

**Urea ≥99,5 %, p.a., BioScience-Grade**

article number: **2317**  
 Version: **GHS 2.0 en**  
 Replaces version of: 2016-07-12  
 Version: (GHS 1)

date of compilation: 2016-07-12  
 Revision: 2018-06-12

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

**1.1 Product identifier**

Identification of the substance	<b>Urea</b>
Article number	2317
Registration number (REACH)	01-2119463277-33-xxxx
EC number	200-315-5
CAS number	57-13-6

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

**Identified uses:** laboratory chemical

**1.3 Details of the supplier of the safety data sheet**

Carl Roth GmbH + Co KG  
 Schoemperlenstr. 3-5  
 D-76185 Karlsruhe  
 Germany

**Telephone:** +49 (0) 721 - 56 06 0

**Telefax:** +49 (0) 721 - 56 06 149

**e-mail:** [sicherheit@carlroth.de](mailto:sicherheit@carlroth.de)

**Website:** [www.carlroth.de](http://www.carlroth.de)

Competent person responsible for the safety data sheet : Department Health, Safety and Environment

**e-mail (competent person)** : [sicherheit@carlroth.de](mailto:sicherheit@carlroth.de)

**1.4 Emergency telephone number**

Emergency information service **Poison Centre Munich: +49/(0)89 19240**

## SECTION 2: Hazards identification

**2.1 Classification of the substance or mixture****Classification acc. to GHS**

This substance does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC. This substance does not meet the criteria for classification.

**2.2 Label elements****Labelling GHS**

not required

**Signal word** not required

**2.3 Other hazards**

There is no additional information.

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**SECTION 3: Composition/information on ingredients****3.1 Substances**

Name of substance	Urea
Registration number (REACH)	01-2119463277-33-xxxx
EC number	200-315-5
CAS number	57-13-6
Molecular formula	CH <sub>4</sub> N <sub>2</sub> O
Molar mass	60.06 g/mol

**SECTION 4: First aid measures****4.1 Description of first aid measures****General notes**

Take off contaminated clothing.

**Following inhalation**

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

**Following skin contact**

Rinse skin with water/shower. In all cases of doubt, or when symptoms persist, seek medical advice.

**Following eye contact**

Rinse cautiously with water for several minutes. In all cases of doubt, or when symptoms persist, seek medical advice.

**Following ingestion**

Rinse mouth. Call a doctor if you feel unwell.

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

Symptoms and effects are not known to date

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

none

**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing media**

Co-ordinate fire-fighting measures to the fire surroundings  
water spray, foam, dry extinguishing powder, carbon dioxide (CO<sub>2</sub>)

**Unsuitable extinguishing media**

water jet

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**5.2 Special hazards arising from the substance or mixture**

Combustible.

**Hazardous combustion products**In case of fire may be liberated: nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>)**5.3 Advice for firefighters**

Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures****For non-emergency personnel**

Provision of sufficient ventilation. Prevent skin contact. Control of dust. Use personal protective equipment as required.

**6.2 Environmental precautions**

Keep away from drains, surface and ground water.

**6.3 Methods and material for containment and cleaning up****Advices on how to contain a spill**

Covering of drains.

**Advices on how to clean up a spill**

Take up mechanically.

**Other information relating to spills and releases**

Place in appropriate containers for disposal. Ventilate affected area.

**6.4 Reference to other sections**

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

No special measures are necessary.

**Advice on general occupational hygiene**

Keep away from food, drink and animal feedingstuffs.

**7.2 Conditions for safe storage, including any incompatibilities**

Store in a dry place.

**Incompatible substances or mixtures**

Observe hints for combined storage.

**Consideration of other advice****• Ventilation requirements**

Use local and general ventilation.

**• Specific designs for storage rooms or vessels**

Recommended storage temperature: 15 – 25 °C.

**7.3 Specific end use(s)**

No information available.

