UREA

CF Industries, Inc.

Effective Date: April 17, 2000

Material Safety Data Sheet

For Emergency Call: CHEMTREC -- (800) 424-9300

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Urea

CAS Number: 57-13-6

Chemical Name: Urea

Chemical Family: Amides

Synonyms and Common Trade Names: Carbamide
Carbonyldiamine
Carbonyl Diamide

Company Identification

Manufacturer's Name: CF Industries, Inc.
Address: One Salem Lake Drive, Long Grove, Illinois, 60047-8402
Telephone: (847) 438-9500

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	Typical Weight Percentage	CAS Number
Urea	96.6-97.6	57-13-6
Biuret ($H_2NCONHCONH_2$)	1.0-1.5	108-19-0
Water	0.1-0.4	7732-18-5
Urea reaction products with formaldehyde (primarily methylenediurea)	1.3-1.5	68611-64-3

3. HAZARDS IDENTIFICATION

Emergency Overview

When heated, decomposes to carbon dioxide and ammonia; if burned, emits small amounts of nitrogen oxides. Can cause redness and irritation of skin and eyes.

White granules with either no odor or having a slight odor of ammonia (in presence of moisture).

Potential Health Effects

Eyes: Contact may cause eye irritation including stinging, watering and redness.

Skin: Contact may cause irritation including redness, itching and pain. No harmful effects from skin absorption.

Inhalation (Breathing): Urea dust may cause irritation of the nose, throat, and respiratory tract.

Ingestion (Swallowing): Low degree of toxicity by ingestion. May cause irritation of the digestive tract if ingested. Nausea and vomiting may occur after exposure to large volumes.

Signs and Symptoms: Effects of overexposure may include irritation of the nose, throat and digestive tract, nausea, vomiting, coughing and shortness of breath.

Cancer: Inadequate data available.

Target Organs: Inadequate data available.

Developmental: Inadequate data available.

Other Comments: None known.

Medical Conditions Aggravated by Exposure: Conditions aggravated by exposure may include skin disorders and respiratory (asthma-like) disorders.

4. FIRST AID

Eyes: Hold eyelids open and flush eyes immediately with water for at least 15 minutes. Seek medical attention if necessary.

Skin: Wash affected areas with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if symptoms occur.

Inhalation: Move to fresh air and rest. If cough or difficulty in breathing develops, administer oxygen by qualified personnel. Seek medical attention if necessary.

Ingestion: Rinse mouth and drink plenty of water. Induce vomiting if exposed to high volumes of a low concentration. Seek medical attention if necessary.

Notes to Physician: None

5. FIRE FIGHTING MEASURES

Urea is not flammable.

Flash Point (test method): Not applicable

Flammable Limits: Not applicable

Explosive Limits: Not applicable

Autoignition Temperature: Not applicable

Extinguishing Media: Use water, carbon dioxide, foam, or dry chemical.

NFPA Fire Rating:		
	Flammability	0
	Health Hazard	1
	Reactivity	0
	Specific Hazard	Not applicable

Key: Least = 0, Slight = 1, Moderate = 2, High = 3, Extreme = 4

Special Firefighting Procedures: Fire fighters should use NIOSH approved self-contained breathing apparatus and full protective equipment when fighting chemical fires.

Unusual Fire and Explosive Hazards: Urea forms hazardous decomposition products, including ammonia. Refer to Section 10 for details.

6. ACCIDENTAL RELEASE MEASURES

Recover any reusable product, taking care not to generate excess dust. Use caution as product may be slippery when wet. Keep product out of sewage and drainage systems and all bodies of water as it may be toxic to aquatic organisms. Clean up spills immediately.

Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations. Contact local environmental or health authorities for approved disposal of this material.

Neutralizing Chemicals: Not applicable

7. HANDLING AND STORAGE

Handling: The use of respiratory protection is advised when dust concentrations exceed any established exposure limits (see Section 8).

