SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 08.02.2018 Version 15.2

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

1.1 Product identifier

Catalogue No.	800830
Product name	Acrylamide for synthesis
REACH Registration Number	01-2119463260-48-XXXX
CAS-No.	79-06-1

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

Identified uses	Chemical for synthesis In compliance with the conditions described in the annex to this safety data sheet.

1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	LS-QHC * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number

Please contact the regional company representation in your country.

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 3, Oral, H301
Acute toxicity, Category 4, Inhalation, H332
Acute toxicity, Category 4, Dermal, H312
Skin irritation, Category 2, H315
Eye irritation, Category 2, H319
Skin sensitisation, Category 1, H317
Germ cell mutagenicity, Category 1B, H340
Carcinogenicity, Category 1B, H350
Reproductive toxicity, Category 2, H361f
Specific target organ toxicity - repeated exposure, Category 1, Peripheral nervous system, H372

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

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms

Signal word

Danger

Hazard statements

H340 May cause genetic defects.
H350 May cause cancer.
H301 Toxic if swallowed.
H312 + H332 Harmful in contact with skin or if inhaled.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H361f Suspected of damaging fertility.
H372 Causes damage to organs (Peripheral nervous system) through prolonged or repeated exposure.

Precautionary statements

Prevention

P201 Obtain special instructions before use.

P280 Wear protective gloves.

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Restricted to professional users.

Reduced labelling (≤125 ml)

Hazard pictograms

Signal word

Danger

Hazard statements

H340 May cause genetic defects.

H350 May cause cancer.

H301 Toxic if swallowed.

H317 May cause an allergic skin reaction.

H361f Suspected of damaging fertility.

H372 Causes damage to organs (Peripheral nervous system) through prolonged or repeated exposure.

Precautionary statements

P201 Obtain special instructions before use.

P280 Wear protective gloves.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Index-No. 616-003-00-0

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

3.1 Substance

Formula	$CH_2CHCONH_2$	C_3H_5NO (Hill)
Index-No.	616-003-00-0	
EC-No.	201-173-7	
Molar mass	71,07 g/mol	

Hazardous components (REGULATION (EC) No 1272/2008)

Chemical name (Concentration)

CAS-No.	Registration number	Classification
acrylamide *(<= 100 %)*		
Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.		
79-06-1	01-2119463260-48-XXXX	Acute toxicity, Category 3, H301 Acute toxicity, Category 4, H332 Acute toxicity, Category 4, H312 Skin irritation, Category 2, H315 Eye irritation, Category 2, H319 Skin sensitisation, Category 1, H317 Germ cell mutagenicity, Category 1B, H340 Carcinogenicity, Category 1B, H350 Reproductive toxicity, Category 2, H361f Specific target organ toxicity - repeated exposure, Category 1, H372

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

3.2 Mixture

Not applicable

SECTION 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

4.2 Most important symptoms and effects, both acute and delayed

irritant effects, Allergic reactions
muscular weakness, ataxia (impaired locomotor coordination), CNS disorders, Tremors
Causes epileptic seizures.

4.3 Indication of any immediate medical attention and special treatment needed

Laxative: Sodium sulfate (1 tablespoon/1/4 l water).

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water, Foam, Carbon dioxide (CO2), Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Combustible.
Risk of dust explosion.
Vapours are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.
Fire may cause evolution of:
nitrogen oxides

5.3 Advice for firefighters

Special protective equipment for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture.

Observe label precautions.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Dry. Protected from light. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorised persons.

Recommended storage temperature see product label.

7.3 Specific end use(s)

See exposure scenario in the Annex to this MSDS.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL)

Worker DMEL, longterm	Systemic effects	inhalation	0,07 mg/m³
Worker DMEL, longterm	Systemic effects	dermal	0,1 mg/kg Body weight
Worker DMEL, acute	Local effects	inhalation	120 mg/m³
Worker DMEL, acute	Systemic effects	inhalation	120 mg/m³
Worker DMEL, acute	Systemic effects	dermal	3 mg/kg Body weight

Predicted No Effect Concentration (PNEC)

PNEC Fresh water	0,03 mg/l
PNEC Aquatic intermittent release	0,3 mg/l
PNEC Sewage treatment plant	0,2 mg/l

8.2 Exposure controls

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection

Safety glasses

Hand protection

full contact:

	Glove material:	Nitrile rubber
	Glove thickness:	0,11 mm
	Break through time:	> 480 min

splash contact:

	Glove material:	Nitrile rubber
	Glove thickness:	0,11 mm
	Break through time:	> 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).
The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.
This recommendation applies only to the product stated in the safety data sheet<(>,<)> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment
protective clothing

