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Material Safety Data Sheet

Urea

Section 1: Chemical Product and Company Identification

Molecular formula:(CO(NH₂)₂)

CAS Nr: 57-13-6

Molecular weight: 60.05

Synonyms: Carbamide, Carbamidic Acid

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Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	%By Weight
Urea	57-13-6	95-100

Section 3: Hazards Identification

Physical state Solid.

Appearance White granules with faint ammonia odor.

Emergency overview Dusts may irritate the respiratory tract, skin and eyes.

OSHA regulatory status This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

Potential health effects

Routes of exposure Eye contact. Skin contact. Inhalation.

Eyes Contact may cause eye irritation. Dust or powder may irritate eye tissue.

Skin Dust or powder may irritate the skin. Skin irritation occurs on contact with moist or wet skin.

Inhalation Dust may irritate throat and respiratory system and cause coughing. Frequent inhalation of dust over a long period of time increases the risk of developing lung diseases.

Ingestion No harmful effects expected in amounts likely to be ingested by accident. However, accidental ingestion of the content may cause discomfort.

Signs and symptoms Symptoms can include irritation, redness, scratching of the cornea, and tearing.

Potential environmental effects The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment

Section 4: First Aid Measures

First aid procedures

Eye contact Dust in the eyes: Do not rub eyes. Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation persists after washing.

Skin contact Wash contact areas with soap and water. Get medical attention if irritation develops and persists.

Inhalation Move to fresh air. Get medical attention if any discomfort continues.

Ingestion Rinse mouth thoroughly. Get medical attention if any discomfort continues.

Notes to physician Treat symptomatically.

General advice Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Section 5: Fire and Explosion Data

Flammable properties Urea is non-combustible under most conditions. However, during a fire, irritating/toxic gases may be generated. The dust can be ignited at very high temperatures, but not expected to explode (minimum ignition temperature (cloud) = 900 deg C.

Extinguishing media

Suitable extinguishing media

Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media

None known.

Protection of firefighters

Specific hazards arising from the chemical

Fire will produce irritating, corrosive and/or toxic gases.

Protective equipment and precautions for firefighters

Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions

Move containers from fire area if you can do it without risk. Use water spray to prevent dust formation, absorb heat, keep containers cool and protect fire-exposed material.

Hazardous combustion products

Carbon oxides. Nitrogen Oxides Cyanide compounds. Ammonia. Biuret.

Section 6: Accidental Release Measures

Personal precautions Avoid inhalation of dust and contact with skin and eyes. Ensure adequate ventilation. Wear suitable protective clothing. Use personal protection recommended in Section 8 of the MSDS.

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not contaminate water. Do not allow to enter drains, sewers or watercourses.

Methods for containment Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas. If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product.

Methods for cleaning up Avoid dust formation. After removal flush contaminated area thoroughly with water. Never return spills to original containers for re-use.

Other information Clean up in accordance with all applicable regulations.

Section 7: Handling and Storage

Handling Avoid inhalation of dust and contact with skin and eyes. Use only with adequate ventilation. Use work methods which minimize dust production. Keep the workplace clean.

Storage Store in a well-ventilated place. Store in a cool, dry place. Keep container tightly closed. Store away from incompatible materials.

Section 8: Exposure Controls/Personal Protection

Occupational exposure limits No exposure limits noted for ingredient(s).

Exposure guidelines ACGIH has limits for "nuisance dusts" which is TLV - TWA = 10 mg/m³.

Engineering controls Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of dust.

Personal protective equipment

Eye / face protection Use tight fitting goggles if dust is generated.

Skin protection Risk of contact: Wear appropriate clothing to prevent any possibility of skin contact.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998.

General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Handle in accordance with good industrial hygiene and safety practice.

Section 9: Physical and Chemical Properties

Appearance White granules with faint ammonia odor.

Color White.

Odor Ammonia-like. Faint, characteristic.

Odor threshold Not available.

Physical state Solid.

