

InstaKool™ Material Safety Data Sheet

Urea

Issued December 2003

For Emergency Call: CHEMTREC – (800) 424-9300

Section 1. Material Identification

Distributor:	Yara Canada L.P 1130 Sherbrooke Street, West Suite 1050, Montreal, Quebec H3A2M8 Tel: (514) 849-9222 Fax: (514) 849-3362
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Product Name: Urea, dry

CAS No.: 57-13-6

24 Hour Emergency Telephone (Canutec): 613-996-6666

CHEMTREC (800) 424-9300

Section 2. Composition / Information on Ingredients

Synonyms and Common Trade Names: Urea Prills, Urea Granular, Carbamide, Carbonyldiamine, Carbonyl Diamide

Component Name	Typical Weight Percentage
Urea: (NH ² CONH ²)	97.5 - 99.7
Biuret: (NH ² CONHCONH ²)	1% approx
Free Ammonia	<200ppm
Nuisance dust	15mg/m ³ (Total)
5mg/m ³	Respirable (particulate) fraction urea

Section 3. Physical Data

Appearance/Color/Odor: White solid, spherical or granular shape with slight ammonia odor.			
Melting Point/Range:	271°F or 133°C	Boiling Point:	135°C (decomposes)
Solubility in Water:	1,193 g/l at 25°C	Boiling Point:	Not applicable
Specific Gravity:	Not applicable	Vapor Pressure (mmHg):	80 Pa t 20°C (calculated)
Vapor Density:	Not applicable	Molecular Weight:	60.07
Bulk Density:	44 - 49lbs/cu ft	% Volatiles:	Not applicable
pH:	7.2 at 100 g/l	Evaporation Rate:	Not applicable
Viscosity:	Not applicable	Density:	750 kg/m ³

Section 4. Fire or Explosion Hazard

Flash Point: Not applicable

Auto-ignition Temperature: Not available

Lower Explosive Limit: Not available

Upper Explosive Limit: Not available

Unusual Fire and Explosion Hazards: Heating above 270°F decomposes to Biuret, Ammonia and Nitrogen Oxides. Short term exposures to smoke and gases may lead to irreversible lung injury without early signs and symptoms.

Extinguishing Media: All standard agents are acceptable. Use extinguishing agent suitable for the surrounding fire. Material itself burns with difficulty. Urea becomes slippery when wet. Guard against slips and falls.

Special Fire Fighting Procedures and Equipment: Irritating toxic substances may be emitted upon thermal decomposition. Exposed firefighters should wear NIOSH approved self contained breathing apparatus with full face piece and full protective clothing. May form explosive mixtures if mixed with strong acid (Nitric/Perchloric).

Ventilation: Provide local or general ventilation to keep below nuisance dust limit of 15 mg/m³.

Section 5. Reactivity Data

Stability:	This product is stable under normal ambient conditions of temperature and pressure.
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	May slowly hydrolyze to ammonium carbamate after a long period of time which decomposes to ammonia and carbon dioxide.
Materials to Avoid (Incompatibilities):	Avoid contact with strong oxidizers, acids or bases. Avoid contact with Nitrates. Reacts to sodium or calcium hypochloride to form explosive nitrogen trichloride.
Hazardous Decomposition Products:	Decomposes to ammonia, biuret, nitrogen oxides and carbon oxides.

Section 6. Toxicological Properties

Significant Routes of Exposure: Eyes, digestive tract, respiratory tract, skin

Potential Acute Health Effects

Inhalation:	May cause respiratory tract irritation although no incidents of dust inhalation health effects have been reported.
Ingestion:	May cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting and diarrhea.
Skin Contact:	Contact may cause irritation or rash, particularly with moist skin.
Eye Contact:	Severe irritant. Contact with heated material may cause thermal burn
Chronic Exposure:	No information found.

Potential Chronic Health Effects: None known. Urea is a naturally occurring chemical in the body. It is an end product of protein metabolism and is excreted in the urine.

Toxicity to Animals:

Acute Oral Toxicity

(rat) LD50 = 14,300 - 15,000 mg/kg

(mouse) LD50 = 11,500 mg/kg

(cattle) LD50 = 510 mg/kg

Repeated Dose (rat): 24 weeks dermal - NOAEL = 40% in ointment

Skin Irritation/Corrosion: Mouse - not irritating (10% solution)

Eye Irritation/Corrosion: Rabbit - not irritating (50% solution)

Not found to be toxic by oral exposure as defined by OSHA. Based on toxicity data for another compound, i.e. ammonium nitrate, not expected to be toxic by dermal and inhalation exposure as defined by OSHA.

Other Effects on Humans: Despite extensive medical use, no significant side effects on humans have been noted.

