



SAFETY DATA SHEET FOR CHEMICALS  
MSDS

**TECHNICAL UREA**

REVISION DATE: 3/15/2018

**1. - IDENTIFICATION OF PRODUCT AND COMPANY**

**Product name:** Technical urea.  
**Internal Code of product identification:** 131.35.0.  
**Company name:** USIQUÍMICA DO BRASIL LTDA.  
**Address:** Rua da Lagoa, 431 - Cumbica - Guarulhos - SP.  
**Company Phone:** (11) 3821-7000 - PBX system.  
**Emergency call numbers:** SUATRANS - COTEC - Environmental Emergency. DDG  
(0800) 0111-767 - (0800) 7071-767 - 24 HOURS. 193 -  
Firefighters.

**Main recommended uses for the substance:** Used in the manufacture of fertilizers.

**2. - HAZARDS IDENTIFICATION**

**Substance classification or mixture (according to ABNT NBR 14.725-2):**

**Toxicity:** Category 5

**Pitting:** Category 5

**Irritation of skin:** Category 5

**Eye damage / irritation:** Category 4


**Respiratory sensitization:** Category 4

**Mutagenicity:** Category 4

**Systemic / target organ toxicity:** Category 4

**Aspiration:** Category 4

**Labeling elements (according to ABNT NBR 14.725-2):**

LABELING ELEMENTS	DATA
Product identification and supplier emergency phone.	<b>Commercial Name:</b> UREA(NH <sub>2</sub> ) <sub>2</sub> CO. <b>Synonym:</b> CARBAMIDE (NH <sub>2</sub> ) <sub>2</sub> CO. Emergency call number: SUATRANS - COTEC - Environmental Emergency. DDG (0800) 0111-767 - (0800) 7071-767 - 24 hours
Chemical composition.	Total Nitrogen: 46.1- 46.4% (Minimum, N. 46%). Water: 0.10 - 0.40% (Maximum: 0.5%). Biuret: 0.80 - 1.40% (Maximum: 1.5%). Free Ammonia: 72.0- 129.6 ppm (Maximum 275 ppm).
Hazard pictogram.	
Warning words.	<b>ATTENTION</b>
Hazard phrase.	Cause eye irritation. Cause irritation moderate to the skin. It can cause genetic defects.
Caution Phrases.	Keep out of the reach of children and pets. Avoid to contact with skin and eye. Do not use or store near heat or flame. Do not store or transport with hypochlorite's or strong oxidizing agents. Never aspire dust from the product.
	The Safety Data Sheet for Chemical (MSDS) of this



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Other information.	Chemicals can be requested via telephone (11) 3821-7000 / (11) 24813355 or by e-mail: <a href="mailto:laboratorio@usquimica.com.br">laboratorio@usquimica.com.br</a>
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**Other hazards which do not result in classification:** No other hazards occur.

### 3.- COMPOSITION AND INFORMATION ON THE INGREDIENTS:

**Substance:** Urea -  $(\text{NH}_2)_2\text{CO}$ .

**Common chemical name or generic name:** Urea $(\text{NH}_2)_2\text{CO}$ .

**Synonym:** Carbamide, carbonyl diamide.

**Chemical Abstract Service (CAS No.):** 57-13-6.

**Impurities that contribute to the hazard:** Free Ammonia - 72.0-129.6 ppm (maximum 275 ppm) - CAS: 7664-41-7.

### 4- FIRST AID MEASURES

**Inhalation:** Remove the victim to an uncontaminated and ventilated area. If you are breathing hard, administering oxygen. Apply resuscitation maneuvers in case of cardiorespiratory arrest. Immediately forward to the nearest hospital.

**Skin contact:** Remove clothing contaminated by the product. Wash the victim's mouth with plenty of water. If irritation persists, seek to physician.

**Eye contact:** Wash at once the eyes under running water for 15 minutes, lifting the eyelids to allow maximum product removal. Refer to the physician.

**Ingestion:** Do not induce vomiting. If vomiting occurs spontaneously, the victim shall be lying on his side to prevent pulmonary aspiration. If the victim does not have seizures, give him or her 0.5 to 1L of water to dilute the material. Refer to the physician.