Respiratory protection
required when dusts are generated.
Recommended Filter type: Filter A-(P3)
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls
Do not let product enter drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	solid
Colour	colourless
Odour	odourless
Odour Threshold	Not applicable
pH	5,0 - 7,0 at 50 g/l 20 °C
Melting point	84 °C
Boiling point/boiling range	125 °C at 33,3 hPa
Flash point	138 °C
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapour pressure	0,009 hPa at 25 °C Method: OECD Test Guideline 104
Relative vapour density	2,45

Density	1,127 g/cm3 at 25 °C
Relative density	No information available.
Water solubility	2.040 g/l at 25 °C
Partition coefficient: n-octanol/water	log Pow: -0,9 (20 °C) OECD Test Guideline 117 Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	175 - 300 °C
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Ignition temperature	424 °C
Bulk density	ca.500 kg/m3

SECTION 10. Stability and reactivity

10.1 Reactivity

polymerisation initiator
highly reactive
Risk of dust explosion.
Forms explosive mixtures with air on intense heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

10.2 Chemical stability

Sensitivity to light

tendency towards spontaneous polymerisation

10.3 Possibility of hazardous reactions

Violent reactions possible with:

alkalines, Oxidizing agents, Reducing agents, Bases, Metals, Peroxides, acids

10.4 Conditions to avoid

Heating (decomposition).

10.5 Incompatible materials

no information available

10.6 Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity

LD50 Rat: 177 mg/kg

OECD Test Guideline 401

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Acute inhalation toxicity

Acute toxicity estimate: 1,6 mg/l; dust/mist

Expert judgement

Symptoms: Possible damages:, mucosal irritations

Acute dermal toxicity

LD50 Rabbit: 1.141 mg/kg

OECD Test Guideline 402

Skin irritation

Causes skin irritation.

Eye irritation

Rabbit

Result: Eye irritation

OECD Test Guideline 405

Causes serious eye irritation.

Sensitisation

Maximisation Test Guinea pig

Result: positive

Method: OECD Test Guideline 406

May cause an allergic skin reaction.

Germ cell mutagenicity

Genotoxicity in vivo

Rat

male

Result: positive

Method: OECD Test Guideline 478

Genotoxicity in vitro

Ames test

Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

Mutagenicity (mammal cell test): chromosome aberration.

Result: positive

Method: OECD Test Guideline 473

Mutagenicity (mammal cell test):
Result: negative
Method: OECD Test Guideline 476

Carcinogenicity

This information is not available.

Reproductive toxicity

This information is not available.

Teratogenicity

Did not show teratogenic effects in animal experiments.

CMR effects

Carcinogenicity:
May cause cancer.
Mutagenicity:
May cause genetic defects.
Reproductive toxicity:
Suspected of damaging fertility.

Specific target organ toxicity - single exposure

This information is not available.

Specific target organ toxicity - repeated exposure

Causes damage to organs through prolonged or repeated exposure.
Target Organs: Peripheral nervous system

Aspiration hazard

This information is not available.

11.2 Further information

Systemic effects:
After absorption:
CNS disorders, muscular weakness, Tremors, ataxia (impaired locomotor coordination), Causes epileptic seizures.
Damage to:
Liver

Other dangerous properties can not be excluded.
This substance should be handled with particular care.

SECTION 12. Ecological information

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates
flow-through test EC50 Daphnia magna (Water flea): 98 mg/l; 48 h
US-EPA

Toxicity to algae
static test IC50 Pseudokirchneriella subcapitata (green algae): 67,7 mg/l; 72 h
OECD Test Guideline 201
(50% solution)

Growth inhibition NOEC Selenastrum capricornutum (green algae): 16 mg/l
(External MSDS)

Toxicity to bacteria
EC50 Photobacterium phosphoreum: 13.500 mg/l
(IUCLID)

Toxicity to fish (Chronic toxicity)
NOEC Cyprinus carpio (Carp): 5 mg/l; 28 d

(ECHA)

12.2 Persistence and degradability

Biodegradability
100 %; 28 d; aerobic
OECD Test Guideline 301D
Readily biodegradable

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water
log Pow: -0,9 (20 °C)
OECD Test Guideline 117

Bioaccumulation is not expected.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

12.6 Other adverse effects

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

Waste treatment methods

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number	UN 2074
14.2 Proper shipping name	ACRYLAMIDE, SOLID
14.3 Class	6.1
14.4 Packing group	III
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
Tunnel restriction code	E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 UN number	UN 2074
14.2 Proper shipping name	ACRYLAMIDE, SOLID
14.3 Class	6.1
14.4 Packing group	III
14.5 Environmentally hazardous	--
14.6 Special precautions for user	no

