

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 20.03.2020

Version 7.3

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

Catalogue No.	800683
Product name	Succinic anhydride for synthesis
REACH Registration Number	01-2119485841-30-XXXX
CAS-No.	108-30-5

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)

Acute toxicity, Category 4, Oral, H302
Skin corrosion, Category 1B, H314
Respiratory sensitisation, Category 1, H334
Skin sensitisation, Category 1, H317
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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Catalogue No.
Product name

800683
Succinic anhydride for synthesis

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word

Danger

Hazard statements

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

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.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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.

H317 May cause an allergic skin reaction.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary statements

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

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.

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Contains: succinic acid anhydride

Index-No. 607-103-00-5

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

3.1 Substance

Formula C₄H₄O₃ (Hill)
Index-No. 607-103-00-5
EC-No. 203-570-0
Molar mass 100,07 g/mol

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

Chemical name (Concentration)

CAS-No.	Registration number	Classification
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succinic acid anhydride (<= 100 %)

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

108-30-5	01-2119485841-30-XXXX	Acute toxicity, Category 4, H302 Skin corrosion, Category 1B, H314 Respiratory sensitisation, Category 1, H334 Skin sensitisation, Category 1, H317 Specific target organ toxicity - single exposure, Category 3, H335
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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

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.

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4.2 Most important symptoms and effects, both acute and delayed

Gastrointestinal disturbance, Nausea, Impairment of vision
Irritation and corrosion, Allergic reactions, Cough, Shortness of breath
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

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.

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

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 inhalation of dusts. 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

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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.

Work under hood. Do not inhale substance/mixture.

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. 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 DNEL, longterm	Systemic effects	inhalation	10 mg/m ³
Worker DNEL, longterm	Systemic effects	dermal	83,3 mg/kg Body weight
Worker DNEL, longterm	Local effects	inhalation	0,41 mg/m ³
Worker DNEL, acute	Systemic effects	inhalation	10 mg/m ³
Worker DNEL, acute	Systemic effects	dermal	167 mg/kg Body weight
Worker DNEL, acute	Local effects	inhalation	0,41 mg/m ³
Worker DNEL, acute	Local effects	dermal	0,04 mg/cm ²

Predicted No Effect Concentration (PNEC)

PNEC Fresh water	0,1 mg/l
PNEC Marine water	0,01 mg/l
PNEC Aquatic intermittent release	1 mg/l
PNEC Sewage treatment plant	3 mg/l

8.2 Exposure controls

Engineering measures

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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

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

Acid-resistant protective clothing

Respiratory protection

required when dusts are generated.

Recommended Filter type: Filter P 3 (acc. to DIN 3181) for solid and liquid particles of toxic and very toxic substances

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.

Environmental exposure controls

Do not let product enter drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

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Form	crystals
Colour	colourless
Odour	stinging
Odour Threshold	No information available.
pH	2,7 at 10 g/l
Melting point	116 - 120 °C
Boiling point/boiling range	261 °C at 1.013 hPa
Flash point	157 °C
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable. Flammability (solids)
Lower explosion limit	15 g/m ³
Upper explosion limit	No information available.
Vapour pressure	1,3 hPa at 92 °C 13 hPa at 128 °C
Relative vapour density	3,46
Density	1,23 g/cm ³ at 20 °C
Relative density	No information available.
Water solubility	62,9 g/l at 20 °C Method: OECD Test Guideline 105 Hydrolysis
Partition coefficient: n-octanol/water	log Pow: 2,44 (40 °C) OECD Test Guideline 117 Bioaccumulation is not expected.
Auto-ignition temperature	No information available.

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Decomposition temperature No information available.
Viscosity, dynamic No information available.
Explosive properties Not classified as explosive.
Oxidizing properties none

9.2 Other data

Ignition temperature 480 °C
Bulk density 550 - 600 kg/m³

SECTION 10. Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.
Risk of dust explosion.

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:
Bases, peroxi compounds, Amines, Alcohols, Strong oxidizing agents, acids

10.4 Conditions to avoid

Exposure to moisture
Strong heating.

10.5 Incompatible materials

no information available

10.6 Hazardous decomposition products

no information available

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity
LD50 Rat: 1.795 mg/kg
OECD Test Guideline 401

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

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Acute inhalation toxicity

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

Acute dermal toxicity

LD50 Rat: > 2.000 mg/kg
OECD Test Guideline 402

Skin irritation

In vitro study
Result: Corrosive
OECD Test Guideline 431
Causes burns.

Eye irritation

Causes serious eye damage.
Risk of blindness!

Sensitisation

Local lymph node assay (LLNA) Mouse
Result: positive
Method: OECD Test Guideline 429

May cause an allergic skin reaction.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Germ cell mutagenicity

Genotoxicity in vitro

Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471
sister chromatid exchange assay
Result: negative
Method: OECD Test Guideline 479

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

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.

