

**SAFETY DATA SHEET**

according to Regulation (EC) No. 1907/2006

Revision Date 12.12.2016

Version 13.1

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

Catalogue No.	814223
Product name	Imidazole for synthesis
REACH Registration Number	01-2119485825-24-XXXX
CAS-No.	288-32-4

**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

<b>1.4 Emergency telephone number</b>	<b>Please contact the regional company representation in your country.</b>
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**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 1C, H314

Reproductive toxicity, Category 1B, H360D

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

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## 2.2 Label elements

### Labelling (REGULATION (EC) No 1272/2008)

#### *Hazard pictograms*



#### *Signal word*

Danger

#### *Hazard statements*

H360D May damage the unborn child.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

#### *Precautionary statements*

##### Prevention

P201 Obtain special instructions before use.

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

##### Response

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.

Restricted to professional users.

#### **Reduced labelling ( $\leq 125$ ml)**

#### *Hazard pictograms*



#### *Signal word*

Danger

#### *Hazard statements*

H360D May damage the unborn child.

H314 Causes severe skin burns and eye damage.

#### *Precautionary statements*

P201 Obtain special instructions before use.

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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.

*Index-No.* 613-319-00-0

### 2.3 Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

### 3.1 Substance

Formula  $C_3H_4N_2$  (Hill)  
Index-No. 613-319-00-0  
EC-No. 206-019-2  
Molar mass 68,08 g/mol

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

#### *Chemical Name (Concentration)*

CAS-No.	Registration number	Classification
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Imidazole (<= 100 % )

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

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XXXX

Acute toxicity, Category 4, H302

Skin corrosion, Category 1C, H314

Reproductive toxicity, Category 1B, H360D

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

### 3.2 Mixture

Not applicable

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## SECTION 4. First aid measures

### 4.1 Description of first aid measures

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*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.

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

**4.2 Most important symptoms and effects, both acute and delayed**

Irritation and corrosion, Cough, Shortness of breath

Risk of blindness!

**4.3 Indication of any immediate medical attention and special treatment needed**

No information available.

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**SECTION 5. Firefighting measures**

**5.1 Extinguishing media**

*Suitable extinguishing media*

Water, Carbon dioxide (CO<sub>2</sub>), Foam, 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.

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:

nitrous gases, 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.

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*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.

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**SECTION 6. Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid substance contact. Avoid inhalation of dusts. 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 empty into 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 dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

**6.4 Reference to other sections**

Indications about waste treatment see section 13.

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**SECTION 7. Handling and storage**

**7.1 Precautions for safe handling**

*Advice on safe handling*

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

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. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorised persons.

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Recommended storage temperature see product label.

### 7.3 Specific end use(s)

See exposure scenario in the Annex to this MSDS.

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## SECTION 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Derived No Effect Level (DNEL)

Worker DNEL, longterm	Systemic effects	inhalation	10,6 mg/m <sup>3</sup>
Worker DNEL, longterm	Systemic effects	dermal	1,5 mg/kg Body weight

#### Predicted No Effect Concentration (PNEC)

PNEC Fresh water	0,13 mg/l
PNEC Marine water	0,013 mg/l
PNEC Aquatic intermittent release	1,3 mg/l
PNEC Fresh water sediment	0,336 mg/kg
PNEC Marine sediment	0,0336 mg/kg
PNEC Soil	0,0425 mg/kg
PNEC Sewage treatment plant	10 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.

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*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](http://www.kcl.de)).

*Other protective equipment*

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 empty into drains.

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**SECTION 9. Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

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Form	solid
Colour	light yellow
Odour	amine-like
Odour Threshold	No information available.
pH	10,5 at 67 g/l 20 °C
Melting point	90 °C Method: OECD Test Guideline 102
Boiling point/boiling range	268 °C at 1.013 hPa (ECHA)
Flash point	145 °C Method: DIN 51758
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable. Flammability (solids)
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	0,003 hPa at 20 °C Method: OECD Test Guideline 104
Relative vapour density	No information available.



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Density	1,233 g/cm <sup>3</sup> at 20 °C Method: OECD Test Guideline 109
Relative density	No information available.
Water solubility	633 g/l at 20 °C
Partition coefficient: n-octanol/water	log Pow: -0,02 OECD Test Guideline 107 Bioaccumulation is not expected. (Lit.)
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	2,696 mPa.s at 100 °C
Explosive properties	Not classified as explosive.
Oxidizing properties	none

## 9.2 Other data

Ignition temperature	480 °C Method: DIN 51794
Bulk density	500 - 600 kg/m <sup>3</sup>
Particle size	Mean particle size ca.1 mm

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## 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.

