

Material Safety Data Sheet

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MSDS # 1135
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Supersedes
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SECTION I - PRODUCT IDENTIFICATION

Trade Name(s): Urea Solution, 32.5% or 40%

Synonyms: Urea; 46-0-0; Carbamide; Carbonyldiamide; Aquadrate; Ureaphil; Ureophil; CO(NH₂)₂

Product Class: Urea Solutions

Product Appearance & Odor: Colorless liquid, slight ammonia odor.

DOT Hazard Shipping Description: Not hazardous per DOT regulations.

NFPA Hazard Classification: Health (Blue) = 1
Flammability (Red) = 0
Reactivity (Yellow) = 0

SECTION II - HAZARDOUS INGREDIENTS

Ingredients:	CAS#	% (Range)	Occupational Exposure Limits	
			ACGIH TLV-TWA	OSHA PEL-TWA
Urea	57-13-6	32 - 40%	None	None
Ammonia	7664-41-7	<0.1	25 ppm 35 ppm (STEL)	50 ppm

Ingredients, other than those mentioned above, as used in this product are not hazardous as defined under current Department of Labor regulations, or are present in de minimus concentrations (less than 0.1% for carcinogens, less than 1.0% for other hazardous materials).

SECTION III - PHYSICAL DATA

Melting Point: Not available

Vapor Pressure: Not available

Vapor Density: Not available

Specific Gravity: 1.09 – 1.13 g/cc (9.1 – 9.4 lb/gal)

Percent Volatile by Volume: Not available

Solubility in Water: soluble

Crystallization Temperature: -11°C (12°F) for 32.5% and 0°C (32°F) for 40% solution

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SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: Not applicable

Flammable Limits: Not applicable

Extinguishing Media: Not applicable

Special Fire Fighting Procedures: Firefighters should wear self-contained breathing apparatus and full protective clothing if urea solution reaches decomposition temperature.

Unusual Fire and Explosion Hazards: Aqueous solutions of urea will not burn or support combustion but will decompose into noxious, poisonous gas when exposed to the high temperatures of a fire.

SECTION V - HEALTH HAZARD DATA

Effects of Overexposure

Eyes: Dried Urea dust or solution may cause eye irritation.

Skin: Dried Urea dust or solution may irritate skin resulting in reddening of the skin and possible dermatitis.

Ingestion: Dried Urea dust or solution may cause abdominal pain, nausea, vomiting and gastrointestinal irritation. (Urea is a protein to ruminants, animals with the enzyme Urease in their digestive systems, but is toxic to humans).

Inhalation: Excessive inhalation of dried Urea dust or atomized solution may cause sore throat, coughing and irritation of mucous membranes and the respiratory tract.

Systemic or Other Effects: The smell of ammonia, in the vapor space above the liquid, may aggravate respiratory conditions.

Carcinogenicity:

NTP: No

IARC Monographs: No

OSHA Regulated: No

Emergency and First Aid Procedures

Eyes: Immediately flush with large amounts of water, including under the eyelids. Cool burned area with ice. Contact a physician immediately, preferably an Ophthalmologist. Speed and thoroughness in rinsing eyes are important to avoid permanent injury.

Skin: Immediately remove contaminated clothing and shoes. Flush chemical from affected area with large amounts of water, then wash with soap and water. Seek medical attention if irritation develops.

Ingestion: Do not induce vomiting. If vomiting occurs, keep head below hips to help prevent aspiration. Get immediate medical attention.

Inhalation: Remove to fresh air. If breathing has stopped, apply artificial respiration. Keep warm and at rest. Get immediate medical attention.

Special Considerations: None.

SECTION VI - REACTIVITY DATA

Stability: Stable. Decomposes at about 135°C, just above its melting point.

Conditions to Avoid: Avoid exposing containers to heat or flame. Keep separated from incompatible materials.

Materials to Avoid (Incompatibility): Nitric Acid, gallium, perchlorate, strong oxidizing agents, caustics and alkalis.

Hazardous Decomposition Products: Ammonia and Nitrogen Oxides (Nitric Oxide and Nitrogen Dioxide).

Hazardous Polymerization: Will not occur.

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be taken in Case Material is Released or Spilled: Contain spills as much as possible. Do not flush to surface water. Spilled chemical can be used as fertilizer (46% N). Follow applicable Federal, State and local reporting requirements.

Waste Disposal Method: Dispose through a licensed waste disposal company. Follow federal, state and local regulations. Contaminated dirt may be spread as a fertilizer.

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SECTION VIII - SPECIAL PROTECTION INFORMATION

Ventilation: Provide adequate general and local exhaust ventilation to avoid exceeding occupational exposure limits, particularly in a confined space area.

Respiratory Protection: Dried Urea residue is water-soluble and will dissolve with mucosal membrane contact (lungs). Use approved respiratory protective equipment for cleaning large spills or upon entry into large tanks, vessels, and other designated confined space areas or in any situations where airborne concentrations of dried amide may exceed occupational exposure limits (15 mg/m³, dust).

Protective Clothing: Aqueous solution at ambient temperature will not cause tissue damage. Wearing of canvas work clothing is sufficient protection.

Eye Protection: Aqueous solution at ambient temperature will not damage eyes. Wear safety glasses or chemical goggles where contact with liquid may occur.

Other Precautions Required: None.

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage: Store in compliance with all Federal, State, and local regulations. Store in a well ventilated area, away from incompatible materials or sources of heat and ignition. Empty containers may contain residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, flames, sparks or other sources of ignition; they may evolve noxious fumes.

Other Precautions: Never combine with nitric acid.

SECTION X - SPECIAL INFORMATION

EPCRA Section 311/312 Hazard Categorization:

Acute	Chronic	Fire	Pressure	Reactive
X				

EPCRA & CAA Hazardous Substance Reporting Requirements:

Ingredient	CAS No.	% by wt	CAA 112(r)	302 TPQ lb.	304 RQ lb.	313 TRI
None listed						

Key: CAA 112(r) = Toxic Substance with potential for airborne release
Sec. 302 TPQ = Extremely Hazardous Substances (EHS) Threshold Planning Quantity
Sec. 304 RQ = EHS and CERCLA Reportable Quantity if spilled
Sec. 313 TRI = Toxic Chemicals to be reported on Toxic Release Inventory if spilled

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