

1. IDENTIFICATION

Product Name	Urea
Other Names	Carbamide
Uses	Chemical intermediate; Raw material for the glue and resin industry; Additive for the paper, plastics and textile industry and other industrial sectors; Defrosting agent.
Chemical Family	No Data Available
Chemical Formula	CH ₄ N ₂ O
Chemical Name	Urea
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) Not Scheduled

Globally Harmonised System

Hazard Classification NOT hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)

Signal Word None

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications Health Hazards **6.4A** Substances that are irritating to the eye

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Urea	CH ₄ N ₂ O	57-13-6	<=100 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	IF SWALLOWED: Rinse mouth, then drink plenty of water. Do not induce vomiting. Get medical advice/attention.
Eye	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention.
Skin	IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If skin irritation occurs, get medical advice/attention.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If respiratory symptoms persist, get medical advice/attention. Apply resuscitation if victim is not breathing - Administer oxygen if breathing is difficult.
Advice to Doctor	Treat symptomatically.
Medical Conditions Aggravated by Exposure	No information available.

5. FIRE FIGHTING MEASURES

General Measures	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out.
Flammability Conditions	Non-combustible; The product itself does not burn.
Extinguishing Media	If material is involved in a fire, use dry chemical, Carbon dioxide (CO ₂), foam or water spray for extinction - Do not use water jets. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Fire and Explosion Hazard	May evolve toxic gases (ammonia, carbon/nitrogen oxides, hydrocarbons) when heated to decomposition. Fire or heat may produce irritating, toxic and/or corrosive fumes, including Ammonia.

Hazardous Products of Combustion**Special Fire Fighting Instructions**

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Personal Protective Equipment

Wear self-contained breathing apparatus (SCBA) and chemical splash suit. SCBA and structural firefighter's uniform may provide limited protection.

Flash Point

No Data Available

Lower Explosion Limit

No Data Available

Upper Explosion Limit

No Data Available

Auto Ignition Temperature

No Data Available

Hazchem Code

No Data Available

6. ACCIDENTAL RELEASE MEASURES**General Response Procedure**

Ensure adequate ventilation. Do not touch or walk through spilled material - Forms slippery surfaces in contact with water. Avoid generating dust. Avoid breathing dust and contact with eyes, skin and clothing.

Clean Up Procedures

Recover spilt product as soon as possible. Pick up dry and put into suitable containers for recycling or disposal (see SECTION 13).

*Urea that has not been degraded or contaminated can be used as intended.

Containment

Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas. Prevent dust cloud.

Decontamination

No information available.

Environmental Precautionary Measures

Prevent entry into drains and waterways.

Evacuation Criteria

Spill or leak area should be isolated immediately. Keep unauthorised personnel away.

Personal Precautionary Measures

Use personal protective equipment as required (see SECTION 8).

7. HANDLING AND STORAGE**Handling**

Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Minimise dust generation and accumulation. Avoid breathing dust and contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8).

Storage

Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed. Protect from moisture (hygroscopic); Do not allow to get wet. Keep away from heat and sources of ignition - No smoking. Keep away from foodstuffs, farm chemicals and incompatible materials (see SECTION 10).

*Bulk urea should be stored in bays or piles physically apart from other products. The product may set in storage, posing a risk of engulfment when being removed from the stockpile. Conduct Risk Assessments, and ensure appropriate equipment, procedures and training are in place. Ensure stockpiles of bulk bags are stable. Avoid high stacking as this promotes caking.

Container

Keep in the original container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**General**

No specific exposure standards are available for this product. For dusts from solid substances without specific occupational exposure standards:

- Safe Work Australia Exposure Standard (Nuisance dusts): 8 hr TWA = 10 mg/m³ (measured as inhalable dust).
- New Zealand WES (Particulates not otherwise classified): TWA = 10 mg/m³; TWA = 3 mg/m³ (respirable dust).

Exposure Limits

No Data Available

Biological Limits

No information available.

