Univar USA Inc.
6100 Carillon Point
Kirkland, WA 98033
(425) 889-3400

For Emergency Assistance involving chemicals call - CHEMTREC (800) 424-9300

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The Version Date for this MSDS is : 07/09/2003

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PRODUCT IDENTIFICATION
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PRODUCT NAME: UREA, DRY

MSDS NUMBER: P10379VS

DATE ISSUED: 06/28/03

SUPERCEDES: 05/31/01

ISSUED BY: 004988

MATERIAL SAFETY DATA SHEET

Revision Issued: JUNE 28, 2003 Supercedes: MAY 31, 2001 First Issued: JUL 1989

Section I - Chemical Product and Company Identification

Product Name: Urea, Dry PotashCorp MSDS No.: 13
ERG No.: n/a

Skokie Blvd., Northbrook, IL 60062
Phone (800) 241-6908 * (847) 849-4200
Suite 500, 122 - 1st Avenue South
Saskatoon, Saskatchewan Canada S7K 7G3
Phone (800) 667-0403 from Canada * (800) 667-3930 from USA

Emergencies (800) 424-9300 (CHEMTREC)
Web Site www.potashcorp.com
Health Emergencies, Contact Your Local Poison Center

Flammability
0
Health 1 0 Reactivity
-
Specific Hazard
NFPA CODE

Urea Prills,
Industrial,
Agricultural,
Common Name: Urea, Dry Formula: CO(NH2)2 Synonym: Urea Granular Use: Feed

Section II - Composition/Information On Ingredients

CHEMICAL NAME(s)	CAS No.	Exposure Limits OSHA PEL mg/m3 ppm	TLV - TWA mg/m3 ppm	STEL mg/m3 ppm	CEIL mg/m3 ppm	% by Weight
Urea, Carbamide, Carbonyldiamide, Carbamidic Acid (1)	57-13-6	5(2	10(3)			97.5- 99.7
Alkalinity as Ammonia						150 PPM (Max)
Urea						97.5-99.7
Biuret						0.00- 1.50
Methylenediurea(4)						0.00-2.42

(1) Nuisance dust 15 Mg/M3 (Total)
(2) 5 Mg/M3- Respirable (particulate) Fraction Urea.
(3) 10 mg/m3 Inhalable particulate
(4) Reagent and Chemical Grade Urea does not contain formaldehyde

Section III - Hazard Identification

Potential Acute Skin: Repeated or prolonged contact may cause reddening, itching and inflammation. Ingestion: A single dose of Health Effects: 100 grams has reportedly caused mild symptoms of Central Nervous System depression e. g. drowsiness and slow reflexes.

Eyes and Skin: Eyes: Severe irritant. Contact with heated material may cause thermal burns Skin: Slightly irritating. Repeated or prolonged contact may cause reddening, itching and inflammation. Contact with heated material may cause thermal burns.

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.

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.

Carcinogenlcity Lists: IARC Monograph: No NTP: No OSHA: No

Section IV - First Aid Measures

Eyes:
Promptly flush with water, continuing for 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. If irritation persists, consult a physician immediately.

Skin:
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.

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 Central Nervous System depression (drowsiness, etc.).
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.

Section V - Fire Fighting Measures

Flash Point: Not Applicable Autoignition Temperature: Not Available
Lower Explosive Limit: Not Available Upper Explosive Limit: Not Available

Unusual Fire and Heating above 270 F decomposes to Biuret, Ammonia, and Nitrogen Oxides. Short-term exposures to smoke and

Explosion Hazards:
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 Firefighting 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 VI - Accidental Release Measures

Small Spill: If uncontaminated, recover and reuses 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 US COAST GUARD NATIONAL RESPONSE CENTER toll free number 800-424-8802. In case of accident or road spill notify: CHEMTREC IN USA at 800-424-9300; CANUTEC in Canada at 613-996-6666 CHEMTREC in other countries at (International code)+1-703-527-3887.

Comments: See Section XIII for disposal information and Section XV for regulatory requirements. Large and small spills may have a broad definition depending on the user's handling system. Therefore, the spill category must be defined at the point of release by technically qualified personnel.

Section VII - Handling and Storage

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

Handling:
Avoid contact with the eyes. Avoid repeated or prolonged contact with the 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 produce 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.

Section VIII - 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 facilities 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 Equipment:
Clothing or Normally not required

Section IX - Physical and Chemical Properties

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/Range: Not Applicable

Specific Gravity:
Not Applicable Vapor Pressure(mmHg): 80 Pa at 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

Section X - Stability and Reactivity

Stability:
This product is stable under normal ambient conditions of temperature and pressure

Hazardous Polymerization: Will not occur

May slowly hydrolyze to Ammonium Carbamate after a long period of time which decomposes to Ammonia and

Conditions to Avoid: Carbon Dioxide.

Materials to Avoid:
Avoid contact with strong oxidizers, acids or bases. Avoid contact with Nitrates. Reacts with Sodium or Calcium, Incompatibilities): Hypochlorite to form explosive Nitrogen Trichloride.

