# Material Safety Data Sheet

| Revision Issued: 03/01/10 | Supercedes: 2/28/07 | First Issued: 7/1/1989 |
|---|---|---|

## Section I – Product and Company Identification

**Product Name:** Urea, Dry

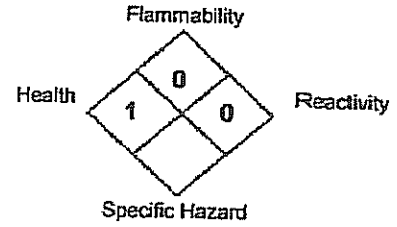
**PotashCorp MSDS No.:** 13
**ERG No.:** None

PCS Sales

1101 Skokie Blvd., Northbrook, IL 60062
Phone (800) 241-6908 / (847) 849-4200

Suite 500, 122 – 1st Avenue South
Saskatoon, Saskatchewan Canada S7K7G3
Phone (800) 667-0403 from Canada
(800) 667-3930 from USA

**Emergencies (800) 424-9300 (CHEMTREC)**
Web Site www.potashcorp.com
Health Emergencies, Contact Your Local Poison Center




**NFPA Code**

| Common Name: | Formula: | Synonym: | Uses: |
|---|---|---|---|
| Urea, Dry | $CO(NH_2)_2$ | Urea Prills, Urea Granular | Industrial, Agricultural, Feed |

## Section II – Composition / Information On Ingredients

| Chemical Name | CAS No. | Exposure Limits | | | | | | | | % by Weight |
|---|---|---|---|---|---|---|---|---|---|---|
| | | OSHA PEL | | TLV – TWA | | STEL | | CEIL | | |
| | | mg/m³ | ppm | mg/m³ | ppm | mg/m³ | ppm | mg/m³ | ppm | |
| Urea, Carbamide, Carbonyldiamide, Carbamidic Acid [1] | 57-13-6 | 5[2] | | 10[3] | | | | | | 97.5 - 99.7 |
| Alkalinity as Ammonia | | | | | | | | | | 150 PPM (Max) |
| Urea | | | | | | | | | | 97.5 – 99.7 |
| Biuret | | | | | | | | | | 0.00 - 1.50 |
| Methylenediurea[4] | | | | | | | | | | 0.00 – 2.42 |

[1] Nuisance dust 15 Mg/M³ (Total)
[2] 5 Mg/M³ – Respirable (particulate) Fraction Urea.
[3] 10 Mg/M³ inhalable particulate
[4] Reagent and ChemicalGrade Urea does not contain formaldehyde

## Section III – Hazard Identification

| | | | |
|---|---|---|---|
| **Potential Acute Health Effects:** | **Skin:** Repeated or prolonged contact may cause reddening, itching and inflammation. **Ingestion:** A single dose of 100 grams has reportedly caused mild symptoms of Central Nervous System depression (e. g. drowsiness and slow reflexes). | | |
| **Eyes and Skin:** | **Eyes:** Severe irritant. Contact with heated material may cause thermal burns. **Skin:** Slightly irritating. Repeated or prolonged contact may cause reddening, itching and inflammation. Contact with heated material may cause thermal burns. | | |
| **Inhalation:** | May cause respiratory tract irritation although no incidents of dust inhalation health effects have been reported | | |
| **Ingestion:** | May cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting and diarrhea. . | | |
| **Potential Chronic Health Effects:** | None known. Urea is a naturally occurring chemical in the body. It is an end product of protein metabolism and is excreted in the urine. | | |
| **CARCINOGENICITY LISTS** | **IARC Monograph:** No | **NTP:** No | **OSHA:** No |

| Section IV – First Aid Measures | |
|---|---|
| **Eyes:** | Promptly flush with water, continuing for 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. If irritation persists, consult a physician immediately. |
| **Skin:** | Wash area of contact thoroughly with soap and water. For contact with molten product do not remove clothing. Flush skin immediately with cold water. Launder clothing before reuse. |
| **Ingestion:** | Do not induce vomiting. Keep affected person warm and treat for shock. Get medical attention. A single dose of 100 grams has reportedly caused mild symptoms of Central Nervous System depression (drowsiness, etc.). |
| **Inhalation:** | Remove affected person from source of exposure. If not breathing, ensure open airway and initiate CPR. If breathing is difficult, administer oxygen; if available get medical attention. |