Sea transport (IMDG)

14.1 UN number	UN 2074
14.2 Proper shipping name	ACRYLAMIDE, SOLID
14.3 Class	6.1
14.4 Packing group	III
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
EmS	F-A S-A

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

SECTION 15. Regulatory information

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

EU regulations

Major Accident Hazard	SEVESO III
Legislation	Not applicable
Occupational restrictions	Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	not regulated
Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC	not regulated
Substances of very high concern (SVHC)	This product does contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 59 above the respective regulatory concentration limit of > 0.1 % (w/w).
Contains:	acrylamide

National legislation

Storage class 6.1C

15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out according to regulation (EC) No. 1907/2006 (REACH) for this substance.

SECTION 16. Other information

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

H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H340	May cause genetic defects.
H350	May cause cancer.
H361f	Suspected of damaging fertility.
H372	Causes damage to organs through prolonged or repeated exposure.

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms

Signal word

Danger

Hazard statements

H301 Toxic if swallowed.

H312 + H332 Harmful in contact with skin or if inhaled.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.
H340 May cause genetic defects.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H372 Causes damage to organs (Peripheral nervous system) through prolonged or repeated exposure.

Precautionary statements
Prevention
P201 Obtain special instructions before use.
P280 Wear protective gloves.
Response
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Further information

Restricted to professional users.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Regional representation

This information is given on the authorised Safety Data Sheet for your country.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

EXPOSURE SCENARIO 1 (Industrial use)

1. Industrial use Chemical for synthesis)

Sectors of end-use

SU 3	Industrial uses: Uses of substances as such or in preparations at industrial sites
SU9	Manufacture of fine chemicals
SU 10	Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)

Chemical product category

PC19	Intermediate
PC21	Laboratory chemicals

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)
PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC15	Use as laboratory reagent

Environmental Release Categories

ERC2	Formulation of preparations
ERC6a	Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6c	Industrial use of monomers for manufacture of thermoplastics

2. Contributing scenarios: Operational conditions and risk management measures

2.1 Contributing scenario controlling environmental exposure for: ERC2

Amount used

Daily amount per site (Msafe)	158 kg

Environment factors not influenced by risk management

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

Other given operational conditions affecting environmental exposure

Number of emission days per year	10
Emission or Release Factor: Air	2,5 %
Emission or Release Factor: Water	2 %
Emission or Release Factor: Soil	0,01 %

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	2.000 m3/d

2.2 Contributing scenario controlling environmental exposure for: ERC6a

Amount used

Daily amount per site (Msafe)	158 kg

Environment factors not influenced by risk management

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

Other given operational conditions affecting environmental exposure

Number of emission days per year	20
Emission or Release Factor: Air	5 %
Emission or Release Factor: Water	5 %
Emission or Release Factor: Soil	0,1 %

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	Municipal sewage treatment plant
Flow rate of sewage treatment	2.000 m3/d

plant effluent

2.3 Contributing scenario controlling environmental exposure for: ERC6c

Amount used

Daily amount per site (Msafe)	63 kg

Environment factors not influenced by risk management

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

Other given operational conditions affecting environmental exposure

Number of emission days per year	20
Emission or Release Factor: Air	5 %
Emission or Release Factor: Water	5 %
Emission or Release Factor: Soil	0 %

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	2.000 m3/d

2.4 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC15

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.
Physical Form (at time of use)	Solid, high dustiness

Frequency and duration of use

Frequency of use	5 days/week
Frequency of use	8 hours/day

Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor with local exhaust ventilation (LEV)

Technical conditions and measures

Provide extraction ventilation at points where emissions occur.

Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

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

Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.

Wear respiratory protection. Effectiveness (of a measure): 95 %

2.5 Contributing scenario controlling worker exposure for: PROC8b, PROC9

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.
Physical Form (at time of use)	Solid, high dustiness

Frequency and duration of use

Frequency of use	5 days/week
Frequency of use	< 1 hours/day

Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor with local exhaust ventilation (LEV)

Technical conditions and measures

Provide extraction ventilation at points where emissions occur.

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid carrying out operation for more than 1 hour.

