

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 23.10.2019

Version 8.1

SECTION 1. Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

Catalogue No.	814637
Product name	Methanesulfonic acid (70% solution in water) for synthesis
REACH Registration Number	This product is a mixture. REACH Registration Number see section 3. This product is a mixture. REACH Registration Number see section 3.

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.
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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)**

Corrosive to metals, Category 1, H290
Acute toxicity, Category 4, Oral, H302
Acute toxicity, Category 4, Dermal, H312
Skin corrosion, Category 1B, H314
Specific target organ toxicity - single exposure, Category 3, Respiratory system, H335
For the full text of the H-Statements mentioned in this Section, see Section 16.

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Product name

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Methanesulfonic acid (70% solution in water) for synthesis

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word
Danger

Hazard statements

H290 May be corrosive to metals.
H302 + H312 Harmful if swallowed or in contact with skin.
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.

Precautionary statements

Prevention

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

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.

Reduced labelling (≤ 125 ml)

Hazard pictograms



Signal word
Danger

Hazard statements

H314 Causes severe skin burns and eye damage.

Precautionary statements

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

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.

Contains: Methanesulfonic acid

2.3 Other hazards

None known.

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SECTION 3. Composition/information on ingredients

Chemical nature

Aqueous solution

3.1 Substance

Not applicable

3.2 Mixture

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

Chemical name (Concentration)

CAS-No.	Registration number	Classification
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Methanesulfonic acid ($\geq 50\%$ - $\leq 100\%$)

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

75-75-2	01-2119491166-34-XXXX
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Corrosive to metals, Category 1, H290

Acute toxicity, Category 4, H302

Acute toxicity, Category 4, H312

Skin corrosion, Category 1B, H314

Specific target organ toxicity - single exposure, Category 3, H335

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

SECTION 4. First aid measures

4.1 Description of first aid measures

General advice

First aider needs to protect himself.

After inhalation: fresh air. Call in physician.

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

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

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed

Irritation and corrosion, Cough, Shortness of breath

Risk of serious damage to eyes.

Risk of blindness!

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media

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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.

Vapours are heavier than air and may spread along floors.

Development of hazardous combustion gases or vapours possible in the event of fire.

Fire may cause evolution of:

Sulphur 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: Do not breathe vapours, aerosols. 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 with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

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

Observe label precautions.

Observe label precautions.

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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

Requirements for storage areas and containers

No metal containers.

Storage conditions

Tightly closed.

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)

Methanesulfonic acid (75-75-2)

Worker DNEL, longterm	Local effects	inhalation	2,89 mg/m ³
Worker DNEL, longterm	Systemic effects	dermal	19,44 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	inhalation	1,44 mg/m ³
Consumer DNEL, acute	Systemic effects	inhalation	1,44 mg/m ³
Consumer DNEL, longterm	Systemic effects	dermal	8,33 mg/kg Body weight

Predicted No Effect Concentration (PNEC)

Methanesulfonic acid (75-75-2)

PNEC Fresh water	0,012 mg/l
PNEC Marine water	0,0012 mg/l
PNEC Aquatic intermittent release	0,12 mg/l
PNEC Fresh water sediment	0,0251 mg/kg
PNEC Soil	0,00183 mg/kg
PNEC Sewage treatment plant	100 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.

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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

Tightly fitting safety goggles

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 vapours/aerosols are generated.

Recommended Filter type: Filter B (acc. to DIN 3181) for inorganic gases and vapours

The entrepreneur 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.

required when vapours/aerosols are generated.

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

liquid

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Colour	colourless
Odour	No strong odour known.
Odour Threshold	No information available.
pH	No information available.
Melting point	-60 °C
Boiling point	No information available.
Flash point	No information available.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	No information available.
Relative vapour density	No information available.
Density	1,35 g/cm ³ at 20 °C
Relative density	No information available.
Water solubility	at 20 °C soluble
Partition coefficient: n-octanol/water	log Pow: -2,38 (calculated) (Lit.) Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Corrosion	May be corrosive to metals.
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SECTION 10. Stability and reactivity

10.1 Reactivity

has a corrosive effect

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Violent reactions possible with:

strong alkalis, Oxidizing agents, strong reducing agents, Amines, Hydrogen fluoride, acids

10.4 Conditions to avoid

no information available

10.5 Incompatible materials

Lead, Iron, Copper, brass, Mild steel
Metals

10.6 Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Mixture

Acute oral toxicity

LD50 Rat: 1.158 mg/kg

US-EPA

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

Acute inhalation toxicity

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Acute dermal toxicity

LD0 Rabbit: > 1.000 mg/kg

OECD Test Guideline 402

Limit Test

Acute toxicity estimate : 1.571 mg/kg

Calculation method

Skin irritation

Mixture causes burns.

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Eye irritation

Mixture causes serious eye damage. Risk of blindness!

Sensitisation

This information is not available.

Germ cell mutagenicity

This information is not available.

Carcinogenicity

This information is not available.

Reproductive toxicity

This information is not available.

Teratogenicity

This information is not available.

Specific target organ toxicity - single exposure

Mixture may cause respiratory irritation.

Target Organs: Respiratory system

Specific target organ toxicity - repeated exposure

This information is not available.

Aspiration hazard

This information is not available.

11.2 Further information

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Components

Methanesulfonic acid

Acute oral toxicity

LD50 Rat: 649 mg/kg

OECD Test Guideline 401

Acute dermal toxicity

LD50 Rabbit: > 1.000 mg/kg

OECD Test Guideline 402

Skin irritation

In vitro study

Result: Causes burns.

OECD Test Guideline 435

Eye irritation

Rabbit

Result: Causes burns.

