

Safety Data Sheet (SDS)

SECTION 1 : CHEMICAL IDENTIFICATION

Product name	Urea
Chemical formula	(NH ₂) ₂ CO or CH ₄ N ₂ O
CAS No.	57-13-6
Synonym	Carbamide; Carbonyldiamide; Carbonyldiamine
Material Uses	Fertilizers, Intermediate, Manufacture of substances, Formulation of preparations (mixtures), Raw material, Use as laboratory reagent, Processing aid, Manufacture of plastics, Cosmetics, AdBlue® solution, Ink and toners.
Seller	TNS Co., Ltd. 3-69-1, SUNARINISHI, KANIE-CHO, AMAGUN, AICHI 497-0036 JAPAN Phone: +81(52)526-0931 Fax: +81(52)526-0791

SECTION 2 : HAZARD(S) IDENTIFICATION

SYMBOL



SIGNAL WORD

WARNING

HAZARD STATEMENTS

H320 – Causes eye irritation

PRECAUTIONARY

P264 – Wash hands, forearms and face thoroughly after handling

STATEMENTS

P351 – IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing

SECTION 3 : COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name	Composition, %-vol
Nitrogen	46.0% min.
H ₂ O	0.5% max.
Biuret	0.8% max.

SECTION 4: FIRST AID MEASURES

After inhalation

Remove person to fresh air and keep comfortable for breathing.
Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service. Allow affected person to breathe fresh air.
Allow the victim to rest.

After skin contact	Rinse with water. Soap may be used. Do not apply (chemical) neutralizing agents. Take victim to a doctor if irritation persists. Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Wash skin with plenty of water.
After eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Rinse with water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
After ingestion	Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Call Poison Information Centre (www.big.be/antigif.html). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital. Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a poison center or a doctor if you feel unwell

SECTION 5 : FIRE FIGHTING MEASURES

Suitable extinguishing media	EXTINGUISHING MEDIA FOR SURROUNDING FIRES: All extinguishing media allowed. : Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Precautionary measures fire	Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions	Cool tanks/drums with water spray/remove them into safety. Dilute toxic gases with water spray. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment
Protection during firefighting	Heat/fire exposure: compressed air/oxygen apparatus. Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

Protective equipment	Gloves. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. See "Material-Handling" to select protective clothing.
Environmental precautions	Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.
Method for containment	Contain released product, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray.
Methods for cleaning up	Mechanically recover the product. Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. See "Material-handling" for suitable container materials. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling. On land, sweep or shovel into suitable containers. Minimise generation of dust. Store away from other materials

SECTION 7 : HANDLING AND STORAGE

Precautions for safe handling	Ensure good ventilation of the work station. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Avoid raising dust. Use earthed equipment. Keep away from naked flames/heat. Observe normal hygiene standards. Keep container tightly closed. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Avoid contact with skin and eyes. Wear personal protective equipment.
Storage conditions	Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use. Store in a well-ventilated place. Keep cool.
Incompatible products	Strong bases. Strong acids.
Incompatible materials	Sources of ignition. Direct sunlight.
Heat and ignition sources	KEEP SUBSTANCE AWAY FROM: heat sources.
Information on mixed storage	KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids. halogens. water/moisture.
Storage area	Store in a dry area. Keep out of direct sunlight. Keep container in a well-ventilated place. Meet the legal requirements.
Special rules on packaging	SPECIAL REQUIREMENTS: hermetical. watertight. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	SUITABLE MATERIAL: stainless steel. synthetic material. glass. cardboard. wood. MATERIAL TO AVOID: carbon steel. copper. Bronze

SECTION 8 : EXPOSURE CONTROL / PERSONAL PROTECTION

Appropriate engineering controls	Ensure good ventilation of the work station. Avoid release to the environment
Personal protective equipment	Avoid all unnecessary exposure.
Materials for protective clothing	GIVE EXCELLENT RESISTANCE: No data available. GIVE GOOD RESISTANCE: butyl rubber. chloroprene rubber. PVC. GIVE LESS RESISTANCE: No data available. GIVE POOR RESISTANCE: neoprene. nitrile rubber. Viton
Hand protection	Gloves. Wear protective gloves.
Eye protection	Face shield. In case of dust production: protective goggles. Chemical goggles or safety glasses. Safety glasses
Skin and body protection	Protective clothing. In case of dust production: head/neck protection. In case of dust production: dustproof clothing
Respiratory protection	Dust production: dust mask with filter type P1. Wear appropriate mask
Other information	Do not eat, drink or smoke during use

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

1.Appearance	Crystalline solid. Crystalline powder. Little spheres. Grains
2.Odour	Odourless in moist air: Ammonia odour
3.Odour threshold	No data available
4.pH	9.6 (10% solution)
5.Melting Point	270.8° F (132.7°C)
6.Boiling Point	Not applicable
7.Flash Point	Not applicable
8.Evaporation Rate	No data available
9.Flammability	Non flammable
10.Upper/lower Flammability or explosive limits	Not applicable
11.Vapor Pressure	< 0.01 hPa
12.Vapor Density	1335 kg/m ³
13.Relative Density (Bulk Density)	1.33
14.Solubility	Soluble in water (100 g/mL)
15.Auto Ignition Temperature	Not applicable
16.Decomposition Temperature	> 133 °C
17.Viscosity, dynamic	0.002 Pa.s (20 °C)
18.Viscosity, kinematic	1.498 mm ² /s