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The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

#### 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 oxidizing agents, Acid chlorides, Acid anhydrides, acids

#### 10.4 Conditions to avoid

Strong heating.

#### 10.5 Incompatible materials

no information available

#### 10.6 Hazardous decomposition products

in the event of fire: See section 5.

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### SECTION 11. Toxicological information

#### 11.1 Information on toxicological effects

##### *Acute oral toxicity*

LD50 Rat: 970 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.

absorption

##### *Acute inhalation toxicity*

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

##### *Acute dermal toxicity*

This information is not available.

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*Skin irritation*

Rabbit

Result: Corrosive

OECD Test Guideline 404

Burns after prolonged exposure.

*Eye irritation*

Rabbit

Result: Causes serious eye damage.

OECD Test Guideline 405

Causes serious eye damage.

Risk of blindness!

*Sensitisation*

This information is not available.

*Germ cell mutagenicity*

*Genotoxicity in vivo*

In vivo micronucleus test

Mouse

male and female

Oral

Bone marrow

Result: negative

Method: OECD Test Guideline 474

*Genotoxicity in vitro*

unscheduled DNA synthesis assay

rat hepatocytes

Result: negative

Method: OECD Test Guideline 482

Ames test

Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

In vitro mammalian cell gene mutation test

Chinese hamster lung cells

Result: negative

Method: OECD Test Guideline 476

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*Carcinogenicity*

This information is not available.

*Reproductive toxicity*

This information is not available.

*Teratogenicity*

This information is not available.

*CMR effects*

Teratogenicity:

May damage the unborn child.

*Specific target organ toxicity - single exposure*

This information is not available.

*Specific target organ toxicity - repeated exposure*

This information is not available.

*Aspiration hazard*

This information is not available.

## 11.2 Further information

After absorption:

We have no description of any toxic symptoms.

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

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## SECTION 12. Ecological information

### 12.1 Toxicity

*Toxicity to fish*

LC50 *Leuciscus idus* (Golden orfe): ca. 280 mg/l; 48 h

DIN 37 412 T 15

(External MSDS)

*Toxicity to daphnia and other aquatic invertebrates*

static test EC50 *Daphnia magna* (Water flea): 341,5 mg/l; 48 h

OECD Test Guideline 202

*Toxicity to algae*

static test ErC50 *Desmodesmus subspicatus* (green algae): 133 mg/l; 72 h

DIN 38412

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*Toxicity to bacteria*

Respiration inhibition EC50 activated sludge: > 1.000 mg/l; 30 min  
OECD Test Guideline 209

**12.2 Persistence and degradability**

*Biodegradability*

90 - 100 %; 18 d; aerobic  
OECD Test Guideline 301A  
Readily biodegradable

**12.3 Bioaccumulative potential**

*Partition coefficient: n-octanol/water*

log Pow: -0,02  
OECD Test Guideline 107

Bioaccumulation is not expected. (Lit.)

**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*

When discharged properly, no impairments in the function of adapted biological wastewater treatment plants are to be expected.

Depending on the concentration, phosphorus and/or nitrogen compounds may contribute to the eutrophication of drinking- water supplies.

Discharge into the environment must be avoided.

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**SECTION 13. Disposal considerations**

*Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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**SECTION 14. Transport information**

**Land transport (ADR/RID)**

14.1 UN number	UN 3263
14.2 Proper shipping name	CORROSIVE SOLID, BASIC, ORGANIC, N.O.S. (IMIDAZOLE)
14.3 Class	8
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 3263
14.2 Proper shipping name	CORROSIVE SOLID, BASIC, ORGANIC, N.O.S. (IMIDAZOLE)
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	--
14.6 Special precautions for user	no

**Sea transport (IMDG)**

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**14.1 UN number** UN 3263  
**14.2 Proper shipping name** CORROSIVE SOLID, BASIC, ORGANIC, N.O.S.  
(IMIDAZOLE)  
**14.3 Class** 8  
**14.4 Packing group** III  
**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

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**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 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).

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*National legislation*

Storage class 6.1C

## 15.2 Chemical Safety Assessment

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

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## 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.  
H360D May damage the unborn child.

