

## Urea, granule

### Safety Data sheet

#### SECTION1:IDENTIFICATION

**Product name:** Urea, granule

**Formula:**  $\text{NH}_2\text{CONH}_2$

**Synonyms:** Carbamide, Carbonyl Diamine, Carbonyl Diamine

**Intended Use of the product:** Fertilizer, manufacturing of specialty fertilizer .production of specialty pollution control solutions.

Name ,address ,and Telephone of the Responsible party

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#### SECTION2:COMPOSITION /INFORMATION ON INGREDIENTS

**Trade name:** Urea

Component	Chemical Formula	Unit	Content
Urea	$\text{CH}_4\text{N}_2\text{O}$	w/w%	Balance
Biuret	$\text{C}_2\text{H}_5\text{N}_3\text{O}_2$	w/w%	Max. 0.8
Moisture	$\text{H}_2\text{O}$	w/w%	Max. 0.3
Formaldehyde	$\text{CH}_2\text{O}$	w/w%	Max. 0.3
Free Ammonia	$\text{NH}_3$	ppm	Max. 50
Nickel	Ni	ppm	Max. 2

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### **Description of First Aid Measures**

**General:** Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

**Inhalation:** When symptoms occur: go into open air and ventilate suspected area. Call a POISON CENTER/doctor/physician if you feel unwell.

**Skin Contact:** Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists. Wash contaminated clothing before reuse.

**Eye Contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persist.

**Ingestion:** Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

### **Most Important Symptoms and Effects Both Acute and Delayed**

**General:** None expected under normal conditions of use.

**Inhalation:** May cause irritation to the respiratory tract.

**Skin Contact:** May cause mild skin irritation.

**Eye Contact:** May cause slight irritation to eyes.

**Ingestion:** Ingestion is likely to be harmful or have adverse effects.

**Chronic Symptoms:** None expected under normal conditions of use.

### **Indication of Any Immediate Medical Attention and Special Treatment Needed**

If exposed or concerned, get medical advice and attention.

## **SECTION 3: Description of First Aid Measures**

### **Extinguishing Media**

**Suitable Extinguishing Media:** Use water to extinguish a fire, if water is compatible with the burning material.

**Unsuitable Extinguishing Media:** Do not use a heavy water stream. Use of heavy stream of water may spread fire.

### **Special Hazards Arising From the Substance or Mixture**

**Fire Hazard:** Product is not flammable.

**Explosion Hazard:** Explosive on contact with halogens such as chlorine.

**Reactivity:** Hazardous reactions are unlikely to occur under normal circumstances

### **Advice for Firefighters**

**Precautionary Measures Fire:** Exercise caution when fighting any chemical fire. Under fire conditions, hazardous fumes will be present.

**Firefighting Instructions:** Stop leak if safe to do so. Avoid inhalation of material or combustion by-products.

**Protection During Firefighting:** Do not enter fire area without proper protective equipment, including respiratory protection.

**Hazardous Combustion Products:** Nitrogen oxides. Ammonia. Carbon oxides (CO, CO<sub>2</sub>). Cyanuric acid.

## **SECTION 4: ACCIDENTAL RELEASE MEASURES**

### **Personal Precautions, Protective Equipment and Emergency Procedures**

**General Measures:** Keep away from open flames, hot surfaces and sources of ignition. No smoking. Avoid all unnecessary exposure. Do not breathe vapor, mist or spray.

### **For Non-Emergency Personnel**

**Protective Equipment:** Use appropriate personal protection equipment (PPE).

**Emergency Procedures:** Evacuate unnecessary personnel. Eliminate ignition sources.

### **For Emergency Personnel**

**Protective Equipment:** Equip cleanup crew with proper protection.

**Emergency Procedures:** Stop leak if safe to do so. Ventilate area.

### **Environmental Precautions**

Prevent entry to sewers and public waters.

### **Methods and Material for Containment and Cleaning Up**

**For Containment:** Absorb and/or contain spill with inert material, then place in suitable container. Beware of slippery floors during spills.



**Methods for Cleaning Up:** Clean up spills immediately and dispose of waste safely. Notify authorities if product enters sewers or public waters.