| Section V – Fire Fighting Measures | | | |
|---|---|---|---|
| **Flash Point:** | Not Applicable | **Autoignition Temperature:** | Not Applicable |
| **Lower Explosive Limit:** | Not Applicable | **Upper Explosive Limit:** | Not Applicable |
| **Unusual Fire and Explosion Hazards:** | Heating above 270° F decomposes to Biuret, Ammonia, and Nitrogen Oxides. Short-term exposures to smoke and gases may lead to irreversible lung injury without early signs and symptoms. | | |
| **Extinguishing Media:** | All standard agents are acceptable. Use extinguishing agent suitable for the surrounding fire. Material itself burns with difficulty. Urea becomes slippery when wet. – Guard against slips and falls | | |
| **Special Firefighting Procedures and Equipment:** | Irritating toxic substances may be emitted upon thermal decomposition. Exposed firefighters should wear NIOSH approved self contained breathing apparatus with full face piece and full protective clothing. May form explosive mixtures if mixed with strong acid (Nitric/Perchloric). Ventilation: Provide local or general ventilation to keep below nuisance dust limit of 15 mg/m3. | | |

| Section VI – Accidental Release Measures | |
|---|---|
| **Small Spill:** | If uncontaminated, recover and reuse as product. |
| **Large Spill:** | Prevent large quantities from contacting vegetation or waterways. Keep animals away from large spills. |
| **Release Notes:** | If spill could potentially enter any waterway, including intermittent dry creeks, contact the local authorities. If in the U.S., contact the US COAST GUARD NATIONAL RESPONSE CENTER toll free number 800-424-8802. In case of accident or road spill notify: CHEMTREC IN USA at 800-424-9300; CANUTEC in Canada at 613-996-6666 CHEMTREC in other countries at (International code)+1-703-527-3887. |
| **Comments:** | See Section XIII for disposal information and Section XV for regulatory requirements. Large and small spills may have a broad definition depending on the user's handling system. Therefore, the spill category must be defined at the point of release by technically qualified personnel. |

| Section VII – Handling and Storage | |
|---|---|
| **Ventilation:** | Provide local or general ventilation to keep below nuisance dust limit of 15mg/m$^3$. |
| **Handling:** | Avoid contact with the eyes. Avoid repeated or prolonged contact with the skin or clothing. Avoid dust inhalation. Contact lenses should not be worn. |
| **Storage:** | Store in closed containers in cool, dry, isolated, well ventilated area away from heat, sources of ignition, and incompatibles. Avoid contamination with other "look alike" materials that may produce a fire or explosion. **Special precautions/ Procedures/ Label instructions:** Avoid containers, piping or fittings made of brass, bronze or other copper bearing alloys or galvanized metals. |

| Section VIII – Exposure Controls/ Personal Protection | |
|---|---|
| **Engineering Controls:** | Provide local or general ventilation to keep below nuisance dust limit of 15mg/m$^3$. |
| **Personal Protection:** | |
| **Eye Protection:** | Use tight-fitting safety goggles in areas of high dust concentration. |
| **Protective Clothing:** | Wear safety glasses or chemical goggles to prevent eye contact. Do not wear contact lenses when working with this substance. Have eye wash facilities available where eye contact could occur. |
| **Respiratory Protection:** | Normally none needed. Use NIOSH approved equipment when airborne dust exposure limits are exceeded. NIOSH approved breathing equipment must be available for non-routine and emergency use. |
| **Other Protective Clothing or Equipment:** | Normally not required |

## Section IX – Physical and Chemical Properties

| | | | |
|---|---|---|---|
| **Appearance/Color/Odor:** | White solid, spherical or granular shape with slight ammonia odor. | **Boiling Point:** | 135°C (decomposes) |
| **Melting Point/Range:** | 271°F or 133°C | **Boiling Point Range:** | Not Applicable |
| **Solubility in Water:** | 1,193 g/L at 25°C | **Vapor Pressure (mmHg):** | 80 Pa at 20°C (calculated) |
| **Specific Gravity:** | Not Applicalbe | **Molecular Weight:** | 60.07 |
| **Vapor Density:** | Not Applicable | **% Volatiles:** | Not Applicable |
| **Bulk Density:** | 44 - 49 lbs/cu ft | **Evaporation Rate:** | Not Applicable |
| **pH:** | 7.2 at 100 g/L | **Freezing Point:** | Not Applicable |
| **Viscosity:** | Not Applicable | **Density:** | 750 kg/m$^3$ |

