Material Safety Data Sheet

Dyno Nobel Inc.
2795 East Cottonwood Parkway, Suite 500
Salt Lake City, Utah 84121
Phone: 801-364-4800 Fax: 801-321-6703
E-Mail: dnna.hse@am.dynonobel.com
FOR 24 HOUR EMERGENCY, CALL CHEMTREC (USA) 800-424-9300
CANUTEC (CANADA) 613-996-6666

MSDS # 1132
Date 12/20/12

Supercedes
MSDS # 1132 12/15/11

SECTION I - PRODUCT IDENTIFICATION

Trade Name(s): Urea Feed
Urea – RBU™
Urea Fertilizer

Synonyms: Urea Feed; 46-0-0; Carbamide; Carbonyldiamide; Aquadrate; Ureaphil; Ureophil; $CO(NH_2)_2$

Product Class: Urea

Product Appearance & Odor: White crystalline, 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	98.0 – 99.0%	None[1]	None[2]
Biuret	108-19-0	<0.1% to <1.2%	None[1]	None[2]
Reaction Product Mixture*	68611-64-3	1 - 2%	None[1]	None[2]

* Primarily methylene diurea
[1] Use limit for particulates not otherwise specified (PNOS): Inhalable particulate, 10 mg/m^3 ; respirable part., 3 mg/m^3 .
[2] Use limit for particulates not otherwise regulated (PNOR): Total dust, 15 mg/m^3 ; respirable fraction, 5 mg/m^3 .

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 deminimus concentrations (less than 0.1% for carcinogens, less than 1.0% for other hazardous materials).

SECTION III - PHYSICAL DATA

Melting Point: 133°C (271°F)
Vapor Density: Not applicable
Percent Volatile by Volume: Not applicable
Vapor Pressure: Not applicable
Specific Gravity: 0.74 -0.83 g/cc (46 - 52 lb/ft^3)
Solubility in Water: 112.4 g/100 g @ 20°C (68°F)

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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.
Unusual Fire and Explosion Hazards: 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: Dust and micro particles may cause eye irritation.
Skin: Frequent or prolonged contact with dust may aggravate preexisting dermatitis and possibly promote an allergic reaction.
Ingestion: Abdominal pain, nausea, vomiting and gastrointestinal irritation may result. (Urea is a protein to ruminants, animals with the enzyme Urease in their digestive systems, but is moderately toxic to humans when ingested).
Inhalation: Excessive inhalation of the dust may cause sore throat, coughing and irritation of mucous membranes and the respiratory tract.
Systemic or Other Effects: None known.

Carcinogenicity:	**NTP**	**IARC Monographs**	**OSHA Regulated**
Urea	No	No	No
Biuret	No	No	No
Methylene diurea	No	No	No

Emergency and First Aid Procedures

Eyes: Immediately flush with large amounts of water, including under the eyelids. If pain persists seek medical attention, preferably an Ophthalmologist. Speed and thoroughness in rinsing eyes are important to avoid permanent injury.
Skin: Immediately remove contaminated clothing and shoes. Wash affected area with soap and flush with large amounts of water. Seek medical attention if irritation develops.
Ingestion: Do not induce vomiting. If vomiting occurs, keep head below hips to help prevent aspiration. Get medical attention immediately.
Inhalation: Remove to fresh air. If breathing has stopped, apply artificial respiration. Keep warm and at rest. Get medical attention immediately.
Special Considerations: None.

SECTION VI - REACTIVITY DATA

Stability: Stable. Decomposes at about 135°C, just above its melting point. Can be made explosive when dissolved in Nitric Acid, even without completely drying.
Conditions to Avoid: Avoid exposing containers to heat or flame. Keep separated from incompatible materials. Formaldehyde may be formed and released if feed urea is dissolved in highly acidic solutions.
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.

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SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be taken in Case Material is Released or Spilled: Shovel spilled material into containers for disposal. Do not flush to surface water. Spilled chemical can be used as fertilizer (46-0-0). 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.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Ventilation: Provide adequate general and local exhaust ventilation to avoid reaching occupational exposure limits, particularly in a confined space area.
Respiratory Protection: Urea is water-soluble and will dissolve with mucosal membrane contact (lungs). Use NIOSH 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 dust may exceed occupational exposure limits (15 mg/m^3).
Protective Clothing: Urea is water-soluble and will dissolve with perspiration contact. Wearing of appropriate protective clothing and gloves is suggested if epidermal sensitivity develops.
Eye Protection: Urea is water-soluble and will dissolve with mucosal membrane contact (eyes). Remove contact lenses and wear safety glasses, chemical goggles or face shield where contact with dust or micro particles 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: None.

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SECTION X - SPECIAL INFORMATION

EPCRA Section 311/312 Hazard Categorization:

Acute	Chronic	Fire	Pressure	Reactive

EPCRA & CAA Hazardous Substance Reporting Requirements:

Ingredient	CAS No.	% by wt	CAA 112(r)	302 TPQ lb.	304 RQ lb.	313 TRI

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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