Section 7. Preventive Measures

Exposure Controls/Personal Protection

Engineering Controls: Provide local or general ventilation to keep below nuisance dust limit of 15mg/m³.

Personal Protection

Eye Protection:	Wear safety glasses or chemical goggles to prevent eye contact. Do not wear contact lenses when working with this substance. Have eye wash facility available where eye contact could occur.
Protective Clothing:	Wear impervious gloves and protective clothing to prevent skin contact.
Respiratory Protection:	Normally none needed. Use NIOSH approved equipment when airborne dust exposure limits are exceeded. NIOSH approved breathing equipment must be available for non-routine and emergency use.
Other Protective Clothing or Equipment:	Normally not require.

Accidental Release Measures

Small Spill: If uncontaminated recover and reuse as product

Large Spill: Prevent large quantities from contacting vegetation or waterways. Keep animals away from large spills.

Release Notes: If spill could potentially enter any waterway, including intermittent dry creeks, contact the local authorities. **If in the U.S. contact the U.S. Coast Guard National Response Center, toll free number 800-424-8802. In case of accident or road spill notify: Chemtrec in U.S.A. 800-424-9300, Canutec in Canada t 613-996-6666. Chemtrec in other countries at (International Code) + 703-527-3887**

Handling and Storage

Ventilation:	Provide local or general ventilation to keep below nuisance dust limit of 15 mg/m ³ .
Handling	Avoid contact with eyes. Avoid repeated or prolonged contact with skin or clothing. Avoid dust inhalation. Contact lenses should not be worn.
Storage:	Store in closed containers in cool, dry, isolated well ventilated area away from heat, sources of ignition and incompatibles. Avoid contamination with other "look alike" materials that may product a fire or explosion.
Special Precautions/Procedures/Label Instructions:	Avoid containers, piping or fittings made of brass, bronze or other copper bearing alloys or galvanized metals.

Disposal Considerations

Product Disposal: Disposal of Urea may be subject to federal, state or local regulations.

General Comments: Users of this product should review their operations in terms of applicable federal, state and local laws and regulations, then consult with appropriate regulatory agencies before discharging or disposing of waste material.

Section 8. First Aid Measures

Inhalation:	Remove affected person from source of exposure. If not breathing, ensure open airway and initiate CPR. If breathing is difficult, administer oxygen; if available get medical attention.
Ingestion:	Do not induce vomiting. Keep affected person warm and treat for shock. Get medical attention. A single dose of 100 grams has reportedly caused mild symptoms of the Central Nervous System (depression, drowsiness, etc).
Skin Contact:	Wash area of contact thoroughly with soap and water. For contact with molten product do not remove clothing. Flush skin immediately with cold water. Launder clothing before reuse.
Eye Contact:	Promptly flush with water, continuing for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. If irritation persists, consult a physician immediately

Disclaimer

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Material Safety Data Sheet

CARBAMAKOOL™

Issued September 6th, 2005

For Emergency Call: CHEMTREC – (800) 424-9300

CARBAMAKOOL™ is trademarked and is Patent Pending. The MSDS sheet lists the highest level of safety concerns for the most aggressive agents in this aggregate component.

1. Products Identification: CARBAMAKOOL™

CARBAMAKOOL™ is a proprietary ingredient that is used by Nortech Laboratories to establish the cold properties as they relate to the initial onset and duration of “cold”.

2. Composition/Information of Ingredients:

Ingredient	Percent	Hazardous Small Quantities
CARBAMAKOOL™	99%	NO

Ingredient	Percent	Hazardous Large Quantities
CARBAMAKOOL™	99%	Yes

Emergency Overview	CAUTION! MAY BE HARMFUL IF SWALLOWED. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.
SAF-T-DATA™ Ratings	(Provided here for your convenience)
Health Rating:	2 – Moderate
Flammability Rating:	0 – None
Reactivity Rating:	1- Slight
Contact Rating:	2 – Moderate

Lab Protective Equipment:	GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES
Storage Color Code:	Green (General Storage)

3. Hazardous Identification

4. Potential Health Effects

Inhalation:	Inhalation of high concentrations of dust may cause nasal or lung irritation
Ingestion:	Large quantities can produce gastrointestinal irritation and vomiting. May produce weakness and circulatory problems. May affect heart. In severe cases, ingestion may be fatal.
Skin Contact:	Contact may cause irritation or rash, particularly with moist skin.
Eye Contact:	Moderate eye irritant. Redness, tearing, possible abrasion can occur.
Chronic Exposure:	No information found.
Aggravation of Pre-Existing Conditions:	Persons with impaired kidney function may be more susceptible to the effects of the substance

5. First Aid Measures

Inhalation:	Remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.
Ingestion:	If large quantities are ingested, induce vomiting as directed by medical personnel. Never give anything by mouth to an unconscious person. Call a physician.
Skin Contact:	Remove any contaminated clothing. Wash skin with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.
Eye Contact:	In case of contact, immediately flush eyes with plenty of

	water for at least 15 minutes, lifting upper and lower eyelids occasionally. Call a physician if irritation persists.