## Section X – Stability and Reactivity

| | |
|---|---|
| **Stability:** | Stable |
| **Hazardous Polymerization:** | Will not occur |
| **Conditions to Avoid:** | May slowly hydrolyze to Ammonium Carbamate after a long period of time which decomposes to Ammonia and Carbon Dioxide. |
| **Materials to Avoid (Incompatibles):** | Avoid contact with strong oxidizers, acids or bases. Avoid contact with Nitrates. Reacts with Sodium or Calcium Hypochlorite to form explosive Nitrogen Trichloride. Avoid contact with hypochlorites |
| **Hazardous Decomposition Products:** | Decomposes to Ammonia, Biuret, Nitrogen Oxides, Carbon Oxides. May react with hypochlorites to form the explosive nitrogen trichloride. |

## Section XI – Toxicological Information

| | | |
|---|---|---|
| **Significant Routes of Exposure:** | Eyes, Digestive Tract, Respiratory Tract, Skin | |
| **Toxicity to Animals:** | **Acute Oral Toxicity:** | (rat) $LD_{50}$=14,300-15,000 mg/kg; (mouse) $LD_{50}$ = 11,500-13,00 mg/kg; (cattle) $LD_{50}$ = 510 mg/kg. |
| | **Acute Inhalation Toxicity:** | No data available |
| | **Acute Toxicity: Other Routes:** | No data available |
| | **Acute Dermal Toxicity:** | No data available |
| | **Repeated Dose Toxicity:** | (rat) 24 weeks; dermal – NOAEL = 40% in ointment |
| | **Eye & Skin Irritation/Corrosion:** | Skin Irritation/Corrosion: Mouse – Not irritating (10% solution)<br>Eye Irritation/Corrosion: Rabbit – Not irritating (50% solution)<br>Not found to be toxic by oral exposure as defined by OSHA. Based on toxicity data for another compound (i.e., ammonium nitrate), not expected to be toxic by dermal and inhalation exposure as defined by OSHA. |
| | **Bacterial Genetic Toxicity In-Vitro: Gene Mutation:** | (*Salmonella typhimurium*) – Bacterial reverse mutation assay- Negative ; Chinese Hamster – Chromosomal aberration test – Positive (very high dose); Mouse – Positive (very high dose). |
| | **Non-Bacterial Genetic Toxicity In-Vitro: Chromosomal Aberration:** | Mouse – Bone marrow cytogenetic test – Positive (extremely high dose) |
| | **Toxicity to Reproduction:** | No toxic effects on mouse gonads up to 6,750-mg/kg day. No toxic effects on rat gonads up to 2,250-mg/kg day. |
| | **Developmental Toxicity / Teratogenicity:** | Not teratogenic. |
| **Other Effects on Humans:** | | Despite extensive medical use, no significant side effects on humans have been noted. |
| **Special Remarks on Chronic Effects on Humans** | | No chronic effects known. |
| **Special Remarks on Other Effects on Humans:** | | May be irritating at > 10% concentration; not a skin sensitizer. Despite extensive medical uses no significant side effects on humans has been noted. |

## Section XII – Ecological Information

| | | |
|---|---|---|
| Ecotoxicity: | EPA Ecological Toxicity rating : | |
| | Acute Toxicity to Fish: | 96 -h:(*Barillius barna*)$LC_{50}$ = > 9,100 mg/L. |
| | Chronic Toxicity to Fish: | No data available |
| | Acute Toxicity to Aquatic Invertebrates: | (*Daphnia magna*): 24 - h $EC_{50}$: > 10,000 mg/L . |
| | Toxicity to Aquatic Plants: | (*Scenadesmus quadricauda*) 192-hr cell multiplication inhibition test-TT>10,000 mg/L. |
| | Toxicity to Bacteria: (activated sludge): | No data available |
| | Toxicity to Soil Dwelling Organisms: | Applications of nitrogenous fertilizers to grassland for long period may have deleterious effects on earthworms in the absence of liming. |
| | Toxicity to Other Non-Mammalian Terrestrial Species: | (Pigeon)- Subcutaneous-LDLO=16,000 mg/kg. Since Urea is a fertilizer, it may promote eutrophication in waterways. Non-toxic to aquatic organisms as defined by USEPA. |
| | Toxicity to Terrestrial Plants: | 7 days exposure to 0 mg urea / leaf - leaf-tip necrosis |
| Environmental Fate: | Stability in Water: | $T_{1/2}$ > 1 year. |
| | Stability in Soil: | No data available |
| | Transport and Distribution: | 0.16% in air; 99.84% in water (calculated (Fugacity Level I)) |
| Toxicity: | Non-toxic to aquatic organisms as defined by USEPA. No known toxicity | |
| Degradation Products: | Biodegradation: | Ultimately biodegradable (OECDTG 302B) 93-98% (SCAS 24 hr) |
| | Photodegradation: | No data available |