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11.2 Further information

Systemic effects:

After absorption:

Gastrointestinal disturbance, Nausea, Impairment of vision

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

12.1 Toxicity

Toxicity to fish

semi-static test LC50 Danio rerio (zebra fish): > 100 mg/l; 96 h

Analytical monitoring: yes

OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

semi-static test EC50 Daphnia magna (Water flea): > 100 mg/l; 48 h

Analytical monitoring: yes

OECD Test Guideline 202

Toxicity to algae

static test ErC50 Pseudokirchneriella subcapitata (green algae): > 100 mg/l; 72 h

Analytical monitoring: yes

OECD Test Guideline 201

Toxicity to bacteria

static test EC50 activated sludge: > 300 mg/l; 3 h

OECD Test Guideline 209

12.2 Persistence and degradability

Biodegradability

> 96 %; 28 d; aerobic

OECD Test Guideline 301E

Readily biodegradable

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: 2,44 (40 °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

Additional ecological information

Biological effects:

Harmful effect due to pH shift.

Discharge into the environment must be avoided.

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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 3261
14.2 Proper shipping name CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (SUCCINIC ANHYDRIDE)
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)

Not relevant

Air transport (IATA)

14.1 UN number UN 3261
14.2 Proper shipping name CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (SUCCINIC ANHYDRIDE)
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 3261
14.2 Proper shipping name CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (SUCCINIC ANHYDRIDE)
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

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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 not regulated that deplete the ozone layer

Regulation (EC) No 850/2004 of the not regulated
European Parliament and of the Council of 29
April 2004 on persistent organic pollutants
and amending Directive 79/117/EEC

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 8B

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.

H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.

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Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms



Signal word

Danger

Hazard statements

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

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.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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: succinic acid anhydride

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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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
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

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

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9, 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) Solid, low dustiness

Frequency and duration of use

Frequency of use 5 days/week

Other operational conditions affecting workers exposure

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

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).

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Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.2	PROC1	acute, inhalative, local	0,024	ECETOC TRA
		acute, inhalative, systemic	0,001	ECETOC TRA
		acute, dermal, systemic	0,002	ECETOC TRA
		acute, combined, systemic	0,003	
		longterm, inhalative, systemic	0,001	ECETOC TRA
		longterm, dermal, systemic	0,001	ECETOC TRA
		longterm, combined, systemic	0,002	
2.2	PROC2	acute, inhalative, local	0,024	ECETOC TRA
		acute, inhalative, systemic	0,001	ECETOC TRA
		acute, dermal, systemic	0,008	ECETOC TRA
		acute, combined, systemic	0,009	
		longterm, inhalative, systemic	0,001	ECETOC TRA
		longterm, dermal, systemic	0,001	ECETOC TRA
2.2	PROC3	acute, inhalative, local	0,0244	ECETOC TRA
		acute, inhalative, systemic	0,01	ECETOC TRA
		acute, dermal, systemic	0,002	ECETOC TRA
		acute, combined, systemic	0,012	
		longterm, inhalative, systemic	0,01	ECETOC TRA
		longterm, dermal, systemic	0,004	ECETOC TRA
2.2	PROC4	acute, inhalative, local	0,061	ECETOC TRA
		acute, inhalative, systemic	0,05	ECETOC TRA
		acute, dermal, systemic	0,041	ECETOC TRA
		acute, combined, systemic	0,091	
		longterm, inhalative, systemic	0,05	ECETOC TRA
		longterm, dermal, systemic	0,082	ECETOC TRA
2.2	PROC8b	acute, inhalative, local	0,244	ECETOC TRA
		acute, inhalative, systemic	0,01	ECETOC TRA
		acute, dermal, systemic	0,041	ECETOC TRA
		acute, combined, systemic	0,051	
		longterm, inhalative, systemic	0,01	ECETOC TRA
		longterm, dermal, systemic	0,082	ECETOC TRA
2.2	PROC9	acute, inhalative, local	0,244	ECETOC TRA
		acute, inhalative, systemic	0,01	ECETOC TRA
		acute, dermal, systemic	0,041	ECETOC TRA
		acute, combined, systemic	0,051	
		longterm, inhalative, systemic	0,01	ECETOC TRA
		longterm, dermal, systemic	0,082	ECETOC TRA
2.2	PROC15	acute, inhalative, local	0,049	ECETOC TRA
		acute, inhalative, systemic	0,002	ECETOC TRA
		acute, dermal, systemic	< 0,001	ECETOC TRA
		acute, combined, systemic	0,002	

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longterm, inhalative, systemic	0,002	ECETOC TRA
longterm, dermal, systemic	< 0,001	ECETOC TRA
longterm, combined, systemic	0,002	

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.

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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

2.2 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) Solid, low dustiness

Frequency and duration of use

Frequency of use 5 days/week

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 protective gloves/ protective clothing/ eye protection/ face protection. In case of insufficient local exhaust ventilation, respiratory protection must be worn

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).

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Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.2	PROC15	acute, inhalative, local	0,049	ECETOC TRA
		acute, inhalative, systemic	0,002	ECETOC TRA
		acute, dermal, systemic	< 0,001	ECETOC TRA
		acute, combined, systemic	0,002	
		longterm, inhalative, systemic	0,002	ECETOC TRA
		longterm, dermal, systemic	< 0,001	ECETOC TRA
		longterm, combined, systemic	0,002	

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).

For scaling of worker exposure assessments performed with ECETOC TRA, please consult the Merck tool ScIDeEx® at www.merckmillipore.com/scideex.

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