

FEB 3 1989

UREA
IDENTIFIER (Common Name)

MATERIAL SAFETY DATA SHEET

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PREPARED BY NITREX	DATE PREPARED 6-20-88

SECTION 1 — PRODUCT IDENTIFICATION

COMMON NAME (Used on Label, Trade Name and Synonym): Urea

CHEMICAL NAME: Urea, Carbamide, Carbonyldiamide

CAS NO: 57-13-6

SECTION 2 — HAZARDOUS INGREDIENTS

Mixture: Yes No

PRINCIPAL HAZARDOUS COMPONENT(S) AND COMMON NAME(S)	% RANGE	OSHA PERMISSIBLE EXPOSURE LIMIT	ACGIH THRESHOLD LIMIT VALUE
NONE	NA	NA	NA

SECTION 3 — PHYSICAL AND CHEMICAL CHARACTERISTICS (Fire and Explosion Data)

BOILING POINT	NA	SPECIFIC GRAVITY (H ₂ O=1)	1.335 20° C	VAPOR PRESSURE (psia)	NA
PERCENT VOLATILE BY VOLUME (%)	NA	VAPOR DENSITY (AIR = 1)	NA	EVAPORATION RATE (_____ = 1)	NA
SOLUBILITY IN WATER	108 gm/100 cc @ 68° F	REACTIVITY IN WATER	NA	FLASH POINT	Not Flammable
APPEARANCE AND ODOR	White solid, spherical shape (prill) with slight ammonical odor			AUTO IGNITION TEMP.	NA
FLAMMABLE LIMITS IN AIR % BY VOLUME	LOWER NA	UPPER NA	EXTINGUISHING MEDIA Water		

SPECIAL FIRE FIGHTING PROCEDURES

Wear full protective clothing and self-contained breathing apparatus.

CAUTION: Wet urea is slippery.

UNUSUAL FIRE AND EXPLOSION HAZARDS

At elevated temperatures, urea may decompose to cyanuric acid, ammonia, biuret, cyanic acid, carbon dioxide, and nitrogen oxides.

SECTION 4 — PHYSICAL HAZARDS

HAZARDOUS COMPONENTS: NONE

STABILITY Unstable Stable Conditions to Avoid: Heating Above 266° F

INCOMPATIBILITY (MATERIALS TO AVOID) Incompatible with sodium nitrite, phosphorus pentachloride, nitrosylperchlorate. May react with nitrates, alkalis, oxidizing agents, hypochlorides, alcohols, inorganic acids, olefins, polymerizable esters. Corrosive to copper and copper alloys.

HAZARDOUS DECOMPOSITION PRODUCTS Above 266° F decomposition starts with formation of ammonia, cyanuric acid, cyanic acid, carbon dioxide, biuret, and nitrogen oxides.

HAZARDOUS POLYMERIZATION May Occur Will Not Occur Conditions to Avoid: NA

OTHER HAZARDS NA

SECTION 5 — HEALTH HAZARDS

HAZARDOUS COMPONENTS: NONE

SIGNS AND SYMPTOMS OF EXPOSURE:

1. ACUTE OVEREXPOSURE Refer to ingestion below

2. CHRONIC OVEREXPOSURE NA

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE NA

CHEMICAL LISTED AS CARCINOGEN OR POTENTIAL CARCINOGEN NATIONAL TOXICOLOGY PROGRAM YES NO I.A.R.C. MONOGRAPHS YES NO OSHA YES NO

EMERGENCY AND FIRST AID PROCEDURES:

Flush eyes and skin thoroughly with water, seek medical attention if irritation persists.

ROUTE(S) OF ENTRY:

1. INHALATION

No incidents of dust inhalation health effects reported.

2. EYES

Minor irritant

3. SKIN

Mild irritant

4. INGESTION A single dose of 100 grams of urea solution has reportedly caused mild central nervous system depression such as drowsiness, slow reflexes, slurred speech. Non-toxic.

SECTION 6 — SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

(SPECIFY TYPE)

A NIOSH/MSHA approved respirator should be used when exposure exceeds the OSHA nuisance dust standard of 15 mg/m³.

VENTILATION: Provide local or general ventilation to keep dust below OSHA nuisance dust limit of 15 mg/m³. SPECIAL: NONE

PROTECTIVE GLOVES No protection normally required. If irritation occurs, long sleeves and impervious gloves should be worn. EYE PROTECTION Safety glasses, goggles, or face shields should be worn to prevent eye irritation or injury.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT

NA

SECTION 7 — SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Keep dry and avoid heating in handling and storage.

OTHER PRECAUTIONS

Hygroscopic mixtures can be formed with certain chemicals. Urea and moisture will cause slippery conditions.

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

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

The information, data, and recommendations in this material safety data sheet relate only to the specific material designated herein and do not relate to use in combination with any other material or in any process. The information, data, and recommendations set forth herein are believed by TITREX to be accurate. TITREX makes no warranties, either expressed or implied, with respect thereto and assumes no liability in connection with any use of such information, data, and recommendations.