





NFPA Classification	DOT / TDG Pictograms	WHMIS Classification	PROTECTIVE CLOTHING
Health  Flammability Reactivity Specific Hazard			

Section I. Chemical Product and Company Identification

PRODUCT NAME/ TRADE NAME ESN Polymer Coated Urea 44-0-0	
SYNONYM Agricultural Grade Controlled Release Urea	MSDS NUMBER: 14250
CHEMICAL NAME Carbamide	REVISION NUMBER 1.0
CHEMICAL FAMILY Aliphatic amide	MSDS prepared by the Environment, Health and Safety Department on: January 25, 2004
CHEMICAL FORMULA Urea: CO(NH ₂) ₂ , with an insoluble polymer time release coating and protective overcoat.	24 HR EMERGENCY TELEPHONE NUMBER: Transportation: 1-800-792-8311 Medical: 1-888-670-8123
MATERIAL USES Agricultural industry: Controlled release specialty fertilizer.	
MANUFACTURER Agrium North American Wholesale 13131 Lake Fraser Drive, S.E. Calgary, Alberta, Canada, T2J 7E8 Agrium U.S. Inc. Suite 1700, 4582 South Ulster St. Denver, Colorado, U.S.A., 80237	SUPPLIER Agrium North American Wholesale 13131 Lake Fraser Drive, S.E. Calgary, Alberta, Canada, T2J 7E8 Agrium U.S. Inc. Suite 1700, 4582 South Ulster St. Denver, Colorado, U.S.A., 80237

Section II. Hazardous Ingredients

NAME	CAS #	Exposure Limits (ACGIH)						% by Weight
		TLV-TWA mg/m ³	TLV-TWA ppm	STEL mg/m ³	STEL ppm	CEIL mg/m ³	CEIL ppm	
Urea	57-13-6	---	---	---	---	---	---	~ 94
castor oil polymer of PAPI	67700-69-0	---	---	---	---	---	---	~3
castor oil polymer of MDI	68424-09-9	---	---	---	---	---	---	~1
Imidodicarbonic diamide (biuret)	108-19-0	---	---	---	---	---	---	1.3
Urea reaction products with formaldehyde (methylene diurea)	68611-64-3	---	---	---	---	---	---	1.2
TOXICOLOGICAL DATA ON INGREDIENTS	TFI Product Testing Program Results - Urea 46-0-0 :^							
	Acute oral toxicity: 14,300 mg/kg rat; 11,500 mg/kg mouse; 510 mg/kg cattle Chronic oral toxicity, NOAEL: 6,750 mg/kg mouse; 2,250 mg/kg rat Ecotoxicity: Acute toxicity to fish, Barillius barna, LC ₅₀ , 96hr: >9,100 mg/L Acute toxicity to invertebrates, Daphnia, EC ₅₀ (24kr) >10,000 mg/L Acute toxicity to birds, pigeon, LDLo = 16,000 mg/kg subcutaneous Toxicity to algae, Scenedesmus quadricauda, cell multiplication inhibition, TT(192 hr) > 10,000 mg/L							

Section III. Hazards Identification.

POTENTIAL ACUTE HEALTH EFFECTS	This product may irritate eyes and skin upon contact due to mechanical action. Urea granules are encapsulated within a polymeric shell coating which slows the release of contents over the growing season. Not considered to be toxic for humans. On ingestion, the material will pass through the digestive tract unchanged and with no effect. However, in keeping with good industrial hygiene practises, exposure to any chemical should be kept to a minimum.
POTENTIAL CHRONIC HEALTH EFFECTS	<p>CARCINOGENIC EFFECTS: NONE by ACGIH, EPA, IARC, OSHA. MUTAGENIC EFFECTS: NONE by ACGIH, EPA, IARC, OSHA. TERATOGENIC EFFECTS: NONE by ACGIH, EPA, IARC, OSHA.</p> <p>There is no known effect from chronic exposure to this product. Urea is approved as a food and cosmetic additive, is an ingredient in clinical preparations, and is a normal human metabolite found in urine. The polymeric shell and coating is found in many manufactured products and is not considered hazardous by WHMIS (Canada) or HAZCOM (U.S.) definition.</p>