## **SECTION 5: HANDLING AND STORAGE**

### **Precautions for Safe Handling**

**Additional Hazards When Processed:** Any proposed use of this product in elevated-temperature processes should be thoroughly evaluated to assure that safe operating conditions are established and maintained. When heated, urea releases ammonia and when heated to decomposition it emits toxic fumes of nitrogen oxides (NO<sub>x</sub>), ammonia.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Wash contaminated clothing before reuse.

### **Conditions for Safe Storage, Including Any Incompatibilities**

**Technical Measures:** Comply with applicable regulations.

**Storage Conditions:** Store in a dry, cool, and well-ventilated place. Protect from moisture.

**Incompatible Materials:** Strong acids. Strong bases. Strong oxidizers. Hypochlorites. Nitric acid. Halogens. Sodium nitrite, phosphorus pentachloride, and nitrosyl or gallium perchlorate. Urea will form urea nitrate when mixed with nitric acid at low pH.

### **Specific End Use(s)**

Fertilizer, manufacturing of specialty fertilizers. Production of specialty pollution control solutions.

## **SECTION 6: EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **Control Parameters**

No additional information available.

### **Exposure Controls**

**Appropriate Engineering Controls:** Gas detectors should be used when toxic gases may be released. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate ventilation. Ensure all national/local regulations are observed.

**Personal Protective Equipment:** Not generally required. The use of personal protective equipment may be necessary as conditions warrant.

**Materials for Protective Clothing:** Chemically resistant fabrics and materials.

**Hand Protection:** Wear chemically resistant protective gloves.

**Eye Protection:** Chemical goggles or safety glasses.

**Skin and Body Protection:** Wear suitable protective clothing.

**Respiratory Protection:** If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. requirements must be followed whenever workplace conditions warrant respirator use.

**Environmental Exposure Controls:** Avoid release to the environment.

**Other Information:** When using, do not eat, drink, or smoke.

## SECTION 7: STABILITY AND REACTIVITY

**Reactivity:** Hazardous reactions are unlikely to occur under normal circumstances.

**Chemical Stability:** Stable under normal conditions.

**Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.

**Conditions to Avoid:** Extremely high temperatures. Open flame. Heat. Sparks.

**Incompatible Materials:** Strong acids. Strong bases. Strong oxidizers. Halogens. Hypochlorites. Nitric acid. Sodium nitrite, phosphorus pentachloride, and nitrosyl or gallium perchlorate. Urea will form urea nitrate when mixed with nitric acid at low pH.

**Hazardous Decomposition Products:** Nitrogen oxides. Ammonia. Carbon oxides (CO, CO<sub>2</sub>). Cyanuric acid.

## SECTION 8: DISPOSAL CONSIDERATIONS

### Waste treatment methods

**Sewage Disposal Recommendations:** Do not empty into drains; dispose of this material and its container in a safe way.

**Waste Disposal Recommendations:** Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.



## SECTION 9: TRANSPORT INFORMATION

To preserve product integrity, store at 25C, excursions permitted between 15C and 30C. Store in a tightly closed container. Protect container from physical damage. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product

## SECTION 10: PHYSICAL AND CHEMICAL PROPERTIES

General information:	Urea, Granular Urea
Appearance (at 20°C):	White crystals
Colour:	white
Odour:	Ammonia-like
pH:	7.2 (10% solution at 20°C)
Melting point/range (°C):	132°C - 135°C
Flammability:	Not flammable
Auto-ignition temperature:	Not applicable
Explosive properties:	Uncontaminated urea is not an explosion hazard
Oxidising properties:	None
Vapour pressure (at 20°C):	Negligible , urea is not a volatile solid
Density (at 20°C):	1.33 g/cm <sup>3</sup>
Bulk density:	700-780 kg/m <sup>3</sup>
Solubility (at 20°C):	water solubility: 67 gm/100 gm H <sub>2</sub> O @ 0 °C
solubility in fats:	not soluble

## SECTION 11: STABILITY AND REACTIVITY

Stability:	The product is stable
Conditions to avoid:	Excess heat, excess dust generation, incompatible materials
Material to avoid:	Reactive with oxidizing agents such as Calcium hypo chloride and sodium hypo chloride
Hazardous decomposition products:	Urea decomposes upon heating and can form products including ammonia, oxides of nitrogen, cyanuric acid, cyanic acid, biuret, carbon dioxide

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