

Material Safety Data Sheet

Urea

Section 1 - Chemical Product Identification

MSDS Name: Urea

Synonyms: Carbamide resin; Carbamimidic acid; Carbonyl diamide;
Carbonyldiamine; Isourea Company Identification:

Emergency Telephone Numbers:

800-255-3924 ChemTel. (United States)

+ 1 01 813-248-0585 (Outside the United States)

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
57-13-6	Urea	ca. 100	200-315-5

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: white crystals.

Warning! Causes eye and skin irritation. Causes digestive and respiratory tract irritation. May cause cardiac disturbances. Reproductively active.

Target Organs: Blood, cardiovascular system.

Potential Health Effects

Eye: Causes eye irritation.

Skin: Causes skin irritation.

Ingestion: Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause cardiac disturbances. May cause disturbed blood electrolyte balance.

Inhalation: Inhalation of dust causes irritation of the nose and throat, coughing and sneezing.

Chronic: Prolonged or repeated exposure may cause adverse reproductive effects. Laboratory experiments have resulted in mutagenic effects. Prolonged exposure or exposure to high concentrations may cause eye damage.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively. Weak acids such as acetic acid and propionic acid can be used as chemical antidotes, demulcents and stimulants.

Section 5 - Fire Fighting Measures

General Information: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products.

Extinguishing Media: Substance is noncombustible; use agent most appropriate to extinguish surrounding fire. Use water spray, dry chemical, carbon dioxide, or appropriate foam.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 1; Flammability: 0; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid breathing dust, vapor, mist, or gas. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.

Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Urea	None listed	None listed	None listed

OSHA Vacated PELs: Urea: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Crystals

Appearance: white

Odor: ammonia-like

pH: 7.2 (10% solution)

Vapor Pressure: 1.2105 mm Hg @ 25C Vapor Density: 2.07

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: decomposes Freezing/Melting Point: 132 deg C

Decomposition Temperature: Not available. Solubility: Soluble.

Specific Gravity/Density: 1.335 Molecular Formula:CH₄N₂O

Molecular Weight: 60.0408

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials, dust generation, excess, heat.

Incompatibilities with Other Materials: Strong oxidizing agents, sodium hypochlorite, sodium nitrate, calcium hypochlorite, nitrosyl perchlorate, gallium perchlorate, diphosphorus pentachloride.

Hazardous Decomposition Products: Carbon monoxide, oxides of nitrogen, irritating and toxic fumes and gases, carbon dioxide.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 57-13-6: YR6250000 LDSO/LCSO:

CAS# 57-13-6: Oral, mouse: LD₅₀ = 11 gmjkg; Oral, rat: LD₅₀ = 8471 gmjkg;

Carcinogenicity: CAS# 57-13-6: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: Oral, rat: TDLo = 821 gmjkgj1Y-C (Tumorigenic - neoplastic by RTECS criteria Blood - tumors and Blood - lymphoma, including Hodgkin's disease).; Oral, mouse: TDLo = 394 gmjkgj1Y-C (Tumorigenic - Carcinogenic by RTECS criteria - Blood - tumors and Blood lymphoma, including Hodgkin's disease).

Teratogenicity: No information available.

Reproductive Effects: Intraplental, woman: TDLo = 1400 gmjkg (female 16 weekes) after conception) Fertility - abortion.; Intraplental, woman: TDLo = 1600 gmjkg (female 16 weekes) after conception) Fertility - abortion.

Mutagenicity: DNA Inhibition: Human, Lymphocyte = 600 mmoljL.; Cytogenetic Analysis: Human, Leukocyte = 50 mmoljL.i DNA Damage: Mouse, Lymphocyte = 628 mmoljL.; Mutation in Mammalian Somatic Cells: Mouse, Lymphocyte = 265 mmoljL.

Neurotoxicity: No information available.

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Bacteria: Phytobacterium phosphoreum: EC₅₀ = 23914 mgjL; 5 mini Microtox test If released to water, urea can degrade readily through biotic hydrolysis as demonstrated by various screening studies. The presence of naturally-occurring phytoplankton increases the degradation rate because phytoplankton use urea as a nitrogen source and because urea is decomposed by phytoplankton photosynthesis. In phytoplankton-rich waters, degradation occurs much faster in sunlight than in the dark. Abiotic hydrolysis of urea occurs very slowly in relation to biotic hydrolysis.

Environmental: If released to the atmosphere, urea will degrade rapidly in the vapor-phase by reaction with photochemically produced hydroxyl radicals (half-life of 9.6 hr). If released to soil, urea is hydrolyzed to ammonium through soil urease activity (the basis of its use as a fertilizer). The rate of hydrolysis can be fast (24 hr)i however, a number a variables (such as increasing the pellet size of the fertilizer) can decrease the degradation rate from days to weeks.

Physical: No information found.

Other: No information found.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	Not regulated as a hazardous material	No information available.
Hazard Class:		
UN Number:		
Packing Group:		

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 57-13-6 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 57-13-6: immediate.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depleters. This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 57-13-6 can be found on the following state right to know lists: Minnesota.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives Hazard Symbols:

Not available.

Risk Phrases:

Safety Phrases:

WGK (Water Danger/Protection)

CAS# 57-13-6: 1

Canada - DSL/NDSL

CAS# 57-13-6 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D2A, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

Section 16 - Additional Information

MSDS Creation Date: 5/28/1999

Revision #4 Date: 09/17/2010

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the manufacturer be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the manufacturer has been advised of the possibility of such damages.