Hazardous products:
Decomposition Decomposes to Ammonia, Biuret, Nitrogen Oxides, Carbon Oxides.

Section XI - Toxicological Information

Significant Routes of Exposure:
Eyes, Digestive Tract, Respiratory Tract, Skin

Toxicity to Animals:
Acute Oral Toxicity: (rat) LD50=14,300 - 15,000 mg/kg;
(mouse) LD50=11,500 - 13,000 mglkg.; (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.

Special Remarks on Toxicity to Animals:
Bacterial Genetic Toxicity in vitro: (Salmonella typhimurium) - Bacterial reverse mutation assay- Negative ;
Chinese Hamster -- Chromosomal aberration test - Positive (very high dose); Mouse - Positive (very high dose).
Genetic Toxicity in vivo: Mouse - Bone marrow cytogenetic test - Positive (extremely high dose) :
Toxicity to Reproduction: No toxic effects on mouse gonads up to 6,750-mg/kg day. No toxic effects on rat gonads up to 2,250-mg/kg day. Developmental Toxicity / Teratogenicity: Not teratogenic.

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

Special Remarks on Chronic Effects on Humans:
chronic No effects known.

Special Remarks on Humans:
May be irritating at > 10% concentration; not a skin sensitizer. Other Effects on Despite extensive medical uses no significant side effects on humans has been noted.

Section XII - Ecological Information

Ecotoxicity: Acute Toxicity to Fish: 96 -h:(Barillius barna) LC50= > 9,100 mg/L. Acute Toxicty Aquatic Invertebrates: (Daphnia magna) : 24 - h EC50: > 10,000 mglL . Toxicity to Aquatic Plants: (Scenadesmus quadricauda) 192-hr cell multiplication inhibition

test-TT>10,000 mg/L. Toxicity to Other Non-Mammalian Terrestrial Species: (Pigeon)-Subcutaneous-LDLe=16,000 mg/kg. Since Urea is a fertilizer, it may promote eutrophication in waterways. Non-toxic to aquatic organisms as defined by USEPA.

Environmental Fate:
Stability in water: T112 > 1 year. Transport: 0.16% in air; 99.84% in water

Toxicity: No known toxicity
Degradation Biodegradation: Ultimately biodegradable.

Products:

Section XIII - 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 XIV - Transportation Information

	USDOT	TDG -Canada
Proper Shipping Name:	Not regulated	Not regulated
Hazard Class:		
dentification Number:		
Packing Group (Technical Name):		
Labeling / Placarding:		
Authorized Packaging:		
Notes:		

European Transportation:
If shipping internationally, notate Urea as Cabamidic Acid.

Section XV - Regulatory Information I

UNITED STATES:
This product has been reviewed according to the EPA Hazard Categories promulgated under Section 311 SARA Hazard and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, Category: under applicable definitions, to meet the following categories:
Fire: No Pressure Generating: No Reactivity: No Acute: Yes Chronic: No
40 CFR Part 355 - Extremely Hazardous Substances: None
40 CFR Part 370 - Hazardous Chemical Reporting: Applicable
All intentional ingredients listed on the TSCA inventory.

SARA Title III Information:
This product contains the following substances subject to the reporting requirements of Title III (EPCRA) of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

Chemical	CAS No.	Percent by Weight	CERCLA RQ (lbs)	SARA (1986) Reporting 311	312	313
Urea	57-13-6	97.5-99.7	NA	Yes	Yes	NA

If this product contains components subject to substances designated as CERCLA Reportable Quantity (RQ) CERCLA/Superfund, Substances, it will be designated in the above table with the RQ value in pounds. If there is a

release of RQ 40 CFR Parts 117,302: Substance to the environment, notification to the National Response Center, Washington D.C. (1-800-424-8802) is required.

CANADA:
WHMIS HAZARD SYMBOL AND CLASSIFICATION: This product is not WHMIS controlled
INGREDIENT DISCLOSURE LIST: This product does contain ingredient(s) on this list.

ENVIRONMENTAL PROTECTION ACT: All intentional ingredients are listed on the DSL (Domestic Substance List).
EINECS#: (Urea) 200-315-5

California:
Prop 65: This is not a chemical known to cause cancer, nor is it listed.

Section XVI - Other Information

NFPA Hazard Ratings: Health: 1 Fire: 0 Reactivity: 0 Special Hazards:
0 =Insignificant 1 = Slight 2= Moderate 3 = High 4= Extreme

COMMENTS: This product is TSE/BSE (Transmissible Spongiform Encephalopathy/ Bovine Spongiform Encephalopathy) free. There are no animal constituents used in the manufacture of Urea, Dry for PCS Sales (USA) Inc. Our product is created through a chemical process.

For Additional Information:
Contact: MSDS Coordinator - Univar USA
During business hours, Pacific Time - (425) 889-3400

NOTICE
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END OF MSDS