SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

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

1.1 Product identifiers
    Product name: Urea
    Product Number: 33247
    Brand: Sigma-Aldrich
    REACH No.: 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: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet
    Company: Sigma-Aldrich Inc.
    3050 SPRUCE ST
    ST. LOUIS MO 63103
    UNITED STATES
    Telephone: +1 314 771-5765
    Fax: +1 800 325-5052

1.4 Emergency telephone
    Emergency Phone #: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

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

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

2.3 Other hazards
    This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
SECTION 3: Composition/information on ingredients

3.1 Substances
Synonyms: Carbamide
           Carbonyldiamide

Formula: CH$_4$N$_2$O
Molecular weight: 60.06 g/mol
CAS-No.: 57-13-6
EC-No.: 200-315-5

No components need to be disclosed according to the applicable regulations.

SECTION 4: First aid measures

4.1 Description of first-aid measures

If inhaled
After inhalation: fresh air.

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

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

If swallowed
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
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO$_2$) 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
Carbon oxides
Nitrogen oxides (NO$_x$)
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
In the event of fire, wear self-contained breathing apparatus.
5.4 Further information
Suppress (knock down) gases/vapors/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. For personal protection 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
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Storage conditions
Tightly closed. Dry.

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
Ingredients with workplace control parameters

8.2 Exposure controls

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
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).
Full contact

The life science business of Merck operates as MilliporeSigma in the US and Canada.
Material: Nitrile rubber
Minimum layer thickness: 0,11 mm
Break through time: 480 min
Material tested: KCL 741 Dermatril® L

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).

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0,11 mm
Break through time: 480 min
Material tested: KCL 741 Dermatril® L

**Respiratory protection**
Required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.
Recommended Filter type: Filter type P1

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.

**Control of environmental exposure**
Do not let product enter drains.

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**SECTION 9: Physical and chemical properties**

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Appearance</td>
<td>Form: crystalline</td>
</tr>
<tr>
<td></td>
<td>Color: white</td>
</tr>
<tr>
<td>b) Odor</td>
<td>odorless</td>
</tr>
<tr>
<td>c) Odor Threshold</td>
<td>Not applicable</td>
</tr>
<tr>
<td>d) pH</td>
<td>7,5 - 9,5 at 480 g/l at 25 °C</td>
</tr>
<tr>
<td>e) Melting point/freezing point</td>
<td>Melting point/range: 132 - 135 °C</td>
</tr>
<tr>
<td>f) Initial boiling point and boiling range</td>
<td>Decomposes below the boiling point.</td>
</tr>
<tr>
<td>g) Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>h) Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>i) Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>j) Upper/lower flammability or explosive limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>
k) Vapor pressure  
< 0,1 hPa at 25 °C - Regulation (EC) No. 440/2008, Annex, A.4

l) Vapor density  
No data available

m) Density  
1,335 g/mL at 25 °C

Density  
Relative density  
1,33 at 20 °C - Regulation (EC) No. 440/2008, Annex, A.3

n) Water solubility  
624 g/l at 20 °C - Regulation (EC) No. 440/2008, Annex, A.6 - completely soluble

o) Partition coefficient:  
n-octanol/water  

p) Autoignition  
temperature  
> 134 °C - Relative self-ignition temperature for solids does not ignite

q) Decomposition  
temperature  
No data available

r) Viscosity  
Viscosity, kinematic: No data available  
Viscosity, dynamic: No data available

s) Explosive properties  
No data available

t) Oxidizing properties  
No data available

9.2 Other safety information  
Dissociation constant  
< 0,6 - OECD Test Guideline 112

SECTION 10: Stability and reactivity

10.1 Reactivity  
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  
Exothermic reaction with:  
metallic chlorides  
Chlorites  
chromates/perchromates  
Fluorine  
nitrites  
strong oxidising agents  
hydrogen peroxide  
Generates dangerous gases or fumes in contact with:  
bases  
chlorinated solvents  
Risk of explosion/exothermic reaction with:  
ammonium nitrate  
calcium hypochlorite  
Chlorine  
chromyl chloride  
Nitroso compound  
sodium hypochlorite  
nitrosyl compounds  
phosphorus pentachloride
10.4 **Conditions to avoid**
no information available

10.5 **Incompatible materials**
various plastics

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 toxicity**
LD50 Oral - Rat - 8.471 mg/kg
Remarks: (RTECS)
Symptoms: Nausea, Vomiting
Inhalation: No data available
Dermal: No data available

**Skin corrosion/irritation**
Skin - Rabbit
Result: No skin irritation - 4 h
(OECD Test Guideline 404)

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: slight irritation
(OECD Test Guideline 405)

**Respiratory or skin sensitization**
No data available

**Germ cell mutagenicity**
No data available

**Carcinogenicity**
No data available

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

11.2 **Additional Information**

RTECS: YR6250000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
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
No data available
Toxicity to algae  Ecx - Scenedesmus quadricauda (Green algae) - > 10,000 mg/l - 8 d
Remarks: (Lit.) (urea)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects
Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Product
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

14.1 UN number
ADR/RID: -  IMDG: -  IATA: -

14.2 UN proper shipping name
ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods

14.3 Transport hazard class(es)
ADR/RID: -  IMDG: -  IATA: -
14.4 **Packaging group**
ADR/RID: -  IMDG: -  IATA: -

14.5 **Environmental hazards**
ADR/RID: no  IMDG Marine pollutant: no  IATA: no

14.6 **Special precautions for user**

**Further information**
Not classified as dangerous in the meaning of transport regulations.

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**SECTION 15: Regulatory information**

15.1 **Safety, health and environmental regulations/legislation specific for the substance or mixture**
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 **Chemical Safety Assessment**
For this product a chemical safety assessment was not carried out

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**SECTION 16: Other information**

**Further information**
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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