Engineering Measures

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. 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 Protection Equipment	- Respiratory protection: In case of inadequate ventilation, wear respiratory protection. Recommended: Where an inhalation risk exists, wear a Class P1 (Particulate) respirator (refer to AS/NZS 1715 & 1716). - Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Wear splash-proof or dust-proof goggles. - Hand protection: Handle with gloves. Recommended: Wear cotton or PVC or rubber gloves. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Normal work clothing may suffice where contact with the product is limited; When using large quantities or where heavy contamination is likely, wear coveralls.
Special Hazards Precautions	This product can give off ammonia or other odours. As oxygen may be depleted, it is essential that ventilation is carried out prior to entry into confined, unventilated space/ship holds.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Wash hands before breaks and at the end of workday. Wash contaminated clothing and other protective equipment before storage or reuse. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Crystals, granules, pellets, prills
Odour	Odourless or slightly ammoniacal
Colour	White
pH	<10 (10% solution)
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	Decomposes
Melting Point	133 - 134 °C
Freezing Point	No Data Available
Solubility	Very soluble in water
Specific Gravity	1.33
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	700 - 780 kg/m ³
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	log Pow: -1.56 (20 °C)
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	No information available.
Potential for Dust Explosion	No information available.
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.

Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	Non-combustible; The product itself does not burn.
Reactions That Release Gases or Vapours	May evolve toxic gases (ammonia, carbon/nitrogen oxides, hydrocarbons) when heated to decomposition.
Release of Invisible Flammable Vapours and Gases	No information available.

10. STABILITY AND REACTIVITY

General Information	Reacts violently with nitrites.
Chemical Stability	Stable under recommended conditions of storage.
Conditions to Avoid	Avoid dust formation. Avoid heat, sparks, open flames and other ignition sources.
Materials to Avoid	Incompatible/reactive with strong oxidising agents, acids, bases.
Hazardous Decomposition Products	May evolve toxic gases (ammonia, carbon/nitrogen oxides, hydrocarbons) when heated to decomposition.
Hazardous Polymerisation	Polymerisation will not occur.

11. TOXICOLOGICAL INFORMATION

General Information	Information on possible routes of exposure: - Ingestion: Low toxicity. Ingestion may result in gastrointestinal irritation, nausea and vomiting. Ingestion of large quantities may result in dizziness, drowsiness, excessive urine, weakness and confusion. - Eye contact: May cause eye irritation, lacrimation, redness, pain. - Skin contact: May cause skin irritation, redness, pain. - Inhalation: Over exposure may result in coughing and irritation of the nose and throat. Chronic effects: No information available.
Acute	
Ingestion	Acute toxicity (Oral): - LD50, Rat: 14,300 mg/kg
Chronic	
Ingestion	Repeated dose toxicity (Oral): - NOAEL, Rat: 2,250 mg/kg
Reproduction	Reproductive toxicity: - NOAEL, Rat: 500 mg/kg
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	Aquatic toxicity: - LC50, Fish (<i>Leuciscus idus</i>): >6,810 mg/l (96 h). - EC50, Crustacea (<i>Daphnia magna</i>): >10,000 mg/l (24 h). - EC50, Algae (<i>Scenedesmus quadricauda</i>): >10,000 mg/l (192 h).
Persistence/Degradability	Readily biodegradable.
Mobility	No information available.
Environmental Fate	Slightly water endangering - Prevent entry into drains and waterways.
Bioaccumulation Potential	Does not bioaccumulate.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information Dispose of contents/container in accordance with local/regional/national regulations. Beneficial reuse is the preferred disposal option.

Special Precautions for Land Fill Packaging should be completely emptied, and then taken to an approved recycler after appropriate cleaning.

14. TRANSPORT INFORMATION**Land Transport (Australia)**

ADG Code

Proper Shipping Name	Urea
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (Malaysia)

ADR Code

Proper Shipping Name	Urea
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (New Zealand)

NZS5433

Proper Shipping Name	Urea
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (United States of America)

US DOT

Proper Shipping Name	Urea
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Sea Transport

IMDG Code

Proper Shipping Name	Urea
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
EMS	No Data Available
Marine Pollutant	No
Comments	NON-DANGEROUS GOODS: Not regulated for SEA transport.

Air Transport

IATA DGR

Proper Shipping Name	Urea
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for AIR transport.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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15. REGULATORY INFORMATION

General Information	No Data Available
Poisons Schedule (Aust)	Not Scheduled

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code HSR002503
HSR002808 (Revoked)

National/Regional Inventories

Australia (AICS)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	200-315-5
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

