

## MATERIAL SAFETY DATA SHEET UREA

### 1: Chemical Product Identification

Product Name: Urea  
Catalogue Codes: SLU1063, SLU1132, SLU1093, SLU1162  
CAS#: 57-13-6  
RTECS: YR6250000  
TSCA: TSCA 8(b) inventory: Urea  
CI#: Not available.  
Synonym: Carbamide  
Chemical Name: carbonyldiamide  
Chemical Formula: (NH<sub>2</sub>)<sub>2</sub>CO or CH<sub>4</sub>N<sub>2</sub>O

### 2. Composition and Information on Ingredients

Composition:

| Name | CAS #   | % by Weight |
|------|---------|-------------|
| Urea | 57-13-6 | 100         |

Toxicological Data on Ingredients: Urea: ORAL (LD50): Acute: 8471 mg/kg [Rat]. 11000 mg/kg [Mouse].

### 3: Hazards Identification

Potential Acute Health Effects: Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available.

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells.

TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, cardiovascular system. Repeated or prolonged exposure to the substance can produce target organs damage.

### 4: First Aid Measures

#### Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15minutes. Cold water may be used. Get medical attention.

#### Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

#### Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

#### Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

#### Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

## 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.  
Auto-Ignition Temperature: Not available.  
Flash Points: Not available.  
Flammable Limits: Not available.  
Products of Combustion: These products are carbon oxides (CO, CO<sub>2</sub>), nitrogen oxides (NO, NO<sub>2</sub>...).  
Fire Hazards in Presence of Various Substances: Slightly flammable to flammable in presence of heat.  
Explosion Hazards in Presence of Various Substances:  
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.  
Fire Fighting Media and Instructions:  
SMALL FIRE: Use DRY chemical powder.  
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.  
Special Remarks on Fire Hazards: Not available.  
Special Remarks on Explosion Hazards: Not available.

## 6: Accidental Release Measures

### Small Spill:

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

### Large Spill:

Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

## Section 7: Handling and Storage

### Precautions:

Keep locked up. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 23°C (73.4°F).

## 8: Exposure Controls/Personal Protection

### Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

### Personal Protection:

Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

## 9: Physical and Chemical Properties

|                                |                                                                                                      |
|--------------------------------|------------------------------------------------------------------------------------------------------|
| Physical state and appearance: | Solid. (Crystals solid.)                                                                             |
| odour:                         | Almost odourless; May gradually develop slight odour of ammonia, especially in presence of moisture. |
| Taste:                         | Cooling. Saline                                                                                      |
| Molecular Weight:              | 60.06 g/mole                                                                                         |
| Colour:                        | White.                                                                                               |
| pH (1% soln/water):            | Not available.                                                                                       |
| Boiling Point:                 | Not available.                                                                                       |
| Melting Point:                 | 132.7°C (270.9°F)                                                                                    |
| Critical Temperature:          | Not available.                                                                                       |
| Specific Gravity:              | 1.323 (Water = 1)                                                                                    |
| Vapor Pressure:                | Not applicable.                                                                                      |
| Vapor Density:                 | 2.07 (Air = 1)                                                                                       |
| Volatility:                    | Not available.                                                                                       |
| odour Threshold:               | Not available.                                                                                       |
| Water/Oil Dist. Coeff.:        | The product is more soluble in water; log(oil/water) = -2.1                                          |
| Ionicity (in Water):           | Not available.                                                                                       |
| Dispersion Properties:         | See solubility in water.                                                                             |
| Solubility:                    | Easily soluble in cold water, hot water.                                                             |