Form Granular. Pellets. Prilled.

pH 8 - 8.5 10% solution

Melting point 270.9 ° F (132.7 ° C)

Freezing point Not available.

Boiling point Not available.

Flash point Not available.

Evaporation rate Not available.

Flammability limits in air, upper,% by volume

Not available.

Flammability limits in air, lower,% by volume

Not available.

Vapor pressure Not available.

Vapor density Not available.

Specific gravity 1.335 (water=1)

Solubility (water) Soluble.

Partition coefficient(n-octanol/water)

Not available.

Auto-ignition temperature Not available.

Decomposition temperature Not available.

Bulk density 48 - 52 lb/ft³ (Packed)

Molecular weight 60.06 g/mol

Section 10: Stability and Reactivity Data

Chemical stability Normally stable. May gradually give off ammonia. The product is hygroscopic and will absorb water by contact with the moisture in the air.

Conditions to avoid Moisture. High temperatures. Contact with incompatible materials.

Incompatible materials Reacts violently with strong oxidants, nitrites, inorganic chlorides, chlorites and perchlorates causing fire and explosion hazard.

Hazardous decomposition products

Carbon oxides. Nitrogen oxides (NOx). Ammonia. Biuret.

Possibility of hazardous reactions

Hazardous polymerization does not occur.

Section 11: Toxicological Information

Toxicological data

Product Test Results

Acute Oral LD50 Rat: 8471 mg/kg Urea* (57-13-6)

Acute effects Dust in the eyes will cause irritation. Dust may irritate skin. High concentrations of dust may irritate throat and respiratory system and cause coughing.

Sensitization Not a skin sensitizer.

Chronic effects Frequent inhalation of dust over a long period of time increases the risk of developing asthma, chronic lung diseases, and skin irritation.

Carcinogenicity Not classifiable as to carcinogenicity to humans.

Mutagenicity No data available.

Reproductive effects No data available.

Symptoms and target organs

Symptoms can include irritation, redness, scratching of the cornea, and tearing.

Further information No other specific acute or chronic health impact noted.

Section 12: Ecological Information

Ecotoxicological data product

Test Results

Urea* (57-13-6)

EC50 Water flea (Daphnia magna): 3910 mg/l 48 hours

Ecotoxicity The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Environmental effects The product may cause risk of hazardous effects to the environment.

Persistence and degradability

Not available.

Bioaccumulation /Accumulation

No data available.

Partition coefficient (n-octanol/water)

Not available.

Mobility in environmental media

The product is water soluble and may spread in water systems.

Section 13: Disposal Considerations

Disposal instructions Dispose of this material and its container to hazardous or special waste collection point. Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.

Contaminated packaging

Since emptied containers may retain product residue, follow label warnings even after container is emptied.

Section 14: Transport Information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

TDG

Not regulated as dangerous goods.

Section 15: Other Regulatory Information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CERCLA/SARA Hazardous Substances - Not applicable.

TSCA Section 12(b) Export Notification(40 CFR 707, Subpt. D)

Not regulated.

CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes

Delayed Hazard - No

Fire Hazard - No

Pressure Hazard - No

Reactivity Hazard - No

Section 302 extremely hazardous substance (40 CFR 355, Appendix A)

No

Section 311/312 (40 CFR 370)

No

Drug Enforcement

Administration (DEA) (21 CFR 1308.11-15)

Not controlled

Food and Drug Administration(FDA)

Total food additive

Direct food additive

GRAS food additive

Canadian regulations This is not a WHMIS controlled product.

WHMIS status Non-controlled

Inventory status

Country(s) or region	Inventory name On inventory	(yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances(PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s) State regulations This product does not contain a chemical known to the State of California to cause cancer, birth

defects or other reproductive harm.

Section 16: Other Information

HMIS® ratings Health: 1

Flammability: 0

Physical hazard: 0

NFPA ratings Health: 1

Flammability: 0

Instability: 0

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