

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 21.02.2019

Version 7.2

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

Catalogue No.	818710
Product name	Urea for synthesis
REACH Registration Number	01-2119463277-33-XXXX
CAS-No.	57-13-6

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

Identified uses	Chemical for synthesis For additional information on uses please refer to the Merck Chemicals portal (www.merckgroup.com).
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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
REGULATION (EC) No 1272/2008**

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.2 Label elements**Labelling (REGULATION (EC) No 1272/2008)**

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients**3.1 Substance**

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 818710
Product name Urea for synthesis

Formula $\text{CO}(\text{NH}_2)_2$ $\text{CH}_4\text{N}_2\text{O}$ (Hill)
EC-No. 200-315-5
Molar mass 60,06 g/mol

Remarks No disclosure requirement according to Regulation (EC) No. 1907/2006.

3.2 Mixture

Not applicable

SECTION 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air.

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

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

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed

Nausea, Vomiting, Cough, Shortness of breath

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

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

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

5.2 Special hazards arising from the substance or mixture

Not combustible.

Risk of dust explosion.

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of:

Ammonia, nitrous gases

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.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 818710
Product name Urea for synthesis

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 inhalation of dusts. 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 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.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Observe label precautions.

Hygiene measures

Change contaminated clothing. Wash hands after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Dry.

Recommended storage temperature see product label.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 818710
Product name Urea for synthesis

Derived No Effect Level (DNEL)

Worker DNEL, longterm	Systemic effects	inhalation	292 mg/m ³
Worker DNEL, longterm	Systemic effects	dermal	580 mg/kg Body weight
Worker DNEL, acute	Systemic effects	inhalation	292 mg/m ³
Worker DNEL, acute	Systemic effects	dermal	580 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	inhalation	125 mg/m ³
Consumer DNEL, longterm	Systemic effects	dermal	580 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	oral	42 mg/kg Body weight
Consumer DNEL, acute	Systemic effects	inhalation	125 mg/m ³
Consumer DNEL, acute	Systemic effects	dermal	580 mg/kg Body weight
Consumer DNEL, acute	Systemic effects	oral	42 mg/kg Body weight

Predicted No Effect Concentration (PNEC)

PNEC Fresh water 0,047 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).

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 818710
Product name Urea for synthesis

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).

Respiratory protection

required when dusts are generated.

Recommended Filter type: Filter P 1 (acc. to DIN 3181) for solid particles of inert 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

Form	solid
Colour	white
Odour	ammoniacal
Odour Threshold	Ammonia
pH	ca. 9 at 100 g/l 20 °C
Melting point	133 °C Method: DIN 53181
Boiling point/boiling range	decomposition below boiling point
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable.
Lower explosion limit	No information available.
Upper explosion limit	No information available.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 818710
Product name Urea for synthesis

Vapour pressure	< 0,1 hPa at 20 °C
Relative vapour density	No information available.
Density	1,34 g/cm ³ at 20 °C
Relative density	No information available.
Water solubility	ca.1.000 g/l at 20 °C
Partition coefficient: n-octanol/water	log Pow: -1,59 (25 °C) OECD Test Guideline 107 Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	> 132 °C
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Ignition temperature	Not applicable
Bulk density	720 - 760 kg/m ³

SECTION 10. Stability and reactivity

10.1 Reactivity

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

Exothermic reaction with:

metallic chlorides, Chlorites, chromates/perchromates, Fluorine, nitrates, strong oxidising agents, hydrogen peroxide, TITANIUM TETRACHLORIDE

Generates dangerous gases or fumes in contact with:

bases, chlorinated solvents

Risk of explosion/exothermic reaction with:

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 818710
Product name Urea for synthesis

ammonium nitrate, calcium hypochlorite, Chlorine, chromyl chloride, Nitroso compound, sodium hypochlorite, nitrosyl compounds, phosphorus pentachloride, perchlorates, nitrites, Nitro compounds

10.4 Conditions to avoid

Strong heating (decomposition).

10.5 Incompatible materials

various plastics

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: 8.471 mg/kg

(RTECS)

Symptoms: Nausea, Vomiting

Acute inhalation toxicity

This information is not available.

Acute dermal toxicity

LD50 Rat: 8.200 mg/kg

(IUCLID)

Skin irritation

Rabbit

Result: No irritation

(IUCLID)

Eye irritation

Rabbit

Result: No eye irritation

(IUCLID)

Sensitisation

Human experience

Result: negative

(IUCLID)

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Result: negative

(IUCLID)

Carcinogenicity

This information is not available.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 818710
Product name Urea for synthesis

Reproductive toxicity

This information is not available.

Teratogenicity

This information is not available.

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

Substances which occur in nature

No toxic effects are to be expected when the product is handled appropriately.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

12.1 Toxicity

Toxicity to fish

LC50 *Leuciscus idus* (Golden orfe): > 6.810 mg/l; 96 h
(IUCLID)

Toxicity to daphnia and other aquatic invertebrates

EC50 *Daphnia magna* (Water flea): > 10.000 mg/l; 24 h
(IUCLID)

Toxicity to algae

IC5 *Scenedesmus quadricauda* (Green algae): > 10.000 mg/l; 7 d
(Lit.) (maximum permissible toxic concentration)

Toxicity to bacteria

EC5 *Pseudomonas putida*: > 10.000 mg/l; 16 h
(Lit.) (maximum permissible toxic concentration)

12.2 Persistence and degradability

Biodegradability

96 %; 16 d

OECD Test Guideline 302B

Readily eliminated from water

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: -1,59 (25 °C)

OECD Test Guideline 107

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 818710
Product name Urea for synthesis

Additional ecological information
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 - 14.6 Not classified as dangerous in the meaning of transport regulations.

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

Sea transport (IMDG)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

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

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 818710
Product name Urea for synthesis

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 10 - 13

Dust explosion class St1

15.2 Chemical safety assessment

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

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

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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