERC8f: Widespread use leading to inclusion into/onto article (outdoor)

List of names of contributing worker scenarios and corresponding PROCs	Professional and consumer use in sealants: :

2.1.Contributing exposure scenario controlling environmental exposure for: Professional and consumer use in sealants, Adhesive

Environmental Release Category (ERC)	ERC8c ERC8f: Widespread use leading to inclusion into/onto article (indoor) Widespread use leading to inclusion into/onto article (outdoor)

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 1 %.

Physical state	liquid

Viscosity	
Kinematic viscosity	Not determined.
Dynamic viscosity	> 430 mPa.s (20 °C, DIN 53015)

Amounts used

Daily amount per site	0,000007 tonnes/day
Annual amount per site	0,0028 t(onnes)/year

Frequency and duration of use

Batch process	not relevant
Continuous process	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m^3/d):	not relevant
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
Continuous	365	0 %	0 %	1,5 %	

Other relevant operational conditions	not relevant

Risk management measures (RMM)

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/treatment plant (m^3/d):	
type:	sewage treatment plant
Discharge rate:	not relevant
Treatment effectiveness:	sewage treatment plant
Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant
Remarks	not relevant

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
With respect to local regulations, e.g. dispose of to suitable waste incineration plant.		

Conditions and measures related to external recovery of waste

none

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling consumer exposure for: Professional and consumer use in sealants, Adhesive

Product Categories:	PC1: Adhesives, sealants

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 1 %.

Physical form of the product:	liquid
Vapour pressure:	0,11 hPa
Process temperature:	20 °C
Remarks	not relevant
Application:	not relevant

Amounts used

Amount per use	150 g Joint sealants
Amount per use	390 g Assembly sealants

Frequency and duration of use

	Use duration (h/d):	Frequency of use:	Remarks
Exposure duration	45 min	1days per year	Joint sealants
Exposure duration	240 min	1days per year	Assembly sealants
Application duration	30 min		Assembly sealants

Human factors not influenced by risk management

Covers skin contact area up to:	2 cm² Assembly sealants Joint sealants
bodyweight:	65 kg Assembly sealants Joint sealants
Breathing volume:	26 m³/day Assembly sealants

Other given operational conditions affecting consumers exposure

Area of use	Room size:	Temperature:	Ventilation rate	Remarks
Indoor use	10 m3			Joint sealants

Other relevant operational conditions	not relevant

Risk management measures (RMM)

This information is not available.

Additional good practice advice beyond the REACH CSA

not relevant

3. Exposure estimation and reference to its source

Environment:

Professional and consumer use in sealants, Adhesive:

ERC8c, ERC8f:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
freshwater sediment		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
marine water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
Marine sediments		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
Sewage treatment plant	0,0000459 mg/l	0,01	EUSES v2.1.2	none
soil		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.

Health:

Professional and consumer use in sealants, Adhesive:

PC1:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	14 mg/m³	0,28	ConsExpo	Assessment based on: Methanol Joint sealants
Worker - combined, long-term - systemic	indoor		0,28	ConsExpo	Joint sealants
Worker - inhalative, long-term - systemic	indoor	34 mg/m³	0,68	ConsExpo	Assessment based on: Methanol Assembly sealants
Worker - combined, long-term - systemic	indoor		0,68	ConsExpo	Assembly sealants

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

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Exposure Scenario VII.

Exposure scenario worker

1.Formulation of coatings

List of use descriptors	
Life Cycle Stage	
Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Product categories [PC]:	PC9a: Coatings and paints, thinners, paint removers

Name of contributing environmental scenario and corresponding ERC	Formulation of coatings: ERC2: Formulation into mixture (mixtures)

List of names of contributing worker scenarios and corresponding PROCs	Formulation of coatings: 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 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 mixture into small containers

	(dedicated filling line, including weighing)

2.1.Contributing exposure scenario controlling environmental exposure for: Formulation of coatings

Environmental Release Category (ERC)	ERC2: Formulation into mixture (mixtures)

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 5%.

