








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 NOxOUT A			
SYNONYM Fuel Tech Urea Based Solution	MSDS NUMBER: 14233		
CHEMICAL NAME Carbamide salt solution with additives	REVISION NUMBER 4.7		
CHEMICAL FAMILY Aliphatic amide	MSDS prepared by the Environment, Health and Safety Department on: April 5, 2003		
CHEMICAL FORMULA Not applicable	24 HR EMERGENCY TELEPHONE NUMBER: Transportation: 1-800-792-8311 Medical: 1-888-670-8123		
MATERIAL USES Industrial applications: Manufacture of specialty fertilizers. Production of specialty pollution control solutions.			
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	---	---	---	---	---	---	48.8
Imidodicarbonic diamide (biuret)	108-19-0	---	---	---	---	---	---	<0.7
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, Barilius bama, LC ₅₀ , 96hr: >9,100 mg/L Acute toxicity to invertebrates, Daphnia, EC ₅₀ (24hr) >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								

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Section III. Hazards Identification.

POTENTIAL ACUTE HEALTH EFFECTS	This product may irritate eyes and skin upon contact. Not considered to be toxic for humans. 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>The substance is not toxic to blood, kidneys, lungs, the nervous system, the reproductive system, liver, mucous membranes. 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.</p>

Section IV. First Aid Measures

EYE CONTACT	May cause eye irritation. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Obtain medical attention if irritation persists.
MINOR SKIN CONTACT	May cause skin irritation. Wash contaminated skin with soap and water. Cover dry or irritated skin with a good quality skin lotion. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.
EXTENSIVE SKIN CONTACT	No additional information.
MINOR INHALATION	Repeated or prolonged inhalation may lead to respiratory irritation. Loosen tight clothing around the individual's neck and waist. Allow the person to rest in a well ventilated area. Obtain medical attention if irritation persists.
SEVERE INHALATION	No additional information.
SLIGHT INGESTION	If conscious, have person drink several glasses of water or milk and induce vomiting. NEVER induce vomiting or give anything by mouth to an unconscious person. Obtain medical attention.
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, but thermal decomposition may result in flammable/toxic gases being formed after material evaporates to dryness. These products are ammonia, carbon dioxide, and oxides of nitrogen.
FIRE HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES	Not applicable.
EXPLOSION HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES	Reacts violently with chlorine bleach. Resultant product may explode.
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). 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	May be explosive when mixed with hypochlorites. Forms nitrogen trichloride which explodes spontaneously in air.

Section VI. Accidental Release Measures

SMALL SPILL	Stop leak if possible to do so without risk. Dike and contain spilled material. Ensure that the spilled material does not enter sewers, wells, or watercourses. Pump up spilled material or absorb on inert material and place in suitable containers for reuse or disposal. Ensure disposal complies with local regulations.
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. Notify downstream water users. Recover and place material in suitable containers for recycle, reuse, or disposal.

Section VII. Handling and Storage

PRECAUTIONS	If user operations generate mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Keep out of reach of children.
STORAGE	Ensure compatibility with storage vessel materials of construction. Keep at an appropriate storage temperature to prevent freezing.

Section VIII. Exposure Controls/Personal Protection

ENGINEERING CONTROLS	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate mists, use ventilation to keep exposure to airborne contaminants below the exposure limit.
PERSONAL PROTECTION	The selection of personal protective equipment varies, depending upon conditions of use. Wear appropriate respiratory protection for dust/mist when ventilation is inadequate. A filtering facepiece dust mask is recommended for most applications if respiratory protection is needed. Where skin and eye contact may occur as a result of brief periodic exposures, wear long sleeved clothing, coveralls, chemical resistant gloves, and safety glasses with side shields.
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. 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	A clear or slightly hazy amber liquid.		
MOLECULAR WEIGHT	60.06	COLOR	Clear amber liquid.
pH (10% SOLN/WATER)	7-10.8 (neat solution)	ODOR	Odorless to slightly pine-like.
BOILING POINT	Not available	ODOR THRESHOLD	17 PPM as ammonia.
MELTING POINT	Salt out temperature: 18°C (64°F)	TASTE	Saline.
CRITICAL TEMPERATURE	Not applicable.	VOLATILITY	Not available.
SPECIFIC GRAVITY g/cc	1.13-1.15 (Water = 1)	SOLUBILITY	Easily soluble in cold water, hot water.
BULK DENSITY kg/m ³ ; lbs/ft ³	1140 kg/m ³ ; 9.5 lbs/gal (US).	DISPERSION PROPERTIES	Easily dispersed in any proportion in cold water and hot water.