### 5. - FIRE FIGHTING MEASURES

**Extinguishing measures appropriate:** Urea is not a fire hazard; however, it can burn. In this case, use sprayable water, alcohol-resistant foam, dry chemical or carbon dioxide.

**Small fire:** Use dry chemical powder.

**Great fire:** Use water spray or alcohol-resistant foam.

Avoid to application of excess water, as there may be contamination of the watercourse.

**Not recommended extinguishing measures:** Do not use water jets.

**Special methods to fight the fire:** Not found.

Protection of people involved in fighting the fire: Using protective clothing and self-contained breathing apparatus or air mask if necessary.

**Specific hazards of chemical combustion:** Reaction with nitrates presents the risk of fire and explosion. Urea is not a fuel, but it decomposes at temperatures above 133 °C to form toxic vapors.

### 6. - MEASURES OF CONTROL FOR SPILL OR LEAK

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

Removal ignition sources: Keep the product away from sources of heat and ignition.

Urea it presents a of decomposition risk when exposed to heat or flame.

Prevention of inhalation and contact with skin, mucous membranes and eyes: See Section 8, field "Appropriate Protective Equipment".

**For the staff that is not part of the emergency services**

Prevention of inhalation and contact with skin, mucous membranes and eyes: See Section 8, field "Appropriate Protective Equipment".

**For the staff of the emergency department**

Prevention of inhalation and contact with skin, mucous membranes and eyes: See Section 8, "Appropriate Protective Equipment" field.

**Precautions to the environment**

In case of spill, the product must be collected, as the contact in high concentration will cause damage to the vegetation. Report the fact immediately to the environmental control body in the region. Falling into streams or rivers must be avoided, as it may render them unfit for human and animal consumption.

**Methods and materials for a containment and cleanliness**



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- a) Neutralization techniques: Not applicable.
- b) Decontamination techniques: Not applicable.
- c) Absorbent materials: Not applicable.
- d) Cleaning techniques: Collect spilled product, avoiding the formation of dust.
- e) Aspiration cleaning: Not applicable.
- f) Equipment and tools: Hoes, shovels, brooms and backhoe.

### **7. - HANDLING AND STORAGE**

**Precaution for handling:** Ensure sufficient ventilation or exhaust at the site to control ambient concentration at low levels. Always use personal protective equipment (section 8).

**Appropriate technical measures:** If handling and storage operations generate dust or mist, use forced ventilation to keep the contaminant below the exposure limit.

**Prevention of worker's exposure:** Submit the entire o system to periodic maintenance control. Keep a staff permanently trained.

**Remediation of fire and explosion:** Keep the product away from heat and flames.

**Precautions and guidelines for safe handling, including any incompatibilities:** To reduce the possibility of a health risk , ensure diluting sufficient ventilation or exhaustion in place to control the ambient concentration at low levels. Always use personal protective equipment

**Hygiene measures appropriate:** Never eat, drink or smoke in the work area. Wash the hands after handling the product and change the clothes before entering the dining area.

**Storage:** Store the product in a fresh well-ventilated area, away from heat , sparking and flames. Do not mix or store ammonium nitrate with urea, as they will react to produce a paste.

**Packaging Materials:** The product is sold in bulk or packed.

**Recommended:** Always use specified material, compatible with the product.

**Inadequate:** Avoid to use incompatible material. See Section 10.

### **8. - EXPOSURE CONTROLS AND INDIVIDUAL PROTECTION**

**Parameters of specific control:**

**Occupational exposure limits:**

For urea: AIHA WEEL: 10 mg / m<sup>3</sup> (8 am, TWA).

**Biological indicators:** Not found.

**Measures of engineering control:** Handling the product in a location with good natural or mechanical ventilation, in order to keep the concentration of vapors / dust below the tolerance limit. Promote mechanical ventilation and a direct exhaust system to the outside environment. These measures help to reduce product exposure. It is recommended to make emergency showers and eye washers available in the work area. Engineering control measures are the most effective in reducing product exposure.