## 10: Stability and Reactivity Data

|                                                                                                                                                                                                                                                                                                                                                                             |                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Stability:                                                                                                                                                                                                                                                                                                                                                                  | The product is stable.                                       |
| Instability Temperature:                                                                                                                                                                                                                                                                                                                                                    | Not available.                                               |
| Conditions of Instability:                                                                                                                                                                                                                                                                                                                                                  | Excess heat, excess dust generation, incompatible materials. |
| Incompatibility with various substances:                                                                                                                                                                                                                                                                                                                                    | Reactive with oxidizing agents.                              |
| Corrosivity:                                                                                                                                                                                                                                                                                                                                                                | Not available.                                               |
| Special Remarks on Reactivity:                                                                                                                                                                                                                                                                                                                                              |                                                              |
| Hygroscopic. Absorbs moisture from air. Reacts violently with Gallium Perchlorate. Reacts with chlorine to form chloramines. It also reacts with the following: sodium hypochlorite, sodium nitrate, calcium hypochlorite, NaNO <sub>2</sub> , P <sub>2</sub> Cl <sub>5</sub> , nitrosyl perchlorate, strong oxidizing agents (permanganate, nitrate, dichromate, chloride) |                                                              |
| Special Remarks on Corrosivity:                                                                                                                                                                                                                                                                                                                                             | Not available.                                               |
| Polymerization:                                                                                                                                                                                                                                                                                                                                                             | Will not occur.                                              |

## 11: Toxicological Information

|                                                                                                                                                                                                 |                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| Routes of Entry:                                                                                                                                                                                | Inhalation. Ingestion.                                     |
| Toxicity to Animals:                                                                                                                                                                            | Acute oral toxicity (LD <sub>50</sub> ): 8471 mg/kg [Rat]. |
| Chronic Effects on Humans:                                                                                                                                                                      |                                                            |
| MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. May cause damage to the following organs: blood, cardiovascular system.                                                               |                                                            |
| Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant), of ingestion, of inhalation.                                                                                       |                                                            |
| Special Remarks on Toxicity to Animals: Not available.                                                                                                                                          |                                                            |
| Special Remarks on Chronic Effects on Humans:                                                                                                                                                   |                                                            |
| May cause adverse reproductive effects (fetotoxicity) and genetic material (mutagenicity) based on animal studies. Passes through the placental barrier in human and is present in breast milk. |                                                            |
| Special Remarks on other Toxic Effects on Humans:                                                                                                                                               |                                                            |
| Acute Potential Health Effects:                                                                                                                                                                 |                                                            |
| Skin: Causes skin irritation.                                                                                                                                                                   |                                                            |
| Eyes: Causes eye irritation.                                                                                                                                                                    |                                                            |

Inhalation: Causes irritation of the respiratory tract, nose, and throat, coughing and sneezing. May also affect blood, metabolism and urinary system. Ingestion: Causes digestive (gastrointestinal) tract irritation with nausea, vomiting, and diarrhoea. May affect behaviour (altered sleep time, change in motor activity), cardiovascular system (heart rate), and the brain. May also affect the blood and may cause tumorigenic effects. Chronic Potential Health Effects: Prolonged exposure may cause adverse reproductive effects. Laboratory experiments on animals have resulted in mutagenic effects. Prolonged exposure or exposure at high concentrations may cause eye damage.

## **12: Ecological Information**

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short-term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

## **13: Disposal Considerations**

Waste Disposal: Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## **14: Transport Information**

DOT Classification: Not a DOT controlled material

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

## **15: Other Regulatory Information**

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Protective Equipment:

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Splash goggles.

## **16. Other Information**

References: Not available.

Other Special Considerations: Not available.

## **EXCLUSION OF LIABILITY**

All information and instructions provided in this Material Safety Data Sheet in respect of the substance is given solely in terms of the provisions of the Occupational Health and Safety Act No 85 of 1993

and Regulations ("the Act"), is based on scientific and technical knowledge as at the date indicated on this MS Material Safety Data Sheet and is presented in good faith to be correct.

The information and instructions provided in this MSDS apply only to the substance in its present form and not to any formulation or mix, in which event it is the sole responsibility of the user of the substance as formulated and/or mixed to investigate and establish any danger which may arise out of its use, wherever such user may be situated.

It is the sole responsibility of the person in receipt of this Material Safety Data Sheet wherever such recipient may be situated, to ensure that the information provided is communicated to and understood by any person who may come in contact with the substance in any place and in any manner whatsoever. If such recipient produces formulations or mixes using the substance, then it is such recipient's sole responsibility to comply with the provisions of the Act in respect of the provision of the necessary Material Safety Data Sheet, or to comply with any other applicable legislation.