Storage: Keep dry. Urea will absorb moisture from air. If storage piles become wet, surrounding floor may be slippery. Reacts with hypochlorites to form nitrogen trichloride, which explodes

spontaneously in air. Reacts with nitric acid to form urea nitrate that decomposes explosively when heated.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use process enclosure, general dilution ventilation, or local exhaust systems, where necessary, to maintain airborne dust concentrations below the OSHA standard.

Personal Protective Equipment

Eyes: No personal protective equipment normally required. If dusting of dry product or splashing of solutions is possible, use chemical safety goggles and/or full-face shield.

Skin: No personal protective equipment normally required. If dusting of dry product or splashing of solutions is possible, wear protective gloves and clothing.

Respiratory: Protection is not normally required. Wear a dust mask or other appropriate respiratory protection during operations that generate airborne dust concentrations exceeding the relevant standards or when effective engineering controls are not feasible . A respiratory protection program that meets OSHA's 29 CFR 1910.134 requirements must be followed whenever workplace conditions warrant a respirator's use.

Exposure Guidelines*

Although standards for urea have not been established, the following nuisance dust standards are applicable.

ACGIH TLV: 10 mg/m^3 – inhalable particulate; 3 mg/m^3 – respirable particulate

OSHA PEL: 15 mg/m^3 TWA (total) (7); 5 mg/m^3 TWA (respirable)

* TLV = Threshold Limit Values; PEL = Permissible Exposure Limits; TWA = 8-hour Time-weighted Average

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White granules

Odor: Odorless or slight ammonia odor

Odor threshold level: Not available

Physical state: Solid

pH: 7.2 (10% water solution)

Vapor pressure: Not applicable

Vapor density (air = 1): Not applicable

Boiling point: Not applicable

Melting point: Decomposes at 270.8°F (132.7°C)

Solubility in water: 119 g per 100 g water at 77°F (25°C)

Specific gravity (H_20 = 1): 1.34 at 68°F (20°C); (heavier than water)

Evaporation rate (butyl acetate = 1): Not applicable

Viscosity: 1.78 mPas (46% solution) at 68°F (20°C); 1.81 mPas (46% solution) at 278.60°F (137°C); 1.90 mPas (saturated solution) at 68°F (20°C)

Percentage volatile by volume (%): Not applicable

Molecular weight: 60.06

Molecular formula: NH_2CONH_2

10. STABILITY AND REACTIVITY

Stability (thermal, light, etc.): Stable under normal conditions of storage and handling.

Incompatibility (materials to avoid): Nitric acid, sodium nitrite, nitrosyl perchlorate, gallium perchlorate, hypochlorites, phosphorus pentachloride.

Hazardous Decomposition Products: When heated above melting point, decomposes to ammonia and carbon dioxide. If burned, emits small amounts of nitrogen oxides.

Hazardous Polymerization: Will not occur

Conditions to Avoid: Decomposes when heated above melting point.

11. TOXICOLOGICAL INFORMATION

Urea

Rat LD50 = 15 g/kg
Mouse LD50 = 11.5 g/kg

Urea dust at 22 mg/m3 caused mild irritation (species not specified)

In a repeated dose toxicity study, urea at 10%, 20%, and 40% in ointment was applied to the back skin of rats for 4 weeks. No dose-dependent toxicity was observed. There were no consistent treatment-related effects on standard haematological parameters, clinical chemistry, organ weights or organ histopathology, including the testicles, prostate, seminal vesicles, ovaries and the uterus.

In a chronic toxicity and carcinogenicity screening study conducted in mice over 12 months, urea was administered at 0.45%, 0.9%, and 4.5% in the diet. No pathology was reported immediately following treatment period. After 4 months, testes, prostate, and uterus were histologically examined for occurrence of tumors in the survivors. Although there was a statistically increased incidence of interstitial cell adenomas of the testes in the high dose group, its biological significance was deemed questionable, since the lesion may occur in 100% of controls.

In a single oral dose study in mice, 2,000 mg/kg administered on day 10 of pregnancy was not teratogenic. Urea in water was given in 2 doses 12 hours apart by gavage to rats during pregnancy for 14 days and the dams were allowed to deliver. No hypertrophy or other kidney changes were detected nor were any teratogenic effects noted. Urea caused developmental effects in chick embryos when injected into eggs.