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**SECTION 8: Exposure controls/personal protection**
**8.1 Control parameters**
**National limit values**
**Occupational exposure limit values (Workplace Exposure Limits)**

Data are not available.

**Relevant DNELs/DMELs/PNECs and other threshold levels**
**• human health values**

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	292 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	292 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	acute - systemic effects
DNEL	580 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
DNEL	580 mg/kg bw/day	human, dermal	worker (industry)	acute - systemic effects

**• environmental values**

Endpoint	Threshold level	Environmental compartment	Exposure time
PNEC	0.047 mg/l	freshwater	short-term (single instance)

**8.2 Exposure controls**
**Individual protection measures (personal protective equipment)**
**Eye/face protection**


Use safety goggle with side protection.

**Skin protection**

**• hand protection**

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374.

**• type of material**

NBR (Nitrile rubber)

**• material thickness**

&gt;0,11 mm

**• breakthrough times of the glove material**

&gt;480 minutes (permeation: level 6)

**• other protection measures**

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

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**Respiratory protection**


Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P1 (filters at least 80 % of airborne particles, colour code: White).

**Environmental exposure controls**

Keep away from drains, surface and ground water.

**SECTION 9: Physical and chemical properties**
**9.1 Information on basic physical and chemical properties**
**Appearance**

Physical state	solid (crystalline)
Colour	white
Odour	faintly perceptible like ammonia
Odour threshold	No data available

**Other physical and chemical parameters**

pH (value)	9 (100 g/l, 20 °C)
Melting point/freezing point	134 °C
Initial boiling point and boiling range	This information is not available.
Flash point	not applicable
Evaporation rate	no data available
Flammability (solid, gas)	These information are not available
<u>Explosive limits</u>	
• lower explosion limit (LEL)	this information is not available
• upper explosion limit (UEL)	this information is not available
Explosion limits of dust clouds	these information are not available
Vapour pressure	0 mmHg at 25 °C
Density	1.33 g/cm <sup>3</sup> at 20 °C
Vapour density	This information is not available.
Bulk density	750 kg/m <sup>3</sup>
Relative density	Information on this property is not available.
<u>Solubility(ies)</u>	
Water solubility	624 g/l at 20 °C
<u>Partition coefficient</u>	
n-octanol/water (log KOW)	<-1.73 (22 °C) (ECHA)
Soil organic carbon/water (log KOC)	-1.431 – -1.193 (ECHA)
Auto-ignition temperature	>134 °C

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Decomposition temperature	no data available
Viscosity	not relevant (solid matter)
Explosive properties	Shall not be classified as explosive
Oxidising properties	none

### 9.2 Other information

There is no additional information.

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

### 10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

### 10.3 Possibility of hazardous reactions

Violent reaction with: Alkalis, Chlorates, Perchlorates, Strong oxidiser, Hydrogen peroxide

### 10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

### 10.5 Incompatible materials

There is no additional information.

### 10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Shall not be classified as acutely toxic.

Exposure route	Endpoint	Value	Species	Source
oral	LD50	8,471 mg/kg	rat	TOXNET
dermal	LD50	8,200 mg/kg	rat	IUCLID

#### Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

#### Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

#### Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

#### Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

#### • Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

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**• Specific target organ toxicity - repeated exposure**

Shall not be classified as a specific target organ toxicant (repeated exposure).

**Aspiration hazard**

Shall not be classified as presenting an aspiration hazard.

**Symptoms related to the physical, chemical and toxicological characteristics****• If swallowed**

data are not available

**• If in eyes**

data are not available

**• If inhaled**

data are not available

**• If on skin**

data are not available

**Other information**

None

**SECTION 12: Ecological information****12.1 Toxicity**

acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

**Aquatic toxicity (acute)**

Endpoint	Value	Species	Source	Exposure time
LC50	>6,810 mg/l	orfe (Leuciscus idus)	IUCLID	96 h
EC50	>10,000 mg/l	aquatic invertebrates	ECHA	24 h

**Aquatic toxicity (chronic)**

Endpoint	Value	Species	Source	Exposure time
EC50	>10,000 mg/l	aquatic invertebrates	ECHA	24 h

**12.2 Process of degradability**

The substance is readily biodegradable.