Section IV. First Aid Measures

EYE CONTACT	May cause eye irritation due to mechanical action. Flush eyes with running water for at least 15 minutes, keeping eyelids open. Obtain medical attention if irritation persists.
MINOR SKIN CONTACT	Wash contaminated skin with soap and water.
EXTENSIVE SKIN CONTACT	No additional information.
MINOR INHALATION	Repeated or prolonged inhalation of dust may lead to respiratory irritation. Allow the affected individual to rest in a well ventilated area. Watch for airway obstruction. If breathing is labored, give oxygen if available. Seek medical attention if not feeling well.
SEVERE INHALATION	No additional information.
SLIGHT INGESTION	The material is non-toxic on ingestion. Due to its slow release coating, the product will pass through the digestive tract unchanged and with no effect.
EXTENSIVE INGESTION	No additional information.

Section V. Fire and Explosion Data

THE PRODUCT IS	Non-flammable.
AUTO-IGNITION TEMPERATURE	Not applicable.
FLASH POINT	Not applicable.
FLAMMABILITY LIMITS	Not applicable.
PRODUCTS OF COMBUSTION	Material will not burn. Undergoes thermal decomposition at elevated temperatures to produce solid cyanuric acid and release toxic and combustible gases (ammonia, carbon dioxide, and oxides of nitrogen). The quantity of controlled release coating present on the product is insufficient to support combustion.
FIRE HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES	Not applicable.
EXPLOSION HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES	Does not present any risk of explosion.
FIRE FIGHTING MEDIA AND INSTRUCTIONS	Non-flammable. Material will not burn. Undergoes thermal decomposition at elevated temperatures to release toxic and combustible gases (ammonia, carbon dioxide, and oxides of nitrogen). If fumes or gases are suspected to be present, fire fighters should wear self-contained breathing apparatus. Use extinguishing media suitable for surrounding materials.

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SPECIAL REMARKS ON FIRE HAZARDS	Flammable/toxic gases will form at elevated temperatures by thermal decomposition. When exposed to heat, ammonia is released.
SPECIAL REMARKS ON EXPLOSION HAZARDS	No additional remark.

Section VI. Accidental Release Measures

SMALL SPILL	Use appropriate tools to put the spilled solid in a suitable container for intended use or disposal.
LARGE SPILL	Prevent additional discharge of material, if possible to do so without hazard. Prevent spills from entering sewers, watercourses, wells, etc. Product will promote algae growth which may degrade water quality and taste. Product will dissolve slowly over a period of months. Recover and place material in suitable containers for recycle, reuse, or disposal. Ensure disposal complies with local regulations.

Section VII. Handling and Storage

PRECAUTIONS	If user operations generate dust, use ventilation to keep exposure to airborne contaminants below the exposure limit. Keep out of reach of children.
STORAGE	Store in a dry, cool and well ventilated area.

Section VIII. Exposure Controls/Personal Protection

ENGINEERING CONTROLS	If user operations generate dust, use ventilation to keep exposure to airborne contaminants below the exposure limit. Good general ventilation should be sufficient to control airborne levels.
PERSONAL PROTECTION	The selection of personal protective equipment varies, depending upon conditions of use. Where skin and eye contact may occur as a result of brief periodic exposures, wear long sleeved clothing, coveralls, leather gloves, and safety glasses with side shields. A filtering facepiece dust mask is recommended for most applications if respiratory protection is needed.
PERSONAL PROTECTION IN CASE OF LARGE RELEASE	No additional information.
EXPOSURE LIMITS	AIHA Workplace Environmental Exposure Limits: 10 mg/m ³ TWA for Urea as inhalable dust. U.S. OSHA PEL: 15 mg/m ³ for Particulates Not Otherwise Regulated. Federal, State or Provincial exposure limits may vary by jurisdiction. Consult local authorities for acceptable exposure limits in your area.

