

## Magruder 250911

### Granular Urea 46-0-0

Results due October 15, 2025

**Important Note:** Because of the nature of urea, this sample has not been ground in preparation for distribution. Prepare it as you would for any normal sample received in your laboratory.

Total Nitrogen (N)..... 46.0 %  
*Derived from Ammonia and Carbon Dioxide*

Also analyze for:  
Water (Free), typical wt % 0.1 - 0.4  
Biuret, typical wt % 0.85 - 1.5

*The units above are those required for reporting data from this Magruder sample.  
They may not be the units required on a commercial fertilizer label.*

*Note: This Magruder Check Sample material is not to be used in the manufacture of products nor applied to any crops or for other fertilizer uses. It is intended for analytical testing purposes only.*

**SDS for this product can be found at:**

<https://www.magruderchecksample.org/SDS/250911GuarSDS.pdf>

# SDS for Magruder 250911

## SECTION 1: IDENTIFICATION

### 1.1. Product Identifier

**Product Name:** Urea, granular

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

**Synonyms:** Carbamide, Carbonyldiamine, Carbonyl diamide

**STCC:** 2818170

**REACH Registration Number:** 01-2119463277-33-0135

### 1.2. Intended Use of the Product

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

### 1.3. Name, Address, and Telephone of the Responsible Party

#### Company

CF Industries

2375 Waterview Drive

Northbrook, Illinois, USA

847-405-2400

[www.cfindustries.com](http://www.cfindustries.com)

### 1.4. Emergency Telephone Number

**Emergency** : 800-424-9300

**Number** For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC – Day or Night

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the Substance or Mixture

**Classification (GHS-US) and EC 1272/2008**

Not classified as hazardous.

### 2.2. Label Elements

No labeling applicable

### 2.3. Other Hazards

Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

### 2.4. Unknown Acute Toxicity (GHS-US) No data available

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substances

Not applicable

### 3.2. Mixture

Name	Product Identifier	% (w/w)	Classification (GHS-US)
Urea	(CAS No) 57-13-6	95.4 - 97.6	Not classified

Full text of H-phrases: see section 16

## SECTION 4: FIRST AID MEASURES

### 4.1. 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.

### 4.2. 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.

**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.

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

If exposed or concerned, get medical advice and attention.

### **SECTION 5: FIRE-FIGHTING MEASURES**

#### **5.1. 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.

#### **5.2. 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.

#### **5.3. 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.

#### **Reference to Other Sections**

Refer to section 9 for flammability properties.

### **SECTION 6: ACCIDENTAL RELEASE MEASURES**

#### **6.1. 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.

##### **6.1.1. For Non-Emergency Personnel**

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

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

##### **6.1.2. For Emergency Personnel**

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

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

#### **6.2. Environmental Precautions**

Prevent entry to sewers and public waters.

#### **6.3. 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.

#### **6.4. Reference to Other Sections**

See heading 8, Exposure Controls and Personal Protection. See Section 13, Disposal Considerations.

### **SECTION 7: HANDLING AND STORAGE**

#### **7.1. 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.

#### **7.2. 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.

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

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

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control Parameters

No additional information available.

### 8.2. 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. A respiratory protection program that meets OSHA 29 CFR 1910.134, ANSI Z88.2-1992 or MSHA 30 CFR 72.710 (where applicable) 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 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: White granules
Odor	: Odorless or slight ammonia odor
Odor Threshold	: Not available
pH	: 7.2 (10% water solution)
Evaporation Rate	: Not available
Molecular Weight	: 60.06
Melting Point	: Decomposes at 270.8 °F (132.7 °C)
Freezing Point	: Not available
Boiling Point	: Not available
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: 270.8 °F (132.7 °C)
Flammability (solid, gas)	: Not available
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not available
Relative Vapor Density at 20 °C	: Not available
Relative Density	: Not available
Specific gravity / density	: 48 to 52 lbs/ft <sup>3</sup>
Specific Gravity	: Not available
Solubility	: Water: 119 g at 77°F (25°C)
Partition Coefficient: N-Octanol/Water	: 0.026
Viscosity	: 1.78 mPas (46% solution) at 68°F (20°C)
Explosion Data – Sensitivity to Mechanical Impact	: Not expected to present an explosion hazard due to mechanical impact.
Explosion Data – Sensitivity to Static Discharge	: Not expected to present an explosion hazard due to static discharge.