Theoretical Oxygen Demand with nitrification: 1.132 mg/mg

Theoretical Oxygen Demand: 0 mg/mg

Theoretical Carbon Dioxide: 0.7328 mg/mg

Process	Degradation rate	Time
biotic/abiotic	96 %	16 d

**12.3 Bioaccumulative potential**

Does not significantly accumulate in organisms.

n-octanol/water (log KOW)

&lt;-1.73 (22 °C)

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### 12.4 Mobility in soil

The Organic Carbon normalised adsorption coefficient -1.431 -- -1.193

### 12.5 Results of PBT and vPvB assessment

Data are not available.

### 12.6 Other adverse effects

Data are not available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods



Consult the appropriate local waste disposal expert about waste disposal.

#### Sewage disposal-relevant information

Do not empty into drains.

#### Sewage disposal-relevant information

Do not empty into drains.

### 13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

### 13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

## SECTION 14: Transport information

- |             |   |  |
|-------------|---|--|
| <b>14.1</b> | UN number   | (not subject to transport regulations)                                       |
| <b>14.2</b> | UN proper shipping name   | not relevant   |
| <b>14.3</b> | Transport hazard class(es)  | not relevant   |
|             | Class   | -  |
| <b>14.4</b> | Packing group   | not relevant   |
| <b>14.5</b> | Environmental hazards   | NONE (non-environmentally hazardous acc. to the dangerous goods regulations) |
| <b>14.6</b> | <b>Special precautions for user</b>   |  |
|             | There is no additional information.   |  |
| <b>14.7</b> | <b>Transport in bulk according to Annex II of MARPOL and the IBC Code</b>             |  |
|             | The cargo is not intended to be carried in bulk.                                      |  |
| <b>14.8</b> | <b>Information for each of the UN Model Regulations</b>                               |  |
|             | • <b>Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)</b> |  |
|             | Not subject to ADR, RID and ADN.  |  |
|             | • <b>International Maritime Dangerous Goods Code (IMDG)</b>                           |  |
|             | Not subject to IMDG.  |  |



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- **International Civil Aviation Organization (ICAO-IATA/DGR)**

Not subject to ICAO-IATA.

## SECTION 15: Regulatory information

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

#### National inventories

Substance is listed in the following national inventories:

Country	National inventories	Status
AU	AICS	substance is listed
CA	DSL	substance is listed
CN	IECSC	substance is listed
EU	ECSI	substance is listed
EU	REACH Reg.	substance is listed
JP	CSCL-ENCS	substance is listed
KR	KECI	substance is listed
MX	INSQ	substance is listed
NZ	NZIoC	substance is listed
PH	PICCS	substance is listed
TR	CICR	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed

#### Legend

AICS	Australian Inventory of Chemical Substances
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
KECI	Korea Existing Chemicals Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

### 15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

## SECTION 16: Other information

### 16.1 Indication of changes (revised safety data sheet)

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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
2.1	Classification according to Regulation (EC) No 1272/2008 (CLP): This substance does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.	Classification acc. to GHS: This substance does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC. This substance does not meet the criteria for classification.	yes
8.1	Occupational exposure limit values (Workplace Exposure Limits)	Occupational exposure limit values (Workplace Exposure Limits): Data are not available.	yes
14.8		• International Civil Aviation Organization (ICAO-IATA/DGR): Not subject to ICAO-IATA.	yes

**Abbreviations and acronyms**

Abbr.	Descriptions of used abbreviations
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
vPvB	very Persistent and very Bioaccumulative

**Key literature references and sources for data**

- UN Recommendations on the Transport of Dangerous Good
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

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**List of relevant phrases (code and full text as stated in chapter 2 and 3)**

not relevant.

**Disclaimer**

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.