Physical state	liquid

Viscosity:	
Kinematic viscosity:	Not determined.
Dynamic viscosity:	> 430 mPa.s (20 °C, DIN 53015)

Amounts used

Daily amount per site	0,69 tonnes/day
Annual amount per site	69 t(onnes)/year
Fraction tonnage per region	100 %

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m^3/d):	18.000 m3/d
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
Continuous	225	0,6 %	0,01 %	0,5 %	

Other relevant operational conditions	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	All equipments must be thoroughly dried, and enclosed to prevent contact with atmospheric moisture., Prevent leakage or spillage., Exhaust gas disposal: combustion or other adequate exhaust gas treatment, Exhaust air scrubber, Biological waste water treatment plant
Soil	The expected exposure level is minimal.
Water	Prevent substance from entering water., Consult water purification plant operator before discharging into sewage.
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m^3/d):	
type:	sewage treatment plant
Discharge rate:	2.000 m3/d
Treatment effectiveness:	0,002 %
Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant
Remarks:	Stream water

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
With respect to local regulations, e.g. dispose of to suitable waste incineration plant.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: Formulation of coatings

Process Categories:	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 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 mixture into small containers (dedicated filling line, including weighing)

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.

Physical form of the product:	liquid
Vapour pressure:	0,11 hPa
Process temperature:	20 °C
Remarks	not relevant

Amounts used

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	480 min		

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Other relevant operational conditions:	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	General ventilation, Handle substance within a closed system.		PROC3
	Inhalation	General ventilation		PROC2, PROC4, PROC5, PROC8a, PROC8b, PROC9

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:	Dermal	The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene has been implemented.	

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Dermal	Wear suitable gloves (tested to EN374) and eye protection.		
	Inhalation	For personal protection see section 8.		PROC3
	Inhalation	For personal protection see section 8.		PROC2, PROC4, PROC5, PROC8a, PROC8b, PROC9

Additional good practice advice beyond the REACH CSA

This information is not available.

3. Exposure estimation

Environment:

Formulation of coatings:

ERC2:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
freshwater sediment		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
marine water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
Marine sediments		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
Sewage treatment plant	1,371 mg/l	0,623	EUSES v2.1.2	none
soil		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.

Health:

Formulation of coatings:

PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor		0	EUSES v2.1.2	Not relevant for this exposure scenario.
Worker - combined, long-term - systemic	indoor		0	EUSES v2.1.2	Not relevant for this exposure scenario.

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

Information on Scaling: http://www.umweltbundesamt.de/publikationen/scaling-unter-reach Generic exposure tools such as ECETOC Targeted Risk Assessment Tool (TRA), are currently widely used for chemical safety assessments under REACH: http://www.ecetoc.org/tra This document aims to explain in simple terms the obligations which downsteam users have to fulfil to comply with the REACH Regulation: http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool ("scaling tool"), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates.

Exposure Scenario VIII.

Exposure scenario worker

1.Industrial use of coatings

List of use descriptors	
Life Cycle Stage	
Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites SU4: Manufacture of food products SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment SU18: Manufacture of furniture
Product categories [PC]:	PC9a: Coatings and paints, thinners, paint removers

Name of contributing environmental scenario and corresponding ERC	Industrial use of coatings: ERC5: Industrial use resulting in inclusion into or onto a matrix

List of names of contributing worker scenarios and corresponding PROCs	Industrial use of coatings: PROC5: Mixing or blending in batch processes 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

2.1.Contributing exposure scenario controlling environmental exposure for: Industrial use of coatings

Environmental Release Category (ERC)	ERC5: Industrial use resulting in inclusion into or onto a matrix

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 1 %.

Physical state	liquid

Viscosity:	
Kinematic viscosity:	Not determined.
Dynamic viscosity:	> 430 mPa.s (20 °C, DIN 53015)

Amounts used

Daily amount per site	0,0006 tonnes/day
Annual amount per site	0,18 t(onnes)/year
Fraction tonnage per region	100 %

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m^3/d):	18.000 m3/d
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
Continuous	300	36 %	1 %	3 %	

Other relevant operational conditions	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	All equipments must be thoroughly dried, and enclosed to prevent contact with atmospheric moisture., Prevent leakage or spillage., Exhaust gas disposal: combustion or other adequate exhaust gas treatment, Exhaust air scrubber, Biological waste water treatment plant
Soil	The expected exposure level is minimal.
Water	Prevent substance from entering water., Consult water purification plant operator before discharging into sewage.
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m^3/d):	
type:	sewage treatment plant
Discharge rate:	2.000 m3/d
Treatment effectiveness:	0,002 %
Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant
Remarks:	Stream water

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
With respect to local regulations, e.g. dispose of to suitable waste incineration plant.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: Industrial use of coatings

Process Categories:	PROC5: Mixing or blending in batch processes 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

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.