Urea was negative in tests of bacterial mutagenicity and demonstrated low clastogenic potential in non-bacterial mutagenicity tests. Chromosome breakage has been observed in some laboratory tests using extremely high concentrations of urea. At near lethal doses, urea was mutagenic in in-vivo non-bacterial tests in mice.

Urea is not recognized as a carcinogen by IARC, NTP, or OSHA.

Biuret

Oral rat LD50 > 5 g/kg
Dermal rat LD50 > 2 g/kg

Biuret is not recognized as a carcinogen by IARC, NTP, or OSHA.

12. ECOLOGICAL INFORMATION

Urea can be toxic to domestic animals and has caused poisonings when it was applied unevenly on pastures as a fertilizer. Large amounts of urea can damage plant seedlings and inhibit germination. At high concentrations, urea can be toxic to aquatic life. As a readily available source of nitrogen, urea can also foster excessive growth of algae or microorganisms in water systems. Notify local health and wildlife officials and operators of nearby water intakes upon contamination.

Ecotoxicity Information: The cell multiplication toxicity threshold values for bacteria, green algae, and protozoa are >10,000, >10,000, and 29 mg/L, respectively. The critical range for the creek chub is 16,000 to 30,000 mg/L in Detroit river water.

Environmental Fate Information: Particulate-phase urea is physically washed out of the atmosphere by dry and wet deposition. In the soil, urea degrades rapidly, usually within 24 hours; however, degradation may be slower depending on soil type, moisture content, and urea formulation. The ultimate degradation products are carbon dioxide and ammonia. The soil mobility is high based on an organic carbon partition coefficient of 8. In water, biodegradation to carbon dioxide and ammonia is the major fate pathway. The biodegradation rate increases with increasing temperature and presence of phytoplankton. Oxidation of urea by nitrifying bacteria can increase biological oxygen demand. Bioaccumulation of urea is very low. The 72-hour bioconcentration factor (BCF) for carp is reported to be 1.

13. DISPOSAL CONSIDERATIONS

Urea is not considered a hazardous waste under Federal Hazardous Waste Regulations 40 CFR 261. Consult local or state environmental regulatory agencies for acceptable disposal procedures and locations. Follow standard disposal procedures.

14. TRANSPORT INFORMATION

Urea is not listed as a hazardous material by the U.S. Department of Transportation (DOT), Transport Canada (TC), International Maritime Organization (IMO), and the United Nations (UN).

15. REGULATORY INFORMATION

OSHA (Occupational Safety and Health Administration): This material is considered to be hazardous as defined by the OSHA Hazard Communication Standard.

SARA TITLE III (Superfund Amendment and Reauthorization Act of 1986): No federal requirements. User should contact local and state regulatory agencies for information on additional or more stringent reporting requirements.

Sections 311/312: This product has been reviewed according to the U.S. EPA "Hazard Categories" promulgated under Sections 311 and 312 of SARA Title III and is considered, under applicable definitions, to meet the following categories:

Immediate Health

DOT (Department of Transportation): Please refer to Section 14 (Transport Information) for guidance concerning transportation.

PROPOSITION 65: Not listed

This material has not been identified as a carcinogen by NTP, IARC, or OSHA.

16. Documentary Information and DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Issue Date: 4/17/00
Previous Issue Date: 06/01/96

The information in this MSDS is based on data available to us as of the revision date given herein, and believed to be correct. Judgments as to the suitability of information herein for the individual user's own use or purposes are the responsibility of the individual user. Although reasonable care has been taken in the preparation of such information, CF Industries extends no warranties, makes no representations (other than those warranties and representations required by law), and assumes no responsibility as to the accuracy or suitability of such information for application to the individual user's purpose or the consequences of its use for such purpose.

DAP

CF Industries, Inc.

