Material Safety Data Sheet
Urea MSDS

Section 1: Chemical Product and Company Identification

Product Name: Urea

Synonyms: B-I-K, carbamide, carbamide resin, carbamimidic acid, carbonyl diamid, isourea, pseudourea, carbonyldiamine, supercel 3000, ureaphil, ureophil, urevert, varioform II

CAS#: 57-13-6

HS Code: 310210

Chemical formula: CH_4N_2O

Use of the substance/Preparation: Urea is a chemical fertilizer and the most of it, is used in agriculture. Furthermore, urea is used in the production of resins and glues. Industrial resins are used in the manufacture of such forestry products as plywood and oriented strandboard. Urea is used in the production of fiberglass insulation, forestry fertilization and on airport runways as a de-icer. Urea is used in the control of NOX emissions.

Details of the supplier of the safety data sheet:

Supplier: Infinity Galaxy

Address: Rolex Tower - Trade Center - DIFC - Dubai - United Arab Emirate

Website: https://infinitygalaxy.org/

Email: info@infinitygalaxy.org

Telephone: +971 50 980 4849

Section 2: Composition and Information on Ingredients

Substance:

Name	Chemical formula	CAS#	% by Weight
Urea	CH_4N_2O	57-13-6	100

Section 3: Hazards Identification

Hazardous Decomposition Products: Oxides of carbon and nitrogen, ammonia, Cyanide

GHS label elements:

Toxicological characteristics:

Oxides of carbon and nitrogen are air pollutant; ammonia is the one of the easiest form of nitrogen compounds for nutrition of livings but could be harmful in the huge amount. Cyanides are the very toxic for livings.

Substances present at a concentration below the minimum danger:

Refer to carbon oxides MSDS, nitrogen oxides MSDS and cyanides MSDS.

Risk phrases: R 36137/38 60

Skin contact: Causes skin irritation

Eye contact: Causes eye irritation

Inhalation:

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

If swallowed:

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

Other information: None.

Section 4: First Aid Measures

As a general rule, in case of doubt or if symptoms persist, always call a doctor NEVER induce swallowing in an unconscious person.

Skin contact:

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

Inhalation:

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

Splashes or eye contact:

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

Swallowing:

If victim is conscious and alert, give 2-4 cupful of milk or water. Never give anything by mouth to an unconscious person Get medical aid.

Section 5: Fire and Explosion Data

Flammable class: Nonflammable

Suitable extinguishing media:

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

Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases:

During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Special protective equipment for firefighting:

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.

Section 6: Accidental Release Measures

Personal precautions:

Wear appropriate protective eyeglasses or chemical safety goggles. Wear appropriate protective gloves to prevent skin exposure. Wear appropriate protective clothing to prevent skin exposure.

Environmental precautions:

Avoid generating dusty conditions. Provide ventilation.

Methods for cleaning up and disposal:

Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately.

Other information:

None

Section 7: Handling and Storage

The regulations relating to storage premises applied to workshop where the product is handled:

Handling:

observe all warning and precautions listed for the product.

Storage:

To preserve product integrity, store at 25°C, excursions permitted between 15°C and 30°C. Store in a tightly closed container. Protect container from physical damage. Isolate from incompatible substances. 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.

Section 8: Exposure Controls/Personal Protection

Exposure limit values:

Airborne Exposure Limits for urea: AIHA Workplace Environmental Exposure Limit (WEEL)= 10 mg/m^3, 8-hour TWA

Exposure controls:

Ventilation System: A system or local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. 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.

Personal protective equipment:

Eye protection: 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.

Respiratory protection:

NIOSH approved dust mask. Personal Respirators

(NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, a half face piece particulate respirator (NIOSI type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. 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 piece positive- pressure, air-supplied respirator.

VARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. If heat is involved, an ammonia/methylamine, dust/mist cartridge may be necessary.

Hand protection:

Wear appropriate protective gloves as latex or vinyl to prevent skin exposure.

Skin and body protection: Wear appropriate protective gloves to prevent skin exposure.

Health measures:

Health	1
Flammability	0
Reactivity	0
Hazard Rating: Least Slight Moderate High Extreme 0 1 2 3 4 NA: Not Applicable NE= Not Established	

Environmental exposure controls:

Prevent large quantities from contacting vegetation or waterways. Keep animals away from large spills. Vacuum or sweep up and place into approved containers for later disposal.