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VAPOR PRESSURE	Not available.	WATER/OIL DIST. COEFF.	Not available.
VAPOR DENSITY	Not available.		

Section X. Stability and Reactivity Data

STABILITY	The product is stable.
INSTABILITY TEMPERATURE	Not available.
CONDITIONS OF INSTABILITY	No additional remark.
INCOMPATIBILITY WITH VARIOUS SUBSTANCES	Reactive with halogens. Slightly reactive with oxidizing agents, reducing agents, acids, alkalis, moisture. Non-reactive with combustible materials, organic materials, most metals.
CORROSIVITY	Corrosive to aluminum, zinc, or copper. Slightly corrosive to mild steel. Non-corrosive to glass, 304 or 316 stainless steel.
SPECIAL REMARKS ON REACTIVITY	Explosive reaction with hypochlorite bleach.
SPECIAL REMARKS ON CORROSIVITY	May be corrosive to ferrous metals and alloys. Incompatible with copper and its alloys and galvanized materials. Contact your sales representative or a metallurgical specialist to ensure compatibility 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	Low toxicity for humans or animals. 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.
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	May cause irritation of the mucous membranes and upper respiratory tract.

Section XII. Ecological Information

ECOTOXICITY	Will slowly release ammonia and degrade to nitrate. Ammonia is a toxic hazard to fish. However, ammonia release is slow making urea much 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. U.S. D.O.T.: This material 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 Urea will promote algae growth which may degrade water quality and taste. Notify downstream water users. Will disperse in water. Reclaiming material may not be viable.

Section XIII. Disposal Considerations

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

Section XIV. Transport Information

DOT / TDG CLASSIFICATION Not controlled under DOT (US) or TDG (Canada).

PIN and Shipping Name Not applicable.

SPECIAL PROVISIONS FOR TRANSPORT Not applicable.

DOT (U.S.A) (Pictograms)



Section XV. Other Regulatory Information and Pictograms

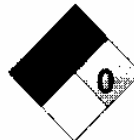
OTHER REGULATIONS CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): This product is on the Domestic Substances List (DSL), and acceptable for use under the provisions of CEPA. CERCLA/SUPERFUND, 40 CFR 117,302: This product contains no Reportable Quantity (RQ) Substances. EINECS: This product is on the European Inventory of Existing Commercial Chemical 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 is listed on the TSCA Inventory. CALIFORNIA PROPOSITION 65, the California Safe Drinking Water and Toxic Enforcement Act of 1986 (CA Health and Safety Code Sec 25249.5): 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). Exempt under 1910.1200(b)(6)(x).

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, 2002
 -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; HAZARTEXT® 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. (2002); HSDB: Hazardous Substances Data Bank. National Library of Medicine, Bethesda, Maryland (2002); IRIS: Integrated Risk Information System. U.S. Environmental Protection Agency, Washington, D.C. (2002); NIOSH: Pocket Guide to Chemical Hazards. National Institute for Occupational Safety and Health, Cincinnati, Ohio (2002); OHM/TADS: Oil and Hazardous Materials Technical Assistance Data System. U.S. Environmental Protection Agency, Washington, D.C. (2002); REPROTOX®: Scialli A.R. Georgetown University Medical Center and Reproductive Toxicology Center, Columbia Hospital for Women Medical Center, Washington, D.C. (2002); RTECS®: Registry of Toxic Effects of Chemical Substances. National Institute for Occupational Safety and Health, Cincinnati, Ohio (2002); and SHEPARDS: Shepard T.H.: Shepard's Catalog of Teratogenic Agents (2002).
 -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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