16. OTHER INFORMATION

Related Product Codes UREAAB1000, UREAAB1002, UREAAB1003, UREAAB1004, UREAAB1005, UREAAB1006, UREAAB1007, UREAAB1008, UREAAB1009, UREAAB1010, UREAAB1011, UREAAB1012, UREAAB1013, UREAAB1014, UREAAB1015, UREAAB1016, UREAAB1017, UREAAB1018, UREAAB1019, UREAAB1020, UREAAB1021, UREAAB1022, UREAAB1023, UREAAB1024, UREAAB1025, UREAAB1026, UREAAB1027, UREAAB1028, UREAAB1030, UREAAB2000, UREAAB2100, UREAAB3000, UREAAB4800, UREAAB5000, UREAAG1000, UREAAG1001, UREAAG1002, UREAAG1003, UREAAG1004, UREAAG1005, UREAAG1006, UREAAG1007, UREAAG1008, UREAAG1009, UREAAG1010, UREAAG1011, UREAAG1012, UREAAG1013, UREAAG1014, UREAAG1015, UREAAG1016, UREAAG1017, UREAAG1018, UREAAG1019, UREAAG1020, UREAAG1021, UREAAG1022, UREAAG1023, UREAAG1024, UREAAG1025, UREAAG1026, UREAAG1027, UREAAG1028, UREAAG1029, UREAAG1030, UREAAG1031, UREAAG1032, UREAAG1033, UREAAG1034, UREAAG1035, UREAAG1036, UREAAG1037, UREAAG1038, UREAAG1039, UREAAG1040, UREAAG1041, UREAAG1042, UREAAG1043, UREAAG1044, UREAAG1045, UREAAG1046, UREAAG1047, UREAAG1048, UREAAG1049, UREAAG1050, UREAAG1051, UREAAG1052, UREAAG1053, UREAAG1054, UREAAG1055, UREAAG1056, UREAAG1057, UREAAG1058, UREAAG1059, UREAAG1060, UREAAG1061, UREAAG1062, UREAAG1063, UREAAG1064, UREAAG1065, UREAAG1066, UREAAG1067, UREAAG1068, UREAAG1069, UREAAG1070, UREAAG1071, UREAAG1072, UREAAG1073, UREAAG1074, UREAAG1075, UREAAG1076, UREAAG1077, UREAAG1078, UREAAG1079, UREAAG1080, UREAAG1081, UREAAG1082, UREAAG1083, UREAAG1084, UREAAG1085, UREAAG1086, UREAAG1087, UREAAG1089, UREAAG1100, UREAAG1150, UREAAG1160, UREAAG1200, UREAAG1400, UREAAG1405, UREAAG1410, UREAAG1420, UREAAG1500, UREAAG1501, UREAAG1505, UREAAG1510, UREAAG1515, UREAAG1600, UREAAG1700, UREAAG1701, UREAAG1800, UREAAG1801, UREAAG1803, UREAAG1804, UREAAG1805, UREAAG1806, UREAAG1807, UREAAG1808, UREAAG1809, UREAAG1810, UREAAG1811, UREAAG1812, UREAAG1813, UREAAG1814, UREAAG1815,

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Revision

5

Revision Date

01 Nov 2019

Reason for Issue

Updated SDS

Key/Legend

< Less Than

> Greater Than

AICS Australian Inventory of Chemical Substances**atm** Atmosphere**CAS** Chemical Abstracts Service (Registry Number)**cm²** Square Centimetres**CO₂** Carbon Dioxide**COD** Chemical Oxygen Demand**deg C (°C)** Degrees Celcius**EPA (New Zealand)** Environmental Protection Authority of New Zealand**deg F (°F)** Degrees Farenheit**g** Grams**g/cm³** Grams per Cubic Centimetre**g/l** Grams per Litre**HSNO** Hazardous Substance and New Organism**IDLH** Immediately Dangerous to Life and Health**immiscible** Liquids are insoluable in each other.**inHg** Inch of Mercury**inH₂O** Inch of Water**K** Kelvin**kg** Kilogram**kg/m³** Kilograms per Cubic Metre**lb** Pound**LC50** LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.

LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.

ltr or **L** Litre

m³ Cubic Metre

mbar Millibar

mg Milligram

mg/24H Milligrams per 24 Hours

mg/kg Milligrams per Kilogram

mg/m³ Milligrams per Cubic Metre

Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.

mm Millimetre

mmH₂O Millimetres of Water

mPa.s Millipascals per Second

N/A Not Applicable

NIOSH National Institute for Occupational Safety and Health

NOHSC National Occupational Health and Safety Commission

OECD Organisation for Economic Co-operation and Development

Oz Ounce

PEL Permissible Exposure Limit

Pa Pascal

ppb Parts per Billion

ppm Parts per Million

ppm/2h Parts per Million per 2 Hours

ppm/6h Parts per Million per 6 Hours

psi Pounds per Square Inch

R Rankine

RCP Reciprocal Calculation Procedure

STEL Short Term Exposure Limit

TLV Threshold Limit Value

tne Tonne

TWA Time Weighted Average

ug/24H Micrograms per 24 Hours

UN United Nations

wt Weight