Effective Date: June 19, 2001

Material Safety Data Sheet

For Emergency Call: CHEMTREC -- (800) 424-9300

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Diammonium Phosphate (DAP)

CAS Number: 7783-28-0

Chemical Name: Ammonium phosphate, dibasic

Chemical Family: Ammonium phosphates

Synonyms and Common Trade Names: Ammonium phosphate; diammonium hydrogen phosphate; dibasic ammonium phosphate; secondary ammonium phosphate; DAP

Company Identification

Manufacturer's Name: CF Industries, Inc.
Address: One Salem Lake Drive, Long Grove, Illinois, 60047-8402
Telephone: (847) 438-9500

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	Typical Weight Percentage	CAS Number
Diammonium phosphate	60-85	7783-28-0
Aluminum ammonium fluorophosphates	4-10	Not applicable
Iron ammonium fluorophosphates	3-7	Not applicable
Ammonium sulfate	4-5	7783-20-2
Calcium ammonium phosphates	2	Not applicable
Water	1-2	7732-18-5
Sodium silicofluoride	<2	16893-85-9
Potassium silicofluoride	<1	16871-90-2
Miscellaneous metal, ammonium and other compounds	<1 each	Not applicable

3. HAZARDS IDENTIFICATION

Emergency Overview

Harmful if swallowed or inhaled. At high temperatures, diammonium phosphate emits toxic fumes of phosphorous oxides, nitrogen oxides and ammonia. It is irritating to the eyes, skin, throat and respiratory tract.

Brown to gray granules that are odorless or give off a slight ammonia odor.

Potential Health Effects

Eyes: Contact may cause mild eye irritation including stinging, watering and redness.

Skin: Contact may cause mild irritation including redness and a burning sensation. Practically nontoxic by by skin absorption.

Inhalation (Breathing): No information available. Studies by other exposure routes suggest a low degree of hazard by skin irritation.

Ingestion (Swallowing): Practically nontoxic by ingestion.

Signs and Symptoms: Effects of overexposure may include irritation of the nose, throat and digestive tract, nausea, vomiting, diarrhea, coughing and shortness of breath.

Cancer: No data available.

Target Organs: No data available.

Developmental: No data available.

Other Comments: Prolonged or repeated overexposure to fluoride compounds may cause fluorosis. Fluorosis is characterized by skeletal changes, consisting of osteosclerosis (hardening or abnormal density of bone) and osteomalacia (softening of bones) and by mottled discoloration of the enamel of teeth (if exposure occurs during enamel formation. Symptoms may include bone and joint pain and limited range of motion.

This material contains iron compound(s) of unknown composition. Effects of overexposure to dusts can include irritation of the eyes and respiratory tract, pneumoconiosis (dust congested lungs), pneumonitis (lung inflammation), coughing, vomiting, diarrhea, abdominal pain and jaundice.

Medical Conditions Aggravated by Exposure: None known

4. FIRST AID

Eyes: Hold eyelids open and flush eyes immediately with water for at least 15 minutes. Seek medical attention if necessary.

Skin: Wash affected areas with soap and water. Remove contaminated clothing and shoes. Seek medical attention if necessary. Wash clothing and shoes before reuse.

Inhalation: Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if necessary.

Ingestion: If person is conscious, immediately give water or milk (about 4 oz. for adults; too much may cause vomiting). Do not induce vomiting. Seek medical attention immediately. If person is unconscious, do not give anything by mouth.

Notes to Physician: If person has been exposed to concentrated ammonia fumes, treat symptomatically and watch for delayed symptoms of pulmonary edema. Intubation or tracheostomy may be necessary following severe exposure.

5. FIRE FIGHTING MEASURES

Diammonium phosphate is not flammable or combustible.

Flash Point (test method): Not applicable

Flammable Limits: Not applicable

Explosive Limits: Not applicable

Autoignition Temperature: Not applicable

Extinguishing Media: Not applicable

NFPA Fire Rating:

Flammability	0
Health Hazard	1
Reactivity	0
Specific Hazard	Not applicable

Key: Least = 0, Slight = 1, Moderate = 2, High = 3, Extreme = 4

Special Firefighting Procedures: Wear appropriate protective clothing and self-contained breathing apparatus with full-face piece operated in positive pressure mode because toxic gases (ammonia and, possibly, small amounts of phosphorus oxides and nitrogen oxides) can be emitted in fires.