Physical form of the product:	liquid
Vapour pressure:	0,11 hPa
Process temperature:	20 °C
Remarks	not relevant

Amounts used

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	480 min		

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
indoor		40 °C		

Other relevant operational conditions:	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	General ventilation		

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:	Dermal	The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene has been implemented.	

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Dermal	Wear suitable gloves (tested to EN374) and eye protection.		
	Inhalation	For personal protection see section 8.		

Additional good practice advice beyond the REACH CSA

This information is not available.

3. Exposure estimation

Environment:

Industrial use of coatings:

ERC5:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.

freshwater sediment		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
marine water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
Marine sediments		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
Sewage treatment plant	0,00715 mg/l	0,01	EUSES v2.1.2	none
soil		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.

Health:

Industrial use of coatings:

PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC13:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor		0	EUSES v2.1.2	Not relevant for this exposure scenario.
Worker - combined, long-term - systemic	indoor		0	EUSES v2.1.2	Not relevant for this exposure scenario.

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

Information on Scaling: http://www.umweltbundesamt.de/publikationen/scaling-unter-reach Generic exposure tools such as ECETOC Targeted Risk Assessment Tool (TRA), are currently widely used for chemical safety assessments under REACH: http://www.ecetoc.org/tra This document aims to explain in simple terms the obligations which downsteam users have to fulfil to comply with the REACH Regulation: http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool (“scaling tool”), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates.

Exposure Scenario IX.

Exposure scenario worker

1.Professional use of coatings

List of use descriptors	
Life Cycle Stage	
Sector(s) of use	SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) SU19: Building and construction work
Product categories [PC]:	PC9a: Coatings and paints, thinners, paint removers

Name of contributing environmental scenario and corresponding ERC	Professional use of coatings: ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix

List of names of contributing worker scenarios and corresponding PROCs	Professional use of coatings: PROC10: Roller application or brushing PROC19: Hand-mixing with intimate contact and only PPE available Professional use of coatings: PROC11: Non industrial spraying

2.1.Contributing exposure scenario controlling environmental exposure for: Professional use of coatings

Environmental Release Category (ERC)	ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 5%.

Physical state	liquid

Viscosity:	
Kinematic viscosity:	Not determined.
Dynamic viscosity:	> 430 mPa.s (20 °C, DIN 53015)

Amounts used

Daily amount per site	0,01 tonnes/day
Annual amount per site	0,005 t(onnes)/year
Fraction tonnage per region	10 %

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m³/d):	not relevant
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
Continuous	365	15 %	0 %	1 %	

Other relevant operational conditions	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	All equipments must be thoroughly dried, and enclosed to prevent contact with atmospheric moisture., Prevent leakage or spillage., Exhaust gas disposal: combustion or other adequate exhaust gas treatment, Exhaust air scrubber, Biological waste water treatment plant
Soil	The expected exposure level is minimal.
Water	Prevent substance from entering water., Consult water purification plant operator before discharging into sewage.
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m³/d):	
type:	sewage treatment plant
Discharge rate:	not relevant
Treatment effectiveness:	0,002 %
Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant

Remarks:	not relevant

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
With respect to local regulations, e.g. dispose of to suitable waste incineration plant.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: Professional use of coatings

Process Categories:	PROC10: Roller application or brushing PROC19: Hand-mixing with intimate contact and only PPE available

Product characteristics

Concentration of the substance in a mixture:	Registers proportion of substance in product up to 2,5%.

Physical form of the product:	liquid
Vapour pressure:	0,11 hPa
Process temperature:	20 °C
Remarks	not relevant

Amounts used

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	480 min		

Human factors not influenced by risk management

Exposed skin areas:

Palm of both hands	960 cm² PROC10

Palm of both hands	1980 cm² PROC19
bodyweight:	70 kg
Breathing volume:	10 m3/8 hours

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature:	Ventilation rate	Remarks
Indoor or outdoor use		40 °C	1	

Other relevant operational conditions:	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	General ventilation, Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:	Dermal	The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene has been implemented.	