Section 9: Physical and Chemical Properties

General information:	Urea
Appearance(at 20°C):	White Crystal
Color:	White
Odor:	Ammonia-like
PH (at 20 °C):	7.2 (10% solution)
Melting point/range (°C):	132 °C- 135 °C
Flash point (°C):	Not applicable
Flammability:	Not flammable
Auto-ignition temperature:	Not applicable
Explosive properties:	Uncontaminated urea is not an explosion hazard. However it may form explosive mixtures subject to spontaneous detonation when contaminated with strong acid (nitric or perchloric) or nitrates.
Oxidizing properties:	None
Vapor pressure (at 20°C):	Negligible, urea is not a volatile solid
Density (at 20°C):	1.33 , Bulk density is 700-780 kg/m^3
Solubility (at 20°C):	water solubility: 67 gm/100 gm H20 @32°F , solubility in fats; not soluble
Viscosity (40°C):	Not applicable
Evaporation rate:	Not applicable
Other information:	None.

Section 10: Stability and Reactivity Data

Stability:

The product is stable.

Conditions to avoid:

Excess heat, excess dust generation, incompatible materials.

Material to avoid:

Reactive with oxidizing agents. Calcium hypo chloride, sodium hypo chloride reacts with urea and may explode. Chloride sodium and anidrid dichloromalik reacts with urea and make potential explosion material. case study for other materials would be better.

Hazardous decomposition products:

Urea decomposes upon heating and can form products including ammonia, oxides of nitrogen, Cyanuric acid, cyanic acid, biuret, carbon dioxide.

Section 11: Toxicological Information

Acute toxicity:

LD50, oral, rat (mg.kg^{-1}): 8471 mg/kg

LD50, oral, mouse (mg.kg^{-1}): 11000 mg/kg

LD50, dermal (mg.kg^{-1}): 2000 mg/kg rabbit

Sub chronic -chronic toxicity:

Sub chronic toxicity:

In a repeated dose toxicity study, urea at 10% ,20%, and 40% in ointment was applied to the back skin of rats for 4 weeks. No dose dependent toxicity was observed. There were no consistent treatment-related effects on standard hematological parameters, clinical chemistry, organ weights or organ histopathology, including the testicles, prostate, seminal vesicles, ovaries and the uterus.

Chronic Toxicity:

In a chronic toxicity and carcinogenicity screening study conducted in mice over 12 months, urea was administered at 0, 0.45% ,0.9% and 4.5%. in the diet. No pathology was reported immediately following treatment period. After 4 months tests, prostate and uterus were histologically examined for occurrence of tumors in the survivors. Although there was a Statistically increased incidence of interstitial cell adenomas of the testis in the high close group, its biological significance was deemed questionable, since the lesion may occur in 100% of controls.

Sensibilization:

Not reported.

Carcinogenicity:

Rats and Mice: Cancer Test Summary May cause adverse reproductive effects (fetotoxicity) and genetic material (mutagenicity) based on animal studies

Human experience:

Not reported.

Section 12: Ecological Information

Ecotoxicity: This product is biodegradable.

Bio accumulative potential: Does not bioaccumulate.

Mobility: Water contaminating.

Persistence and degradability: Inherently biodegradable. Non-persistence.

Other adverse effects: Do not apply directly to lakes, streams or ponds.

Section 13: Disposal Considerations

Disposal of product:

Depend on local regulations. Urea is a fertilizer and is applicable in agricultural lands.

Disposal of packaging:

Urea is bagged in 50 kg. Special double envelope polyethylene. Disposal of the bags is depending on local regulations for disposal of polyethylene bags.

Section 14: Transport Information

Land transport:

Not classed, i.e. considered non-hazardous material according to UN Orange Book and international transport codes e.g. RID (rail), ADR (road) and IMDG (sea).

ADR/RID: N/A

Packaging group: N/A

Maritime transport: N/A

Air transport: N/A

Section 15: Other Regulatory Information

Hazardous label(s): N/A

Safely phrases: S 24/25. Avoid contact with skin and eyes.

Risk phrases: R 36/37/38 /6-0

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 2001

Last Updated: 2017

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.