### 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.  
H360 May damage fertility or the unborn child.

#### *Precautionary statements*

##### Prevention

P201 Obtain special instructions before use.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

##### Response

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



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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](http://www.wikipedia.org).

**Regional representation**

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

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*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)

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### 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  
*SU 9* 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
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### 2. Contributing scenarios: Operational conditions and risk management measures

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**2.1 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, 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, low dustiness

**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.

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Use suitable eye protection. Wear suitable coveralls to prevent exposure to the skin.

**Additional good practice advice beyond the REACH Chemical Safety Assessment**

Additional good practice advice	Avoid contact with the skin and the eyes. Do not inhale substance/mixture.
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**2.2 Contributing scenario controlling worker exposure for: PROC10**

**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 10 %.
Physical Form (at time of use)	Solid, low dustiness

**Frequency and duration of use**

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

**Other operational conditions affecting workers exposure**

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Outdoor / Indoor

Indoor without local exhaust ventilation (LEV)

**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. Use suitable eye protection. Wear suitable coveralls to prevent exposure to the skin.

**Additional good practice advice beyond the REACH Chemical Safety Assessment**

Additional good practice advice Avoid contact with the skin and the eyes. Do not inhale substance/mixture.

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**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
2.1	PROC1	longterm, dermal, systemic	0,02	ECETOC TRA, modified
		longterm, inhalative, systemic	< 0,01	ECETOC TRA, modified
		longterm, combined, systemic	0,02	
2.1	PROC2	longterm, dermal, systemic	0,09	ECETOC TRA, modified
		longterm, inhalative, systemic	< 0,01	ECETOC TRA, modified
		longterm, combined, systemic	0,09	
2.1	PROC3	longterm, dermal, systemic	0,02	ECETOC TRA, modified
		longterm, inhalative, systemic	0,01	ECETOC TRA, modified
		longterm, combined, systemic	0,03	
2.1	PROC4	longterm, dermal, systemic	0,46	ECETOC TRA, modified
		longterm, inhalative, systemic	0,05	ECETOC TRA, modified
		longterm, combined, systemic	0,50	
2.1	PROC5	longterm, dermal, systemic	0,46	ECETOC TRA, modified
		longterm, inhalative, systemic	0,09	ECETOC TRA, modified
		longterm, combined, systemic	0,55	
2.1	PROC8a	longterm, dermal, systemic	0,91	ECETOC TRA, modified
		longterm, inhalative, systemic	0,05	ECETOC TRA, modified
		longterm, combined, systemic	0,96	
2.1	PROC8b	longterm, dermal, systemic	0,46	ECETOC TRA, modified
		longterm, inhalative, systemic	0,05	ECETOC TRA, modified
		longterm, combined, systemic	0,50	
2.1	PROC9	longterm, dermal, systemic	0,46	ECETOC TRA, modified
		longterm, inhalative, systemic	0,01	ECETOC TRA, modified
		longterm, combined, systemic	0,47	
2.1	PROC15	longterm, dermal, systemic	0,02	ECETOC TRA, modified
		longterm, inhalative, systemic	0,01	ECETOC TRA, modified
		longterm, combined, systemic	0,03	
2.2	PROC10	longterm, dermal, systemic	0,18	ECETOC TRA, modified
		longterm, inhalative, systemic	0,27	ECETOC TRA, modified
		longterm, combined, systemic	0,45	

The default parameters and -efficiencies of the applied exposure assessment model were used for the calculation (unless stated differently).

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

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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).

For scaling of worker exposure assessments performed with ECETOC TRA, please consult the Merck tool SciDeEx® at [www.merckmillipore.com/scideex](http://www.merckmillipore.com/scideex).

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**EXPOSURE SCENARIO 2 (Professional use)**

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**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

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**2. Contributing scenarios: Operational conditions and risk management measures**

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**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 %.

Physical Form (at time of use) Solid, low dustiness

**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)

**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. Use

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suitable eye protection. Wear suitable coveralls to prevent exposure to the skin.

**Additional good practice advice beyond the REACH Chemical Safety Assessment**

Additional good practice advice Avoid contact with the skin and the eyes. Do not inhale substance/mixture.

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**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	PROC15	longterm, dermal, systemic	0,02	ECETOC TRA, modified
		longterm, inhalative, systemic	0,01	ECETOC TRA, modified
		longterm, combined, systemic	0,03	

The default parameters and -efficiencies of the applied exposure assessment model were used for the calculation (unless stated differently).

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

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

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