6. ACCIDENTAL RELEASE MEASURES

Recover any reusable product, taking care not to generate excess dust. Dispose of in accordance with federal, state and local regulations. Clean-up workers should be aware of slow release of ammonia from this product.

Neutralizing Chemicals: Not applicable

7. HANDLING AND STORAGE

Store in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation: Use process enclosure, general dilution ventilation or local exhaust systems, where necessary, to maintain airborne ammonia and dust concentrations below the OSHA standards.

Specific Personal Protective Equipment

Eyes: Safety glasses with side shields are recommended. Maintain eye wash fountain in work area.

Skin: Proper gloves are recommended.

Respiratory: Protection is not required where adequate ventilation conditions exist. Use dust mask or other appropriate respiratory protection when engineering controls are not feasible or during operations that generate airborne concentrations exceeding the relevant standards. In closed areas, wear appropriate respiratory equipment, when necessary, to protect against ammonia fumes. A respiratory protection program that meets OSHA's 29 CFR 1910.134 requirements must be followed whenever workplace conditions warrant a respirator's use.

Other: None

Exposure Guidelines*

Although standards for diammonium phosphate (DAP) have not been established, the following nuisance dust standards are applicable. The following standards for ammonia are also applicable since DAP gradually emits ammonia when exposed to air or when in contact with high pH or alkaline materials.

ACGIH TLV: Nuisance dust: 10 mg/m^3 TWA
Ammonia: 25 ppm (17 mg/m^3) TWA; 35 ppm (24 mg/m^3) STEL

OSHA PEL: Nuisance dust: 5 mg/m^3 TWA (respirable); 15 mg/m^3 TWA (total)
Ammonia: 50 ppm (35 mg/m^3) TWA

* TLV = Threshold Limit Values; PEL = Permissible Exposure Limits;
TWA = 8-hour Time-weighted Average; STEL = 15-minute Short Term Exposure Limit

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Brown to gray granules

Odor: Odorless or possible ammonia odor

Odor threshold level: Not applicable

Physical state: Solid

pH: Approximately 8

Vapor pressure (ammonia released): 15.6 psi at 73°C (163.4°F); 20.3 psi at 100°C (212°F); 43.5 psi at 125°C (275°F)

Vapor density (air = 1): Not applicable

Boiling point: Not applicable

Melting point: Decomposes at 155°C (311°F)

Solubility in water: 569 g/L at 20°C (68°F)

Specific gravity (H_20 = 1): 1.619 (heavier than water)

Evaporation rate (butyl acetate = 1): Not applicable

Percentage volatile by volume (%): Not available

Molecular weight: 132.07

Molecular formula: $(NH_4)_2HPO_4$

10. STABILITY AND REACTIVITY

Stability (thermal, light, etc.): Stable under ordinary conditions of use and storage.

Conditions to Avoid: Incompatibilities

Incompatibility (Materials to avoid): Contact with high pH or alkaline materials (e.g., sodium hypochlorite) may cause diammonium phosphate to emit ammonia.

Hazardous Decomposition Products: Gradually loses ammonia when exposed to air at room temperature. Decomposes to ammonia and monoammonium phosphate at around 70°C (158°F). At 155°C (311°F), DAP emits phosphorus oxides, nitrogen oxides and ammonia.

Hazardous Polymerization: Will not occur

11. TOXICOLOGICAL INFORMATION

Diammonium Phosphate

Oral LD50 > 2,000 mg/kg (rats) information located

Dermal LD50 > 5,000 mg/kg (rats)

There is no definitive information available on carcinogenicity, mutagenicity, target organs or developmental toxicity for this product.

Iron Compounds

Target Organ(s): Chronic exposure to high concentrations of iron have been associated with hemosiderosis, hemochromatosis and in severe cases, liver cirrhosis. Typical occupational

exposures to iron compounds are not expected to cause these effects. Chronic inhalation can produce "mottling" of the lungs (siderosis). This is considered a benign pneumoconiosis and does not normally lead to fibrosis or cause significant physiologic impairment.