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Dermal	For personal protection see section 8.		

Additional good practice advice beyond the REACH CSA

This information is not available.

2.3. Contributing exposure scenario controlling worker exposure for: Professional use of coatings

Process Categories:	PROC11: Non industrial spraying

Product characteristics

Concentration of the substance in a mixture:	Registers proportion of substance in product up to 2,5%.

Physical form of the product:	liquid
Vapour pressure:	0,11 hPa
Process temperature:	20 °C
Remarks	not relevant

Amounts used

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	480 min		

Human factors not influenced by risk management

Exposed skin areas:

Palm of both hands	1500 cm²
bodyweight:	70 kg
Breathing volume:	10 m3/8 hours

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature:	Ventilation rate	Remarks
Indoor or outdoor use		40 °C	1	

Other relevant operational conditions:	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	General ventilation, Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:	Dermal	The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene has been implemented.	

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Dermal	For personal protection see section 8.		
	Inhalation	Use respiratory protection.	90 %	

Additional good practice advice beyond the REACH CSA

This information is not available.

3. Exposure estimation

Environment:

Professional use of coatings:

ERC8c, ERC8f:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
freshwater sediment		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
marine water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
Marine sediments		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
Sewage treatment plant	0,04 mg/l	0,018	EUSES v2.1.2	none

soil		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.

Health:

Professional use of coatings:

PROC10, PROC19:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	Indoor or outdoor use	133,6 mg/m³	0,514	EUSES v2.1.2	Assessment based on: Methanol
Worker - combined, long-term - systemic	Indoor or outdoor use		0,514	EUSES v2.1.2	none

Professional use of coatings:

PROC11:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	Indoor or outdoor use	26,72 mg/m³	0,103	EUSES v2.1.2	Assessment based on: Methanol
Worker - combined, long-term - systemic	Indoor or outdoor use		0,103	EUSES v2.1.2	none

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

Information on Scaling: http://www.umweltbundesamt.de/publikationen/scaling-unter-reach Generic exposure tools such as ECETOC Targeted Risk Assessment Tool (TRA), are currently widely used for chemical safety assessments under REACH: http://www.ecetoc.org/tra This document aims to explain in simple terms the obligations which downsteam users have to fulfil to comply with the REACH Regulation: http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool (“scaling tool”), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates.

Exposure Scenario X.

Exposure scenario consumer

1.Consumer application of coatings:

List of use descriptors	
Life Cycle Stage	
Sector(s) of use	SU21: Consumer uses: Private households (= general public = consumers)
Product Categories:	:

Name of contributing environmental scenario and corresponding ERC	Consumer application of coatings: ERC8c: Widespread use leading to inclusion into/onto article (indoor)

List of names of contributing worker scenarios and corresponding PROCs	Consumer application of coatings: :

2.1.Contributing exposure scenario controlling environmental exposure for: Consumer application of coatings

Environmental Release Category (ERC)	ERC8c: Widespread use leading to inclusion into/onto article (indoor)

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 5%.

Physical state	liquid

Viscosity	
Kinematic viscosity	Not determined.
Dynamic viscosity	> 430 mPa.s (20 °C, DIN 53015)

Amounts used

Daily amount per site	0,000002 tonnes/day
Annual amount per site	0,0005 t(onnes)/year
Fraction tonnage per region	10 %

Frequency and duration of use

Batch process	not relevant
Continuous process	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m^3/d):	not relevant
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
Continuous	365	15 %	0 %	1 %	

Other relevant operational conditions	not relevant

Risk management measures (RMM)

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/treatment plant (m^3/d):	
type:	sewage treatment plant
Discharge rate:	not relevant
Treatment effectiveness:	sewage treatment plant
Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant
Remarks	not relevant

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
With respect to local regulations, e.g. dispose of to suitable waste incineration plant.		

