



Safety Data Sheet

Section 01 - Identification

Product Identifier	Urea Solution 28-50%
Other Means of Identification	Carbonyl Diamide, Aqueous; Urea Aqueous.
Product Use and Restrictions on Use	Manufacture of fertilizers.
Initial Supplier Identifier	ClearTech Industries Inc. 1500 Quebec Avenue Saskatoon, SK. Canada S7K 1V7
Prepared By	ClearTech Industries Inc. Technical Writer Phone: 1 (800) 387-7503
24-Hour Emergency Phone	Phone: 1 (306) 664 – 2522

Section 02 - Hazard Identification

GHS-Classification

This product has been assessed in accordance with the Hazardous Products Regulations and is not classified as a hazardous substance or mixture.

Section 03 - Composition / Information on Ingredients

Chemical Name	CAS Number	Weight %	Unique Identifiers
Urea	57-13-6	28-50%	
Water	7732-18-5	50-72%	

Section 04 - First Aid Measures

Inhalation	If symptoms are experienced, remove victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Seek medical attention if you feel unwell or are concerned.
Skin Contact / Absorption	Rinse skin with lukewarm, gently flowing water for 5 minutes or until product is removed. If skin irritation occurs or you feel unwell, seek medical attention.
Eye Contact	Gently brush chemical off face. Do not rub eyes. Let the eyes water naturally for a few minutes. Look right and left, then up and down in an attempt to dislodge particle. If particle does not come out, cautiously rinse eyes with lukewarm, gently flowing water for 30 minutes, while holding the eyelids open. If eye irritation persists, seek medical attention. Do not attempt to manually remove anything from the eye.
Ingestion	If you feel unwell or are concerned, seek medical attention.
Additional Information	Not Available.

Section 05 - Fire Fighting Measures

Suitable Extinguishing Media	Use extinguishing media appropriate for the surrounding fire.
Unsuitable Extinguishing Media	Not Available
Specific Hazards Arising From the Chemical	During a fire, irritating/toxic nitrogen oxides and ammonia may be generated.
Special Protective Equipment and Precautions for Fire-Fighters	Wear NIOSH-approved self-contained breathing apparatus and protective clothing.
Further Information	Not Available

Section 06 - Accidental Release Measures

Personal Precautions / Protective Equipment / Emergency Procedures	Wear appropriate personal protective equipment. Ventilate area. Only enter area with PPE. Stop or reduce leak if safe to do so. Flush with water to remove any residue.
Environmental Precautions	Prevent material from entering sewers. Notify environmental authorities to discuss disposal and cleanup of contaminated materials.
Methods and Materials for Containment and Cleaning Up	Contain spill with earth, sand, or absorbent material which does not react with spilled material. SMALL SPILLS of urea solutions: Soak up spill with absorbent material which does not react with spilled chemical. Put material in suitable, covered, labelled containers. Flush area with water. SMALL SPILLS of solid urea: Shovel into clean, dry, labelled containers and cover. Flush area with water. LARGE SPILLS: Contact fire and emergency services and supplier for advice. Contaminated absorbent material may pose the same hazards as the spilled product.

Section 07 - Handling and Storage

Precautions for Safe Handling	Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure.
Conditions for Safe Storage	Store in a cool, dry, well-ventilated area, out of direct sunlight and away from incompatible materials. Store in suitable, labelled containers, preferably the supplier container. Protect from damage.
Incompatibilities	Strong oxidizing agents, sodium hypochlorite, calcium hypochlorite, phosphorus pentachloride, sodium nitrite, potassium nitrite, chromyl chloride, nitrosyl perchlorate, gallium perchlorate, titanium tetrachloride.

Section 08 - Exposure Controls and Personal Protection

Exposure Limit(s)

Component	Regulation	Type of Listing	Value
Urea	WEELs	WEEL-TWA	10mg/m ³

Engineering Control(s)

Ventilation Requirements	Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions should be provided. Supply sufficient replacement air to make up for air removed by exhaust systems.
Other	Emergency shower and eyewash should be in close proximity.

Protective Equipment

Eyes/Face	No specific requirements, but it is good practice to wear chemical safety glasses while product is being handled.
Hand Protection	No specific requirements, but it is good practice to avoid skin contact by wearing impervious gloves of chemical resistance.
Skin and Body Protection	No specific requirements, but it is good practice to avoid skin contact by wearing body suite, aprons, and/or coveralls. No special footwear is required other than what is mandated at place of work.
Respiratory Protection	A NIOSH/MSHA approved air purifying respiratory, equipped w/combined ammonia & dust, fume, & mist cartridges if necessary.
Thermal Hazards	Not Available

Section 09 - Physical and Chemical Properties

Appearance

Physical State	Liquid
Colour	Clear, colourless
Odour	Slight ammonia odour
Odour Threshold	Not Available

Property

pH	7.2
Melting Point/Freezing Point	133-135°C
Initial Boiling Point and Boiling Range	Decomposes before boiling.
Flash Point	Not Available
Evaporation Rate	Not Applicable
Flammability	Non-Flammable
Upper Flammable Limit	Not Available
Lower Flammable Limit	Not Available
Vapour Pressure (mm Hg, 20°C)	Almost zero (does not form vapour)
Vapour Density (Air=1)	Not Applicable
Relative Density	Not Available
Solubility(ies)	Very soluble in water. Very soluble in ethanol, methanol and glycerol. Soluble in acetic acid, pyrimidine and concentrated hydrochloric acid. Almost insoluble in chloroform and diethyl ether. Insoluble in benzene.