Section IX. Physical and Chemical Properties

PHYSICAL STATE AND APPEARANCE	Solid. (A white urea granule with a light green time release coating.)		
MOLECULAR WEIGHT	Not applicable.	COLOR	Off-white
pH (10% SOLN/WATER)	7	ODOR	Odorless.
BOILING POINT	Decomposes.	ODOR THRESHOLD	Not available.
MELTING POINT	133°C (271.4°F)	TASTE	Saline.
CRITICAL TEMPERATURE	Not applicable.	VOLATILITY	Not applicable.
SPECIFIC GRAVITY g/cc	Not applicable	SOLUBILITY	Very slightly soluble in cold water, hot water due to the slow release coating.
BULK DENSITY kg/m³ ; lbs/ft³	769 kg/m ³ ; 48 lbs/ft ³	DISPERSION PROPERTIES	Will slowly dissolve, releasing nutrients over a period of several months.
VAPOR PRESSURE	Not applicable.		

Continued on Next Page

	WATER/OIL DIST. COEFF.	Soluble in water.
VAPOR DENSITY	Not applicable.	

Section X. Stability and Reactivity Data

STABILITY	The product is stable.
INSTABILITY TEMPERATURE	Not available.
CONDITIONS OF INSTABILITY	No additional remark.
INCOMPATABILITY WITH VARIOUS SUBSTANCES	Non-reactive with oxidizing agents, reducing agents, combustible materials, organic materials, metals, acids, alkalis.
CORROSIVITY	Slightly corrosive to steel. Very slightly corrosive to aluminum, zinc, and copper. Non-corrosive to 304 or 316 stainless steel.
SPECIAL REMARKS ON REACTIVITY	No additional remark.
SPECIAL REMARKS ON CORROSIVITY	Avoid contact with moisture. Slow hydrolysis will produce acids which may slowly corrode metals. Contact your sales representative or a metallurgical specialist to ensure compatability with system equipment.

Section XI. Toxicological Information

SIGNIFICANT ROUTES OF EXPOSURE	Ingestion. Inhalation.
TOXICITY TO ANIMALS	See Section II.
SPECIAL REMARKS ON TOXICITY TO ANIMALS	The product itself and its products of degradation are not harmful under normal conditions of use.
OTHER EFFECTS ON HUMANS	Our data base contains no additional remark on the toxicity of this product
SPECIAL REMARKS ON CHRONIC EFFECTS ON HUMANS	No effects.
SPECIAL REMARKS ON OTHER EFFECTS ON HUMANS	No additional remark.

Section XII. Ecological Information

ECOTOXICITY	Will very slowly release ammonia. Ammonia is a toxic hazard to fish, however, ammonia release is very slow making urea considerably less toxic than ammonium salts. Aquatic toxicity tests indicate 24 Hr exposure at 16,000 mg/L of urea did not kill Creek Chubs. Urea ingestion may be toxic to mammals and birds at body burdens of several thousands of mg/kg. Urea is used in small quantities as a feed supplement for livestock. Very low toxicity to fish and other water organisms. This product has limited solubility. Recovery of spilled material from bodies of water should be considered. U.S. D.O.T.: This material is NOT listed as a Marine pollutant.
BOD and COD	Not available.
PRODUCTS OF DEGRADATION	Ammonia, carbon dioxide and water.
TOXICITY OF THE PRODUCTS OF DEGRADATION	The product itself and its products of degradation are not harmful under normal conditions of use. Avoid spills or releases to watercourses.

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SPECIAL REMARKS ON THE PRODUCTS OF DEGRADATION The product itself and its products of degradation are not harmful under normal conditions of use if proper precautions are followed. Urea will promote algae growth which may degrade water quality and taste.

Section XIII. Disposal Considerations

WASTE DISPOSAL OR RECYCLING Recover and place material in a suitable container for intended use or disposal. Ensure that disposal complies with government requirements and local regulations.

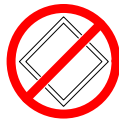
Section XIV. Transport Information

DOT / TDG CLASSIFICATION Not controlled under TDG (Canada) or DOT (U.S.A.).

PIN and Shipping Name Not applicable.

