TECHNICAL DATA SHEET

Urea - Organic Nitrogen

Revised: 02/20/2026

PRODUCT IDENTIFICATION

Product Name: Urea - Organic Nitrogen
CAS Number: 57-13-6
Molecular Formula: CH_4N_2O
Molecular Weight: 60.056 g/mol
Grade: Laboratory Grade
Purity / Concentration: 40%
Synonyms: Carbamide, Carbonyl diamide

PRODUCT OVERVIEW

Our Laboratory Grade Urea, also known as Carbamide, is a high-purity (98.5% assay) organic nitrogen source supplied as white crystalline pellets. With low water content (0.3%), it is primarily used in laboratory settings for chemical synthesis and as a nitrogen source in microbial culture media. Its consistent purity ensures reliable and reproducible results.

Grade Significance: Laboratory Grade Urea signifies a high level of purity and quality control, ensuring reliable and reproducible results in research, analysis, and other critical applications. This grade meets stringent specifications for impurities and contaminants, making it suitable for sensitive experiments and precise formulations.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (wt%)	%	98.5	97	—	Titration
Ph Value	pH Unit	7.5	7	9	pH Meter
Residue After Ignition	%	0.05	—	0.1	Gravimetric
Water Content	%	0.3	—	0.5	Karl Fischer Titration
Heavy Metals (as Pb)	ppm	0.5	—	2	ICP-OES
Iron (Fe)	ppm	1	—	5	ICP-OES
Chloride (Cl^-)	ppm	2	—	10	Ion Chromatography
Sulfate (SO_4^{2-})	ppm	5	—	20	Ion Chromatography
Biuret	%	0.8	—	1.5	Spectrophotometry
Insoluble Matter	%	0.0020	—	0.01	Gravimetric

ND = Not Detected. Values are typical and may vary by lot.

PHYSICAL & CHEMICAL PROPERTIES

Appearance	White crystalline pellets	**Odor**	Odorless
Form	Pellets	**Boiling Point**	132°C (270°F)
Melting / Freezing Point	133°C (271°F)	**Flash Point**	>200°C
Specific Gravity	1.32	**Solubility**	High water solubility, moderate alcohol solubility
Molecular Formula	CH_4N_2O	**Molecular Weight**	60.056 g/mol
Vapor Pressure (20°C)	0.0001 mmHg	**Viscosity (25°C)**	1.0
Refractive Index (20°C)	1.468	**Density (25°C)**	1.335 g/mL

APPLICATIONS

1. **Agriculture** — Urea is used as a nitrogen source in fertilizer formulations, providing essential nutrients for plant growth. It helps improve crop yields and overall plant health.
2. **Animal Feed** — Urea serves as a non-protein nitrogen source in animal feed, particularly for ruminants. It aids in protein synthesis and supports healthy animal growth.
3. **Chemical Synthesis** — Urea is a versatile precursor in the synthesis of various chemicals, including resins, plastics, and adhesives. Its reactivity and nitrogen content make it a valuable building block.
4. **Pharmaceuticals** — In the pharmaceutical industry, Urea is used in the production of certain drugs and as a stabilizer in formulations. Its purity and controlled properties are critical for pharmaceutical applications.
5. **Biochemistry** — Urea is utilized in biochemical assays as a protein denaturant and for other applications. It is also a nitrogen source in microbial culture media.
6. **Laboratory Reagent** — Laboratory Grade Urea is suitable as a general reagent for research and analytical purposes. Trace metal content is tightly controlled (e.g. Iron < 1 ppm, Heavy Metals < 0.5 ppm) to ensure reliability of experimental results.

STORAGE & HANDLING

Proper storage is crucial to maintain the integrity and purity of Urea. Exposure to moisture can lead to clumping and degradation, while contamination can compromise its quality. Storing Urea in a cool, dry, and well-ventilated area in tightly sealed containers will prevent these issues and ensure its effectiveness in various applications.

- Store in a cool, dry place away from moisture and incompatible materials.
- Use containers made of HDPE or glass to prevent chemical interactions.
- Avoid exposure to high temperatures and direct sunlight to maintain product integrity.
- Ensure proper ventilation when handling to minimize inhalation risks.
- Wear appropriate personal protective equipment (PPE) such as gloves and safety goggles.

AVAILABLE PACKAGING

- 5 Lbs.
- 50 Lbs.

SAFETY SUMMARY (CROSS-REFERENCE TO SDS)

Signal Word: Warning

No GHS pictograms assigned.

Hazard Statements:

- Not Classified
- Reported as not meeting GHS hazard criteria by 4430 of 4611 companies (only 3.9% companies provided GHS information). For more detailed information, please visit ECHA C&L website.

Emergency Contact: CHEMTEL - 800-255-3924 (24 Hours/Day, 7 Days/Week)

For complete safety information, refer to the Safety Data Sheet (SDS) for this product.

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