12. ECOLOGICAL INFORMATION

Can be harmful to aquatic life at high concentrations. Large-scale release may lead to eutrophication of waterways. Notify local health and wildlife officials and operators of any nearby water intakes upon contamination.

Ecotoxicity Information: The acute toxicity of diammonium phosphate is low for both freshwater fish and invertebrates. The 96-hour LC_{50} for fathead minnows is 156 mg/L (static and flow-through bioassays), the 96-hour LC_{50} for rainbow trout is 172 mg/L (flow-through bioassay), and the 96-hour LC_{50} for coho salmon is 245 mg/L (static bioassay). The 96-hour LC_{50} for mature scuds/sideswimmers is 40 mg/L (static bioassay). No toxicity observed in aquatic algae (*Selenastrum*) at concentrations up to 97.1 mg/L. DAP is not toxic to algae but can stimulate algal growth.

Environmental Fate Information: Diammonium phosphate is taken up as a nutrient by vegetation.

13. DISPOSAL CONSIDERATIONS

Diammonium phosphate is not considered a hazardous waste under Federal Hazardous Waste Regulations 40 CFR 261. Consult local, state or federal environmental regulatory agencies for acceptable disposal procedures and locations. Follow standard disposal procedures.

14. TRANSPORT INFORMATION

Diammonium phosphate is not listed as a hazardous material by the U.S. Department of Transportation (DOT), Transport Canada, the International Maritime Organization (IMO) or the United Nations (UN).

Proper Shipping Name: Chemicals, N.O.S. (non-regulated)

15. REGULATORY INFORMATION

OSHA (Occupational Safety and Health Administration): This material is considered to be hazardous as defined by the OSHA Hazard Communication Standard.

SARA TITLE III (Superfund Amendment and Reauthorization Act of 1986): No federal requirements.

User should contact local and state regulatory agencies for information on additional or more stringent reporting requirements.

SARA 311/312: This product has been reviewed according to the U.S. EPA "Hazard Categories" promulgated under Sections 311 and 312 of SARA Title III and is considered, under applicable definitions, to meet the following categories.

Acute: yes Chronic: no Fire: no Reactivity: no

DOT (Department of Transportation): Please refer to Section 14 (Transport Information) for guidance concerning transportation.
This material has not been identified as a carcinogen by NTP, IARC or OSHA.

16. Documentary Information and DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Issue Date:	06/19/01
Previous Issue Date:	04/17/00

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responsibility as to the accuracy or suitability of such information for application to the individual user's purpose or the consequences of its use for such purpose.

Potash

central canada potash

MATERIAL SAFETY DATA SHEET

WHMIS (Pictograms)	WHMIS (Classification)	Protective Equipment
	Not controlled under WHMIS (Canada).	

SECTION I — Chemical Product and Company Identification

Product Name/ Trade Name	Potash	Code	Not available.
Supplier	CENTRAL CANADA POTASH, INC. P.O. Box 1500 Colonsay, Saskatchewan Canada S0K 0Z0	CAS	7447-40-7.
		DSL	Not available.
		CI	Not applicable.
Synonym	Muriate of potash, granular, coarse or standard. Potasse (French).	In Case of Emergency	(306) 944-2170
Chemical Name	Potassium chloride or sylvite.		
Chemical Family	Salt.		
Chemical Formula	KCl.		
Manufacturer	Refer to supplier.		
Material Uses	Fertilizer; industrial applications.		

SECTION II — Composition and Information on Ingredients

Name	CAS #	Exposure Limits According to ACGIH			% by Weight
		TLV-TWA (mg/m^3)	TLV-STEL (mg/m^3)	TLV-CEIL (mg/m^3)	
Potassium chloride (potash)	7447-40-7	10			95-96
Toxicological Data on Hazardous Ingredients	Potassium chloride: (Potash) ORAL (LD50): Acute: 2500 mg/kg (Guinea pig). 2600 mg/kg (Rat).				
	Note: This product is anti-caked with amine at 0.3 lbs/ton and with petroleum oil at 3.5 lbs/ton.				