SPECIAL PROVISIONS FOR TRANSPORT Not applicable.

DOT (U.S.A) (Pictograms)



Section XV. Other Regulatory Information and Pictograms

OTHER REGULATIONS CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): This product and all its components are on the Domestic Substances List (DSL) and acceptable for use under the provisions of CEPA.
 EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.
 CERCLA/SUPERFUND, 40 CFR 117,302: This product contains no Reportable Quantity (RQ) Substances.
 This product does not contain Section 313 reportable ingredients.
 This product is not considered as a priority pollutant as regulated under the Clean Water Act.
 TSCA (Toxic Substance Control Act): This product and all its components are listed on the TSCA Inventory.
 CALIFORNIA PROPOSITION 65: This product contains no chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

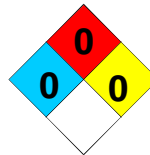
OTHER CLASSIFICATIONS **HCS (U.S.A.)** Not controlled under the HCS (United States).

DSCL (EEC) Not controlled under DSCL (Europe).

National Fire Protection Association (U.S.A.)

Hazards presented under acute emergency conditions only:

Health



Fire Hazard Reactivity

Specific Hazard

TDG (Pictograms - Canada)



DSCL (Europe) (Pictograms)



ADR (Europe)
(Pictograms)**Section XVI. Other Information****REFERENCES**

-AIHA WEELs, American Industrial Hygiene Association, 2001
 -ACGIH TLVs, American Conference of Governmental Industrial Hygienists, 2003
 -Canadian Centre for Occupational Health and Safety Database Systems.
 -Domestic Substances List, Canadian Environmental Protection Act, Environment Canada.
 -29 CFR Part 1910
 -40 CFR Parts 1-799
 -49 CFR Parts 1-199
 -Corrosion Data Survey, Sixth Edition, 1985, National Association of Corrosion Engineers
 -Fire Protection Guide to Hazardous Materials, (NFPA49, 325M, 491M, and 704), National Fire Protection Association, 10th Ed, 1991
 -The Fertilizer Institute Product Testing Plan Results, March 2003
 -TOMES® System: Heitland G & Hurlbut KM (Eds) (electronic version): MICROMEDEX, Greenwood Village, Colorado, USA. Available at: <http://csi.micromedex.com> (2002). The TOMES® System includes MEDITEXT® Medical Management; HAZARDTEXT® Hazard Management; INFOTEXT® Documents; ERG2000 Emergency Response Guidebook Documents; REPROTEXT®: Heitland G & Hurlbut KM (Eds); CHRIS Hazardous Chemical Data: U.S. Department of Transportation, U.S. Coast Guard, Washington, D.C. (2003); HSDB: Hazardous Substances Data Bank. National Library of Medicine, Bethesda, Maryland (2003); IRIS: Integrated Risk Information System. U.S. Environmental Protection Agency, Washington, D.C. (2003); NIOSH: Pocket Guide to Chemical Hazards. National Institute for Occupational Safety and Health, Cincinnati, Ohio (2003); OHM/TADS: Oil and Hazardous Materials Technical Assistance Data System. U.S. Environmental Protection Agency, Washington, D.C. (2003); REPROTOX®: Scialli A.R. Georgetown University Medical Center and Reproductive Toxicology Center, Columbia Hospital for Women Medical Center, Washington, D.C. (2003); RTECS®: Registry of Toxic Effects of Chemical Substances. National Institute for Occupational Safety and Health, Cincinnati, Ohio (2003); and SHEPARDS: Shepard T.H.: Shepard's Catalog of Teratogenic Agents (2003).
 -Veterinary Pharmacology and Therapeutics. 5th ed. Ames, Iowa: Iowa State University Press, 1982.

OTHER SPECIAL CONSIDERATIONS

Not applicable.

FOR FURTHER SAFETY, HEALTH, OR ENVIRONMENTAL INFORMATION ON THIS PRODUCT, CONTACT

AGRIUM
 Environment, Health and Safety Department
 Telephone (403) 225-7380 or Fax (403) 225-7608

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