Partition Coefficient: n-octanol/water	Log P _{ow} = -2.97 to -2.26
Auto-ignition Temperature	Not Available
Decomposition Temperature	135°C
Viscosity	Not Available
Explosive Properties	Non-combustible and is a non-explosive dust.
Specific Gravity (Water=1)	1.323-1.335 @ 20°C
% Volatiles by Volume	Not Available
Formula	CO(NH ₂) ₂
Molecular Weight	60.06

Section 10 - Stability and Reactivity

Reactivity	Incompatible with acrylonitrile-butadiene-styrene (ABS) or polyethylene. Will cause deterioration of unplasticized PVC with long-term use.
Stability	Normally stable. May gradually give off ammonia.
Possibility of Hazardous Reactions	Polymerization will not occur.
Conditions to Avoid	Temperatures of 135°C and above, moisture.
Incompatible Materials	Strong oxidizing agents, sodium hypochlorite, calcium hypochlorite, phosphorus pentachloride, sodium nitrite, potassium nitrite, chromyl chloride, nitrosyl perchlorate, gallium perchlorate, titanium tetrachloride.
Hazardous Decomposition Products	None reported.

Section 11 - Toxicological Information

Acute Toxicity

Component	Oral LD ₅₀	Dermal LD ₅₀	Inhalation LC ₅₀
Urea (50%)	17,482 mg/kg (rat)	>42,000 mg/kg (rabbit)	Not Available

Chronic Toxicity – Carcinogenicity

Component	IARC
Urea	Urea is not known to be a carcinogen.

Skin Corrosion/Irritation	Not expected to produce skin irritation.
Ingestion	Not expected to be harmful if ingested.
Inhalation	High concentrations of dust or mist may cause irritation of the nose and throat with sore throat, sneezing or coughing.
Serious Eye Damage/Irritation	May be a moderate eye irritant. Urea dust may cause irritation as a “foreign body”. Some tearing, blinking and mild temporary pain may occur as the solid material is rinsed from the eye by tears.

Respiratory or Skin Sensitization	Urea is not known to cause respiratory or skin sensitization.
Germ Cell Mutagenicity	Urea is not known to be a mutagen.
Reproductive Toxicity	Urea is not known to cause developmental or reproductive toxicity.
STOT-Single Exposure	Irritating to respiratory tract. May cause sore throat, coughing and difficulty breathing.
STOT-Repeated Exposure	Not Available
Aspiration Hazard	Not Available
Synergistic Materials	Not Available

Section 12 – Ecological Information

Ecotoxicity

Component	Toxicity to Algae	Toxicity to Fish	Toxicity to Daphnia and Other Aquatic Invertebrates
Urea	EC ₅₀ (Green algae, 48hr): 8049.38mg/L	LC ₅₀ (Barilius barna, 96hr): >9100 mg/L	EC ₅₀ (Daphnia magna, 48hr): 3910mg/L
Biodegradability	Products of degradation are carbon dioxides (CO, CO ₂) and water, nitrogen oxides (NO, NO ₂ , etc.) Various field and laboratory studies have demonstrated that urea degrades rapidly in most soils.		
Bioaccumulation	BCF values of 1 and <10 suggest the potential for bioconcentration in aquatic organisms is low.		
Mobility	A Koc of 8 has been determined for urea, suggesting that urea has a high mobility in soil. However, it has been reported that urea can adsorb to humic acids by free-radical complexation. Complexed urea may adsorb to soil more strongly than uncomplexed urea.		
Other Adverse Effects	As a readily available source of nitrogen, urea can also foster excessive growth of algae or microorganisms in water systems.		

Section 13 – Disposal Considerations

Waste From Residues/Unused Products	Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.
Contaminated Packaging	Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.

Section 14 – Transport Information

UN Number	Not Regulated
UN Proper Shipping Name	Not Regulated
Transport Hazard Class(es)	Not Regulated
Packaging Group	Not Regulated
Environmental Hazards	Not listed as a marine pollutant under Canadian TDG Regulations, schedule III.
Special Precautions	Not Available
Transport in Bulk	Not Available

TDG

Other	Secure containers (full and/or empty) with suitable hold down devices during shipment and ensure all caps, valves, or closures are secured in the closed position.
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TDG PRODUCT CLASSIFICATION: This product has been classified on the preparation date specified at section 14 of this MSDS / SDS, for transportation in accordance with the requirements of part 2 of the Transportation of Dangerous

Goods Regulations. If applicable, testing and/or published test data regarding the classification of this product are listed in the references at section 16 of this MSDS / SDS.

Section 15 – Regulatory Information

NOTE: THE PRODUCT LISTED ON THIS SDS HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN CONTROLLED PRODUCTS REGULATIONS. THIS SDS CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.

Section 16 – Other Information

Preparation Date August 14, 2015

Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations.

Attention: Receiver of the chemical goods / SDS coordinator

As part of our commitment to the Canadian Association of Chemical Distributors (CACD) Responsible Distribution[®] initiative, ClearTech Industries Inc. and its associated companies require, as a condition of sale, that you forward the attached Safety Data Sheet(s) to all affected employees, customers, and end-users. ClearTech will send any available supplementary handling, health, and safety information to you at your request.

If you have any questions or concerns please call our customer service center.

References:

- 1) CHEMINFO
- 2) eChemPortal
- 3) TOXNET
- 4) Transportation of Dangerous Goods Canada
- 5) HSDB
- 6) ECHA
- 7) PAN

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