SECTION III — Hazards Identification

Potential Acute Health Effects	As shipped this product does not present special health hazards. Conditions and work practices which generate dust or fumes should be avoided or controlled. Dust and fumes may cause health effects.	
Potential Chronic Health Effects	**CARCINOGENIC EFFECTS:**	Not applicable.
	MUTAGENIC EFFECTS:	Not applicable.
	TERATOGENIC EFFECTS:	Not applicable.
	Toxicity of the product to the reproductive system:	Not applicable.

SECTION IV — First Aid Measures	
Eye Contact	**Check for and remove any contact lenses. Immediately flush eyes with plenty of water, holding eyelids open for at least 20 minutes.**
	Dust may irritate eyes and acts as a foreign body.
Skin Contact	**Skin contact is not a problem. Wash after using the product.**
	Dust may irritate skin.
Inhalation	**Should not be a problem. If breathing is difficult get medical attention.**
	Dust may irritate mucous membranes, upper respiratory tract and lungs.
Ingestion	**Drink water. Do not induce vomiting or give a liquid to an unconscious person and get medical attention.**
	Acts as a common salt. May irritate gastro-intestinal tract.

SECTION V — Fire and Explosion Data		
The Product is:	Non-flammable.	
Auto-Ignition Temperature	Not applicable.	
Flash Points	Not applicable.	
Flammable Limits	Not applicable.	
Products of Combustion	Not applicable.	
Fire Hazards in Presence of Various Substances	Not applicable.	
Explosion Hazards in Presence of Various Substances	Risk of explosion of the product in presence of mechanical impact:	Not applicable.
	Risk of explosion of the product in presence of static discharge:	Not applicable.
Fire Fighting Media and Instructions	Not applicable.	
Special Remarks on Fire Hazards	No additional remark.	
Special Remarks on Explosion Hazards	**Potassium chloride:** explosive reaction with: bromine trifluoride and also the combination of sulfuric acid and potassium permanganate.	

SECTION VI — Accidental Release Measures	
Spill	Material to be recovered dry; may be shoveled up for re-use. Will damage vegetation if applied in excess.

SECTION VII — Handling and Storage	
Precautions	DO NOT ingest. DO NOT breathe dust.
Storage	Store in a dry place.
	Store away from incompatible substances.

SECTION VIII — Exposure Controls/Personal Protection	
Engineering Controls	No special ventilation requirements.
Personal Protection	Safety glasses. Dust respirator of type N.
Personal Protection in Case of a Large Spill	Same as above.
Exposure Limits	TLV-TWA 10 mg/m^3 from ACGIH for potassium chloride (as nuisance dust).
	Consult local authorities for acceptable exposure limits.

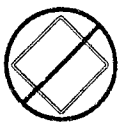
SECTION IX — Physical and Chemical Properties			
Physical State and Appearance	Solid (crystals and granules).	Odor	Slight petroleum odor due to anti-cake oil.
Molecular Weight	74.55	Taste	Not available.
pH (1% soln/water)	7	Color	Reddish-brown or white.
Boiling Point	1500°C (2732°F).		
Melting Point	790°C (1454°F).		
Critical Temperature	Not available.		
Specific Gravity	1.987 (Water = 1).		
Vapor Pressure	Not available.		
Vapor Density	Not available.		
Volatility	Not available.		
Odor Threshold	Not available.		
Water/Oil Dist. Coeff.	Not available.		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water.		
Solubility	27g of potash per 100g of water at 0°C.		

SECTION X — Stability and Reactivity Data	
Stability	The product is stable.
Instability Temperature	Not applicable.
Conditions of Instability	No additional remark.
Incompatibility with Various Substances	See special remarks on reactivity.
Corrosivity	Similar to salt.
Special Remarks on Reactivity	**Potassium chloride:** incompatible with strong inorganic acids.
Special Remarks on Corrosivity	No additional remark.