**Appropriate protective equipment:**

**Eyes/face protection:** Using dusts glasses when there is a risk of eye contact.

**Skin/body protection:** Using cotton gloves and protective clothing.

**Respiratory protection:** Using a dust / mist mask PFF-2 where ventilation is inadequate. In case of emergency, use a mask with air supply.

**Note:** Avoid to repeated contact without the recommended protective equipment.

### **9. - PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance:** Crystalline solid in the form of pearls at 20°C and 101 kPa.

**Color:** White.

**Odor:** Odorless or a slight ammonia odor.

**pH:** 7.2 (10% in water).

**Melting point / freezing point:** 132.7 °C (literature data).

**Boiling point:** 135°C (decomposition).

**Flash point:** Not applicable.

**Evaporation rate:** Not applicable.

**Flammability:** Non-flammable.

**Upper / lower explosive or flammable limits:** Not applicable.

**Vapor pressure:** 80 Pa (0.6 mmHg) at 20°C CAL.



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**Vapor density:** Not applicable.  
**Free density:** 1.34 g/cm<sup>3</sup>.  
**Apparently density:** 730 kg/m<sup>3</sup>.  
**Solubility (water):** 78 g / 100 ml (5°C); 119.3 g / 100 mL (25°C).  
**Solubility (ethanol):** 72 g/1000 mL (30 °C).  
**Octanol / water partition coefficient:** log -1.59 to 20-25°C experimental.  
**Autoignition temperature:** Not applicable.  
**Decomposition temperature:** 142 °C.  
**Viscosity:** 1.78 mPa.s (46% solution) at 20°C.  
1.81 mPa.s (46% solution) at 137 °C.  
1.90 mPa.s (saturated solution) at 20°C.  
**Molecular weight:** 60.06 g/mol.

### 10. - STABILITY AND REACTIVITY

**Chemical stability:** Product is stable under normal condition. In the presence of heat, it becomes unstable, decomposing. It does not polymerize.

**Reactivity:** Urea reacts violently with gallium perchlorate. Reacts with chlorine to form chloramines. Urea also reacts with sodium hypochlorite, sodium nitrate, calcium hypochlorite, sodium nitrite, strong oxidizing agents (permanganate, nitrate, dichromate, chloride).

**Possibility of hazardous reactions:** Contact with hypochlorite's and gallium perchlorate can cause a violent reaction.

**Conditions to be avoided:** Do not mix with other chemicals without the guidance of a qualified professional.

**Materials or incompatible substances:** Urea can be slightly corrosive to steel, aluminum, zinc and copper.

**Hazardous decomposition products:** Urea decomposes under heat and can form products such as: ammonia, nitrogen oxides, cyanuric acid, cyanic acid, biuret and carbon dioxide.

### 11. - TOXICOLOGICAL INFORMATION

**Acute Toxicity:** It causes irritation in the digestive tract with nausea, vomiting and diarrhea. The substance can be toxic to the blood and the cardiovascular system. It can affect the individual's behavior.

**Corrosion/irritation of skin:** Cause skin irritation.

**Severe ocular lesions/eye irritation:** cause eye irritation.

**Respiratory or skin sensitization:** It causes irritation to the respiratory tract, nose, throat, can cause coughing and sneezing.

**Germ cell mutagenicity:** Laboratory experiments on animals have shown mutagenic effects.

**Carcinogenicity:** It has no carcinogenic effect, according to the International Agency for Research in Cancer - IARC.

**Reproductive toxicity:** Prolonged exposure can cause adverse effects to reproduction.

**Toxicity to organs - specific targets - single exposure:** Irritation of the eyes.

**Toxicity to organs - specific targets - repetitive exposure:** Repeated exposure can cause irritation to the respiratory tract.

**Aspiration hazard:** Repeated exposure can cause irritation to the respiratory tract.

**Other information:**

LD<sub>50</sub> (oral, rat): 14300-15000 mg/kg.

LD<sub>50</sub> (oral, rat): 11500-13000 mg/kg.

DL<sub>50</sub> (cutaneous, rat): 8,200 mg/kg.