## SECTION 10: STABILITY AND REACTIVITY

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

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

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

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

**10.5. 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.

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

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on Toxicological Effects - Product

**Acute Toxicity:** Not classified

**LD50 and LC50 Data:** Not available

**Skin Corrosion/Irritation:** Not classified

**pH:** 7.2 (10% water solution)

**Serious Eye Damage/Irritation:** Not classified

**pH:** 7.2 (10% water solution)

**Respiratory or Skin Sensitization:** Not classified

**Germ Cell Mutagenicity:** Not classified

**Teratogenicity:** Not classified

**Carcinogenicity:** Not classified

**Specific Target Organ Toxicity (Repeated Exposure):** Not classified

**Reproductive Toxicity:** Not classified

**Specific Target Organ Toxicity (Single Exposure):** Not classified

**Aspiration Hazard:** Not classified

**Symptoms/Injuries After Inhalation:** May cause irritation to the respiratory tract.

**Symptoms/Injuries After Skin Contact:** May cause mild skin irritation.

**Symptoms/Injuries After Eye Contact:** May cause slight irritation to eyes.

**Symptoms/Injuries After Ingestion:** Ingestion is likely to be harmful or have adverse effects.

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

### 11.2. Information on Toxicological Effects - Ingredient(s)

**LD50 and LC50 Data:**

Urea (57-13-6)	
LD50 Oral Rat	8471 mg/kg

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

**Ecology - Water:** As a readily available source of nitrogen, urea can also foster excessive growth of algae or microorganisms in water systems.

Urea (57-13-6)	
LC50 Fish 1	16200 - 18300 mg/l (Exposure time: 96 h - Species: Poecilia reticulata)
EC50 Daphnia 1	3910 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

### 12.2. Persistence and Degradability

Urea, granular	
Persistence and Degradability	Not established.

### 12.3. Bioaccumulative Potential

Urea, granular	
Bioaccumulative Potential	Not established.

Urea (57-13-6)	
BCF Fish 1	< 10
Log Pow	-1.59 (at 25 °C)

**12.4. Mobility in Soil** Not available

### 12.5. Other Adverse Effects

**Other Information:** Avoid release to the environment.

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. 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 14: TRANSPORT INFORMATION

- |                               |                             |
|-------------------------------|-----------------------------|
| 14.1. In Accordance with DOT  | Not regulated for transport |
| 14.2. In Accordance with IMDG | Not regulated for transport |
| 14.3. In Accordance with IATA | Not regulated for transport |
| 14.4. In Accordance with TDG  | Not regulated for transport |

SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Urea (57-13-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.1.1 EU Regulation

No REACH Annex XVII restrictions – not applicable

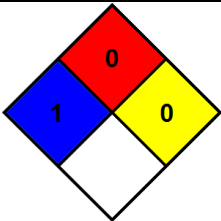
SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date : 4 June 2024  
Revision Comments : This version contains updates/revisions to the following sections:  
• Updated company address

GHS Full Text Phrases:

Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H412	Harmful to aquatic life with long lasting effects

NFPA Health Hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.  
NFPA Fire Hazard : 0 - Materials that will not burn.  
NFPA Reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health : 1 Slight Hazard - Irritation or minor reversible injury possible  
Flammability : 0 Minimal Hazard  
Physical : 1 Slight Hazard

Party Responsible for the Preparation of This Document

CF Industries, Corporate EHS Department, 847-405-2400

# Urea, granular

## Safety Data Sheet

Classified according to the UN-GHS as adopted in the US Hazard Communication Standard (HCS 2012), the Canada Hazardous Products Regulations (WHMIS 2015), Mexico NOM-018-STPS-2015.

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*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*

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