SECTION XI — Toxicological Information		
Routes of Entry	Ingestion. Inhalation.	
Toxicity to Animals	No additional remarks (see section II).	
Chronic Effects on Humans	**CARCINOGENIC EFFECTS:**	Not applicable.
	MUTAGENIC EFFECTS:	Not applicable.
	TERATOGENIC EFFECTS:	Not applicable.
	Toxicity of the product to the reproductive system:	Not applicable.
Other Toxic Effects on Humans	As shipped, this product does not present special health hazards. Conditions and work practices which generate dust or fumes should be avoided or controlled. Dust and fumes may cause health effects.	
Special Remarks on Toxicity to Animals	No additional remark.	
Special Remarks on Chronic Effects on Humans	**Potassium chloride:** NIOSH (90-117) does not report target organs for potassium chloride.	
	Passes through the placental barrier in animal.	
Special Remarks on Other Toxic Effects on Humans	No additional remarks.	

SECTION XII — Ecological Information	
Ecotoxicity	Not applicable.
BOD5 and COD	Not applicable.
Products of Biodegradation	Not applicable.
Toxicity of the Products of Biodegradation	Not applicable.
Special Remarks on Environment	No additional remark.

SECTION XIII — Disposal Considerations	
Waste Disposal	Recycle to process, if possible. Consult the local or regional authorities.

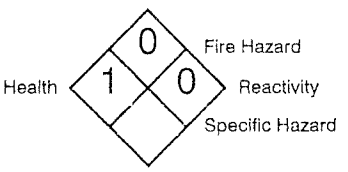
SECTION XIV — Transport Information	
TDG Classification	Not controlled under TDG (Canada).
PIN	Not applicable (PIN and PG).
Special Provisions for Transport	Not applicable.
TDG Pictograms	

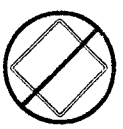
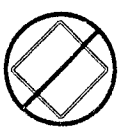
SECTION XV — Other Regulatory Information and Pictograms		
Other Regulations	This product is not listed as a dangerous material.	
Other Classifications	HCS (U.S.A.)	Not controlled under the HCS (United States).
	DSCL (EEC)	Not controlled under DSCL (Europe).

Hazardous Material Information System (U.S.A.)

Health Hazard	1
Fire Hazard	0
Reactivity	0
Personal Protection	t

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



DOT (U.S.A.) (Pictograms)	
DSCL (Europe) (Pictograms)	
ADR (Europe) (Pictograms)	
Protective Equipment (Pictograms)	

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central canada potash

SECTION XVI — Other Information		
References	NIOSH-RTECS, 1993 supplement.	
	ACGIH, Threshold Limit Values, Current Listing.	
	Handbook of the Toxicology of Metals, 2nd Edition, Frieberg.	
	SAX's Dangerous Properties of Industrial Materials, 8th Ed., 1993.	
	Patty's Industrial Hygiene and Toxicology, 3rd Revised Edition.	
	National Library of Medicine.	
	Toxicologie Ind. & Intox. Professionnelle, 3e édition, Lauwerys.	
	Chemical Hazards of the Workplace, Proctor, Hughes.	
	IARC, Monographs on the Evaluation of Carcinogenic Risks to Humans, Supp. 7.	
	Sixth Annual Report on Carcinogens, US, Public Health Service.	
	Toxicology Profile on selected metals. Contract: R. Lauwerys and Noranda Inc. (1989 with updates).	
	NIOSH-Pocket Guide to Chemical Hazards — June 1990.	
	CSST-Répertoire toxicologique, novembre 1991 (with updates).	
	ACGIH, documentation on TLVs and BEIs 1992-1993.	
	Controlled Products Regulation.	
	IARC:	International Agency for Research on Cancer.
	CSST:	Commission de la Santé et de la Sécurité du Travail (Québec).
	ACGIH:	American Conference of Governmental Industrial Hygiene.
	NTP:	U.S. National Toxicology Program.
	NIOSH:	National Institute of Occupational Safety and Health.
	OSHA:	Occupational Safety and Health.
Other Special Considerations	No additional remark.	
Validated on 95-05-31 by Tony Pereira.	Printed 95-05-31.	
Information Contact	Tony Pereira (306) 944-2171, ext. 281	
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