Conditions and measures related to external recovery of waste

none

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling consumer exposure for: Consumer application of coatings

Product Categories:	PC9a: Coatings and paints, thinners, paint removers

Product characteristics

Concentration of the substance in a mixture:	1 %

Physical form of the product:	not relevant
Vapour pressure:	not relevant
Process temperature:	not relevant
Remarks	not relevant

Application:	not relevant

Amounts used

Amount per use	1000 kg

Frequency and duration of use

	Use duration (h/d):	**Frequency of use:**	**Remarks**
Exposure duration	2,2 h	1days per year	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting consumers exposure

Area of use	**Room size:**	**Temperature :**	**Ventilation rate**	**Remarks**
Indoor use				

Other relevant operational conditions	not relevant

Risk management measures (RMM)

This information is not available.

Additional good practice advice beyond the REACH CSA

not relevant

3. Exposure estimation and reference to its source

Environment:

Consumer application of coatings:

ERC2:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
freshwater sediment		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
marine water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
Marine sediments		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
Sewage treatment plant	0,0000109 mg/l	0,01	EUSES v2.1.2	none
soil		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.

Health:

Consumer application of coatings:

PC9a:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Consumer - inhalative, long-term - systemic	indoor	17,4 mg/m³	0,348	ConsExpo	Assessment based on: Methanol
Consumer - combined, long-term - systemic	indoor		0,348	ConsExpo	none

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

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Exposure Scenario XI.

Exposure scenario worker

1.Use in laboratories

List of use descriptors	
Life Cycle Stage	
Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites SU24: Scientific research and development
Product categories [PC]:	PC21: Laboratory chemicals

Name of contributing environmental scenario and corresponding ERC	Use in laboratories: ERC6a: Use of intermediate

List of names of contributing worker scenarios and corresponding PROCs	Use in laboratories: PROC15: Use as laboratory reagent

2.1.Contributing exposure scenario controlling environmental exposure for: Use in laboratories

Environmental Release Category (ERC)	ERC6a: Use of intermediate

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 1 %.

Physical state	liquid

Viscosity:	
Kinematic viscosity:	Not determined.
Dynamic viscosity:	> 430 mPa.s (20 °C, DIN 53015)

Amounts used

Daily amount per site	0,00025 tonnes/day
Annual amount per site	0,005 t(onnes)/year
Fraction tonnage per region	100 %

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m^3/d):	18.000 m3/d
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
Continuous	20	5 %	0,1 %	2 %	

Other relevant operational conditions	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	All equipments must be thoroughly dried, and enclosed to prevent contact with atmospheric moisture., Prevent leakage or spillage., Exhaust gas disposal: combustion or other adequate exhaust gas treatment, Exhaust air scrubber, Biological waste water treatment plant
Soil	The expected exposure level is minimal.
Water	Prevent substance from entering water., Consult water purification plant operator before discharging into sewage.

Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m³/d):	
type:	sewage treatment plant
Discharge rate:	2.000 m3/d
Treatment effectiveness:	0,002 %
Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant
Remarks:	Stream water

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
With respect to local regulations, e.g. dispose of to suitable waste incineration plant.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: Use in laboratories

Process Categories:	PROC15: Use as laboratory reagent

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 1 %.

Physical form of the product:	liquid
Vapour pressure:	0,11 hPa
Process temperature:	20 °C
Remarks	not relevant

Amounts used

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	480 min		

Human factors not influenced by risk management

Exposed skin areas:

Palm of both hands	1980 cm²
bodyweight:	70 kg
Breathing volume:	10 m3/8 hours

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature:	Ventilation rate	Remarks
Indoor or outdoor use		40 °C		

Other relevant operational conditions:	not relevant

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	General ventilation		

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:	Dermal	Assumes a good basic standard of occupational hygiene is implemented.	

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Dermal	For personal protection see section 8.		

Additional good practice advice beyond the REACH CSA

This information is not available.

3. Exposure estimation

Environment:

Use in laboratories:

ERC6a:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
freshwater sediment		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
marine water		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
Marine sediments		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.
Sewage treatment plant	0,00199 mg/l	0,01	EUSES v2.1.2	none
soil		0	EUSES v2.1.2	Environmental exposure assessment for this scenario is not relevant.

Health:

Use in laboratories:

PROC15:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	Indoor or outdoor use		0	EUSES v2.1.2	Not relevant for this exposure scenario.
Worker - combined, long-term - systemic	Indoor or outdoor use		0	EUSES v2.1.2	Not relevant for this exposure scenario.

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

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