**Chronic toxicity:** Potential chronic health effects: Prolonged exposure or high concentrations can damage the eyes. Not teratogenic.

NOAEL (oral, rat): 6750 mg/kg.

NOAEL (oral, rat): 2250 mg/kg.

### 12. - ECOLOGICAL INFORMATION

**Environmental effects, behaviors and impacts of the product:** In case of spill, the product must be collected. High concentration contact with vegetation will cause damage to it. Falling the product into streams and rivers must be avoided, as it may render them unfit for human and animal consumption. In this case, report the fact immediately to the environmental control body in the region.

**Ecotoxicity:** Slightly toxic to human and animal life.

CL<sub>50</sub> (fish, 96 hr): > 9.100 mg/L.

CE<sub>50</sub> (daphnia, 24 hr): > 10.000 mg/L. Do not contaminate water sources with urea.



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**Persistence and degradability:** Substantially biodegradable in soil and water. Urea is biodegraded at a rate of 93-98% in a 24-hour cycle.

**Bio accumulative potential:** Low potential for bioaccumulation. log Pow <1.

**Mobility in soil:** Urea is soluble in water. Values not found.

**Other adverse effects:** Dissolved in water, urea takes the form of a corrosive solution.

### 13. - CONSIDERATION ON THE FINAL DISPOSAL

#### **Recommended methods for final destination:**

The treatment and disposal of product wastes must be carried out in an appropriate environment, by people trained with the use of special equipment and the recommended PPE's to avoid contact with the product, its vapors or mists. Leaks must be contained and collected for later disposal after neutralization.

#### **Product:**

Ensure that all Federal, State and local agencies receive appropriate notices of spills and disposal methods. CONAMA Resolution 005/1993, Law No. 12,305, of as August 2, 2010 (National Policy on Solid Waste).

#### **Waste of products:**

Please consult environmental regulatory agencies for counselling on the acceptable disposal practices. Please contact the relevant local authorities. It can be incinerated when in compliance with local regulations. Or dispose of at an approved chemical waste landfill.

#### **- Used Package:**

Empty packages must be drained and covered before handling and transport operations. If the packaging is not conveniently washed and decontaminated, it is considered to contain product.

### 14. - TRANSPORT INFORMATION

#### **National and International Regulations**

##### **Land:**

Resolution No. 5232 of as December 14, 2016 of the National Land Transportation Agency (ANTT), *Approves the Complementary Instructions to the Regulation of Land Transportation of Dangerous Products and its amendments.*

##### **Waterway:**

DPC - Directorate of Ports and Coasts (Transport in Brazilian waters) Maritime Authority Standards (NORMAM) NORMAM 01 / DPC: Vessels Employed in Open Sea Navigation

##### **Air:**

ANAC - Civil Aviation National Agency - Resolution No. 129 of as 8 January, 2009

RBAC No. 175 - (BRAZILIAN CIVIL AVIATION REGULATION) - TRANSPORT OF DANGEROUS MATERIALS IN CIVIL AIRCRAFT

IS No. 175-001 - SUPPLEMENTARY INSTRUCTION - IS

ICAO - "International Civil Aviation Organization" - Doc 9284-NA / 905

IATA - "International Air Transport Association" Dangerous Goods Regulation (DGR)

#### **ONU number:**

Not classified as dangerous for transport in different modes.

### 15. - INFORMATION ON THE REGULATIONS

#### **Specific regulations for the chemicals:**

Federal Decree No. 2,657 of as July 3, 1998;

Standard ABNT-NBR 14725:2014;

Ordinance No. 229, of as May 24, 2011 - Amends Regulatory Standard No. 26.

### 16. - OTHER INFORMATION

The information in this sheet corresponds to the current status of our knowledge and our product experience and is not exhaustive. Applies to the product under the conditions specified, unless mention otherwise. In case of combinations or mixtures, make sure that no new hazards can appear. This information does not exempt, in any case, the user of the product from respecting the all legislative, regulatory and administrative texts related to the product, safety, hygiene and protection of human and environmental health.



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