SECTION 10 : STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions.
Conditions to avoid	Direct sunlight. Extremely high or low temperatures.
Hazardous decomposition products	Fume. Carbon monoxide. Carbon dioxide.
Reactivity	Decomposes slowly on exposure to water (moisture) and in moist air: release of corrosive gases/vapours (ammonia). On heating: release of toxic/corrosive/combustible gases/vapours (ammonia). On burning: release of toxic and corrosive gases/vapours (nitrous vapours, carbon monoxide –carbon dioxide). Violent to explosive reaction with (some) halogens compounds: release of heat. Reacts with many compounds e.g.: with (strong) oxidizers: (increased) risk of fire/explosion.
Possibility of hazardous reactions	Not established

SECTION 11 : TOXICOLOGICAL INFORMATION

Parameter	Value
LD50 oral, rat	8471 mg/kg (Rat; OECD 401: Acute Oral Toxicity; Literature study; 14300 mg/kg bodyweight; Rat; Experimental value)
LD50 dermal, rat	> 3200 mg/kg (Rat; Literature study)
Carcinogenicity	Not classified
Epidemiology	Oral, rat: TDLo = 821 gm/kg/1Y-C (Tumorigenic - neoplastic by RTECS criteria - Blood - tumors and Blood - lymphoma, including Hodgkin's disease).; Oral, mouse: TDLo = 394 gm/kg /1Y-C (Tumorigenic - Carcinogenic by RTECS criteria - Blood - tumors and Blood - lymphoma, including Hodgkin's disease).
Teratogenicity	No data available
Reproductive Effects	Intraplacental, woman: TDLo = 1400 mg/kg (female 16 week(s) after conception) Fertility - abortion; Intraplacental, woman: TDLo = 1600 mg/kg (female 16 week(s) after conception) Fertility - abortion.
Neurotoxicity	No data available
Mutagenicity	DNA Inhibition: Human, Lymphocyte = 600 mmol/L.; Cytogenetic Analysis: Human, Leukocyte = 50 mmol/L.; DNA Damage: Mouse, Lymphocyte = 628 mmol/L.; Mutation in Mammalian Somatic Cells: Mouse, Lymphocyte = 265 mmol/L.
Other Studies	Standard Draize test: Administration onto the skin (human) = 22 mg/m3 (Intermittent) (Mild).

SECTION 12 : ECOLOGICAL INFORMATION

Ecology – General Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008

Ecology – Air Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). Not included in the list of fluorinated greenhouse gases (Regulation (EC) No 842/2006). TA-Luft Klasse 5.2.5/I
Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). Not included in the list of fluorinated greenhouse gases (Regulation (EC) No 842/2006). TA-Luft Klasse 5.2.5/I

Ecology – Water Groundwater pollutant. Not harmful to fishes (LC50(96h) >1000 mg/l). Not harmful to invertebrates (Daphnia) (EC50 (48h) > 1000 mg/l). Not harmful to algae.

Urea Fertilizer 46-0-0	
LC50 fish 1	>6810 mg/l(96 h; Leuciscus idus; Nominal concentration)
EC50 Daphnia 1	>10000 mg/l (48 h; Daphnia magna; Nominal concentration)
LC50 fish 2	17500 mg/l(96 h; Poecilia reticulata)
EC50 Daphnia 2	>10000 mg/l (24 h; Daphnia magna)
TLM fish 1	17500 ppm (96 h; Poecilia reticulata)
Threshold limit other aquatic organisms 1	120000 mg/l (16 h; Bacteria; Toxicity test)
Threshold limit other aquatic organisms 1	>10000 mg/l (Pseudomonas putida)
Threshold limit algae 1	>10000 mg/l (168 h; Scenedesmus quadricauda; Growth rate)
Threshold limit algae 2	47 mg/l (192 h; Microcystis aeruginosa; Growth rate)

SECTION 13 : DISPOSAL CONSIDERATIONS

Waste treatment methods Dispose of contents/container in accordance with licensed collector's sorting instructions.

**Product/
Packaging disposal
recommendations** Remove to an authorized dump (Class II). Do not discharge into drains or the environment. Dispose in a safe manner in accordance with local/national regulations.

Additional information LWCA (the Netherlands): KGA category 03. Can be considered as non hazardous waste according to Directive 2008/98/EC.

SECTION 14 : TRANSPORT INFORMATION

In accordance with Department of Transportation (DOT)
No supplementary information available.

SECTION 15 : REGULATORY INFORMATION

US Federal regulations	All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory
Canada	Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)
EU Regulations	No additional information available

SECTION 16 : OTHER INFORMATION

Disclaimer	<p>This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE CONCERNING THE INFORMATION HEREIN PROVIDED. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information nor do we offer warranty against patent infringement.</p>
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