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Wear respiratory protection. Effectiveness (of a measure): 95 %

3. Exposure estimation and reference to its source

Environment

CS	Use descriptor	Msafe	Compartment	RCR	Exposure Assessment Method
2.1	ERC2	158 kg/day	Sewage treatment plant	1	EUSES
2.2	ERC2	158 kg/day	Sewage treatment plant	1	EUSES
2.3	ERC2	63 kg/day	Sewage treatment plant	1	EUSES

Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.4	PROC1	longterm, inhalative, systemic	0,007	ECETOC TRA, modified
		longterm, dermal, systemic	0,03	ECETOC TRA, modified
		longterm, combined, systemic	0,04	
2.4	PROC2	longterm, inhalative, systemic	0,07	ECETOC TRA, modified
		longterm, dermal, systemic	0,14	ECETOC TRA, modified
		longterm, combined, systemic	0,21	
2.4	PROC3	longterm, inhalative, systemic	0,07	ECETOC TRA, modified
		longterm, dermal, systemic	0,07	ECETOC TRA, modified
		longterm, combined, systemic	0,14	
2.4	PROC15	longterm, inhalative, systemic	0,36	ECETOC TRA, modified
		longterm, dermal, systemic	0,03	ECETOC TRA, modified
		longterm, combined, systemic	0,39	
2.5	PROC8b	longterm, inhalative, systemic	0,18	ECETOC TRA, modified
		longterm, dermal, systemic	0,69	ECETOC TRA, modified
		longterm, combined, systemic	0,86	
2.5	PROC9	longterm, inhalative, systemic	0,29	ECETOC TRA, modified
		longterm, dermal, systemic	0,69	ECETOC TRA, modified
		longterm, combined, systemic	0,97	

The default parameters and -efficiencies of the applied exposure assessment model were used for the calculation (unless stated differently).
Reduction factor for local exhaust ventilation (LEV) has been used for the calculation of dermal exposure estimates.

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

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

EXPOSURE SCENARIO 2 (Professional use)

1. Professional use Chemical for synthesis)

Sectors of end-use

SU 22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Chemical product category

PC21 Laboratory chemicals

Process categories

PROC15 Use as laboratory reagent

Environmental Release Categories

ERC2 Formulation of preparations

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

ERC6c Industrial use of monomers for manufacture of thermoplastics

2. Contributing scenarios: Operational conditions and risk management measures

2.1 Contributing scenario controlling environmental exposure for: ERC2

Amount used

Daily amount per site (Msafe)	158 kg

Environment factors not influenced by risk management

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

Other given operational conditions affecting environmental exposure

Number of emission days per year	10
Emission or Release Factor: Air	2,5 %
Emission or Release Factor: Water	2 %
Emission or Release Factor: Soil	0,01 %

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	2.000 m3/d

2.2 Contributing scenario controlling environmental exposure for: ERC6a

Amount used

Daily amount per site (Msafe)	158 kg

Environment factors not influenced by risk management

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

Other given operational conditions affecting environmental exposure

Number of emission days per year	20
Emission or Release Factor: Air	5 %
Emission or Release Factor: Water	5 %
Emission or Release Factor: Soil	0,1 %

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	2.000 m3/d

2.3 Contributing scenario controlling environmental exposure for: ERC6c

Amount used

Daily amount per site (Msafe)	63 kg

Environment factors not influenced by risk management

Flow rate	18.000 m3/d
Dilution Factor (River)	10

Dilution Factor (Coastal Areas)	100

Other given operational conditions affecting environmental exposure

Number of emission days per year	20
Emission or Release Factor: Air	5 %
Emission or Release Factor: Water	5 %
Emission or Release Factor: Soil	0 %

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	2.000 m3/d

2.4 Contributing scenario controlling worker exposure for: PROC15

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.
Physical Form (at time of use)	Solid, high dustiness

Frequency and duration of use

Frequency of use	5 days/week
Frequency of use	8 hours/day

Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor with local exhaust ventilation (LEV)

Technical conditions and measures

Provide extraction ventilation at points where emissions occur.

Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Wear respiratory protection. Effectiveness (of a measure): 95 %

3. Exposure estimation and reference to its source

Environment

CS	Use descriptor	Msafe	Compartment	RCR	Exposure Assessment Method
2.1	ERC2	158 kg/day	Sewage treatment plant	1	EUSES
2.2	ERC2	158 kg/day	Sewage treatment plant	1	EUSES
2.3	ERC2	63 kg/day	Sewage treatment plant	1	EUSES

Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.4	PROC15	longterm, inhalative, systemic	0,71	ECETOC TRA, modified
		longterm, dermal, systemic	0,07	ECETOC TRA, modified
		longterm, combined, systemic	0,78	

The default parameters and -efficiencies of the applied exposure assessment model were used for the calculation (unless stated differently).
Reduction factor for local exhaust ventilation (LEV) has been used for the calculation of dermal exposure estimates.

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

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure

Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).