6. Fire Fighting Measures

Fire:	Not considered to be a fire hazard.
Explosion:	Not considered to be an explosive hazard.
Fire Extinguishing Media:	Use any means suitable for extinguishing surrounding fire.
Special Information:	In the event of a fire, wear full protective clothing and NIOSH- approved self contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

7. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust.

8. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. 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.

9. Exposure Controls/Personal Protection

✓ Airborne Exposure Limits:

None established

✓ Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of

Recommended Practices, most recent edition, for details.

✓ **Personal Respirators (NIOSH Approved):**

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerin, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

✓ **Skin Protection:**

Wear protective gloves and clean body-covering clothing.

✓ **Eye Protection:**

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

10. Physical and Chemical properties

Appearance:	White crystals or powder
Odor:	Odorless
Solubility:	27-30/100g of water @ 0C.
Density:	1.9-2.1
pH:	ca. 7 Saturated aq. Sl. @ 15C
% Volatiles by volume @ 21C (70F):	0
Boiling Point:	1450-1550C (approximately 2732F) Sublimes
Melting Point:	770-775C (approximately 1422F)
Vapor Density (Air=1):	No information found
Vapor Pressure (mm Hg):	No information found
Evaporation Rate (BuAc=1)	No information found

11. Stability and Reactivity

Stability:	Stable under ordinary conditions of use and storage
Hazardous Decomposition Products:	Oxides of the contained metal and halogen, possibly also free or ionic halogen.
Hazardous Polymerization:	Will not occur
Incompatibilities:	Bromine trifluoride; potassium permanganate plus sulfuric acid
Conditions to Avoid:	No information found

12. Toxicological Information

Oral rat LD50:	2600 mg/kg;
Human Draize (Irritation eye rabbit)	500 mg/24 hr mild; investigated as a mutagen.

13. Cancer Listing:

Ingredient Category	Known	Anticipated	IARC
CARBAMAKOOL™ 7447-40-7)	No	No	None

13. Ecological Information

Environmental Fate:	No information found
Environmental Toxicity	No information found

14. Disposal Considerations:

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved wasted disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations.

Dispose of container and unused contents in accordance with federal, state, and local requirements.

15. Transport Information:

Not regulated

16. Regulatory Information

Chemical Inventory Status - Part 1	TSCA	EC	Japan	Australia
CARBAMAKOOL™	Yes	Yes	Yes	Yes
Chemical Inventory Status - Part 2	Korea	DSL	NDSL	Phil.
CARBAMAKOOL™	Yes	Yes	No	Yes
Federal, State & International Regulations - Part 1 Sara 302/313	RQ	TPQ	List	
CARBAMAKOOL™	No	No	No	No
Federal, State & International Regulations - Part 2	CERLA	-RCRA-261.33	-SCA-8(d)	
CARBAMAKOOL™	No	No	No	
Chemical Weapons Convention:	No	TSCA 12 b): No	CDTA: No	SARA 311/312:
Acute: Yes	Chronic: No		Pressure: No	Fire: No
(Pure / Solid)	Reactivity: No		Poison Schedule: None Allocated	

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPS) and the MSDS contains all of the information required by the CPR.

17. Other Information

NFPA Ratings:	Health: 1	Flammability: 0	Reactivity: 0
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Label Hazardous Warning:

CAUTIONS MAY BE HARMFUL IF SWALLOWED. MAY CAUSE IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

Label Precautions:

- Avoid breathing dust.
- Keep container closed.
- Use with adequate ventilation.
- Avoid contact with eyes, skin and clothing.
- Wash thoroughly after handling.

Label First Aid:

If large quantities are swallowed, induce vomiting as directed by medical personal. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for 15 minutes. If irritation develops call a physician. If inhaled, remove to fresh air. Get medical attention for any breathing difficulty.

Product Use:

Cold (Instant) Pack Additive

Revision Information:

MSDS Section(s) changed since last revision of document include: 3

Disclaimer:

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Prepared by: The Chemical Company
Phone Number: (401) 423-3100 (USA)
Date Issued September 6, 2005

FOR 24 HOUR EMERGENCY ASSISTANCE: CHEMTREC 800 424-9300

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for 15 minutes. If irritation develops call a physician. If inhaled, remove to fresh air. Get medical attention for any breathing difficulty.

Product Use:

Cold Pack Additive

Revision Information:

MSDS Section(s) changed since last revision of document include: 3

Disclaimer:

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