OECD Test Guideline 405

Sensitisation

Buehler Test Guinea pig

Result: negative

Method: OECD Test Guideline 406

Repeated dose toxicity

Rat

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male and female
Inhalation
dust/mist
28 d
daily
NOAEL: 0,242 mg/l
OECD Test Guideline 412

Subacute toxicity

Germ cell mutagenicity
Genotoxicity in vivo
In vivo micronucleus test
Mouse
male and female
Oral
Result: negative
Method: OECD Test Guideline 474

Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471

In vitro mammalian cell gene mutation test
Result: negative
Method: OECD Test Guideline 476

SECTION 12. Ecological information

Mixture

12.1 Toxicity

No information available.

12.2 Persistence and degradability

Biodegradability

> 70 %

OECD Test Guideline 301A

Readily biodegradable

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: -2,38

(calculated)

(Lit.) Bioaccumulation is not expected.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Substance(s) in the mixture do(es) not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII, or a PBT/vPvB assessment was not conducted.

12.6 Other adverse effects

Additional ecological information

Biological effects:

Forms corrosive mixtures with water even if diluted.

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Further information on ecology
Discharge into the environment must be avoided.

Components

Methanesulfonic acid

Toxicity to fish

static test LC50 *Oncorhynchus mykiss* (rainbow trout): 73 mg/l; 96 h

Analytical monitoring: yes

OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

static test EC50 *Daphnia magna* (Water flea): 70 mg/l; 48 h

Analytical monitoring: yes

OECD Test Guideline 202

Toxicity to algae

static test EC50 *Pseudokirchneriella subcapitata* (green algae): 12 - 24 mg/l; 72 h

Analytical monitoring: yes

OECD Test Guideline 201

Toxicity to bacteria

static test EC50 activated sludge: > 1.000 mg/l; 0,5 h

OECD Test Guideline 209

Biodegradability

> 90 %; 28 d; aerobic

OECD Test Guideline 301A

Readily biodegradable

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

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 3265

14.2 Proper shipping name CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
(METHANESULFONIC ACID)

14.3 Class 8

14.4 Packing group II

14.5 Environmentally hazardous --

14.6 Special precautions for user yes

Tunnel restriction code E

Inland waterway transport (ADN)

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Not relevant

Air transport (IATA)

14.1 UN number	UN 3265
14.2 Proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (METHANESULFONIC ACID)
14.3 Class	8
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	no

Sea transport (IMDG)

14.1 UN number	UN 3265
14.2 Proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (METHANESULFONIC ACID)
14.3 Class	8
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
EmS	F-A S-B

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.
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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

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Substances of very high concern (SVHC)

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of $\geq 0.1\%$ (w/w).

National legislation

Storage class 8A

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16. Other information

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

H290	May be corrosive to metals.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms



Signal word

Danger

Hazard statements

H290 May be corrosive to metals.
H302 + H312 Harmful if swallowed or in contact with skin.
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.

Precautionary statements

Prevention

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

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.

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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.

Contains: Methanesulfonic acid

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.

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Product name

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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)
- PROC4* Use in batch and other process (synthesis) where opportunity for exposure arises
- PROC5* Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
- PROC8a* Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
- PROC8b* Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
- PROC9* Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
- PROC10* Roller application or brushing
- PROC15* Use as laboratory reagent

Environmental Release Categories

- ERC1* Manufacture of substances
- ERC2* Formulation of preparations
- ERC4* Industrial use of processing aids in processes and products, not becoming part of articles
- ERC6a* Industrial use resulting in manufacture of another substance (use of intermediates)
- ERC6b* Industrial use of reactive processing aids

2. Contributing scenarios: Operational conditions and risk management measures

2.1 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC15

Product characteristics

- | | |
|---|--|
| Concentration of the Substance in Mixture/Article | Covers the percentage of the substance in the product up to 100 % (unless stated differently). |
| Physical Form (at time of use) | Low volatile liquid |

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Frequency and duration of use

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

Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor without local exhaust ventilation (LEV)
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Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours. Minimise manual tasks Avoid contact with the skin and the eyes. Regular inspection and maintenance of equipment and machines Regular cleaning of equipment, work area and clothing.

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

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Wear suitable coveralls to prevent exposure to the skin.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice	In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit.
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2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b, PROC9, PROC10

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Low volatile liquid
Process Temperature	< 90 °C

Frequency and duration of use

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

Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor with enhanced general ventilation
Room size	1000 m ³

Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours. Minimise manual tasks Avoid contact with the skin and the eyes. Regular inspection and maintenance of equipment and machines Regular cleaning of equipment, work area and clothing.

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

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Wear suitable coveralls to prevent exposure to the skin.

Wear respiratory protection. Effectiveness (of a measure): 60 %

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice	In case of mist, spray or aerosol exposure wear
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advice suitable personal respiratory protection and protective suit.

3. Exposure estimation and reference to its source

Environment

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard Assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.1				Qualitative assessment used to conclude safe use.
2.2			0,99	Stoffenmanager

For (other) local effects risk management measures are based on qualitative risk characterisation.

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).

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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)

ERC6b Industrial use of reactive processing aids

2. Contributing scenarios: Operational conditions and risk management measures

2.1 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 % (unless stated differently).
Physical Form (at time of use)	Low volatile liquid

Frequency and duration of use

Frequency of use	60 minutes/day
Frequency of use	5 days/week

Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor without local exhaust ventilation (LEV)
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Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours. Minimise manual tasks Avoid contact with the skin and the eyes. Regular inspection and maintenance of equipment and machines Regular cleaning of equipment, work area and clothing.

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

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Wear suitable coveralls to prevent exposure to the skin.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice	In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit.
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3. Exposure estimation and reference to its source

Environment

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A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard Assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.1	PROC15			Qualitative assessment used to conclude safe use.

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).

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