## Section XIII – Disposal Considerations

| | |
|---|---|
| Product Disposal: | Disposal of Urea may be subject to federal, state or local regulations. |
| General Comments: | Users of this product should review their operations in terms of applicable federal, state and local laws and regulations, then consult with appropriate regulatory agencies before discharging or disposing of waste material. |

## Section XIV – Transportation Information

| | USDOT | TDG - Canada |
|---|---|---|
| Proper Shipping Name: | Not Regulated | Not Regulated |
| Hazard Class: | | |
| Identification Number: | | |
| Packing Group (Technical Name): | | |
| Labeling / Placarding: | | |
| Authorized Packaging: | | |
| Notes: | | |
| European Transportation: | If shipping internationally, notate Urea as Cabamidic Acid. | |

## Section XV – Regulatory Information

**UNITED STATES: SARA Hazard Category:**

This product has been reviewed according to the EPA Hazard Categories promulgated under Section 311 and 312 of the Superfund Amendment and reauthorization Act of 1986 (SARA title III) and is considered, under applicable definitions, to meet the following categories:

| Fire: | No | Pressure Generating: | No | Reactivity: | No | Acute: | Yes | Chronic: | No |
|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| **40 CFR Part 355 - Extremely Hazardous Substances:** | None |
| **40 CFR Part 370 - Hazardous Chemical Reporting:** | Applicable |
| **All intentional ingredients listed on the TSCA inventory.** | |

**SARA Title III Information:** This product contains the following substances subject of the reporting requirements of Title III (EPCRA) of the Superfund amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

| Chemical | CAS NO. | Percent by Weight | CERCLA RQ (lbs)* | SARA (1986) Reporting | | |
|---|---|---|---|---|---|---|
| | | | | 311 | 312 | 313 |
| Urea | 57-13-6 | 97.5 - 99.7 | NA | Yes | Yes | NA |

**CERCLA/Superfund, 40 CFR Parts 117, 302:** If this product contains components subject to substances designated as CERCLA reportable Quantity (RQ) Substances, it will be designated in the above table with the RQ value in pounds. If there is a release of RQ Substance to the environment, notification to the National response Center, Washington D.C. (1-800-424-8802) is required.

**CANADA:**

| | |
|---|---|
| **WHMIS Hazard Symbol and classification:** | This product is not WHMIS controlled |
| **Ingredient Disclosure List** | This product does not contain ingredient(s) on this list. |
| **Environmental Protection:** | All intentional ingredients are listed on the DSL (Domestic Substance List). |
| **EINECS#:** | (Urea) 200-315-5 |
| **California: Prop 65:** | This is not a chemical known to cause cancer, nor is it listed. |

## Section XVI – Other Information

| NFPA Hazard Ratings: | Health: 1 | Fire: 0 | Reactivity: 0 | Special Hazards: |
|---|---|---|---|---|
| | 0 = Insignificant | 1 = Slight | 2 = Moderate | 3 = High 4 = Extreme |

**COMMENTS:** This product is TSE/BSE (Transmissible Spongiform Encephalopathy/Bovine Spongiform Encephalopathy) free. There are no animal constituents used in the manufacture of Urea, Dry for PCS Sales (USA) Inc. Our product is created through a chemical process.

**Section(s) changed since last revision:** Changed date

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# MATERIAL SAFETY DATA SHEET

Texasgulf Inc.

Glenwood at Glen Eden
P.O. Box 30321
Raleigh, North Carolina 27622-0321 (919) 881-2700

TRANSPORTATION EMERGENCIES. CALL (800) 424-9300 (CHEMTREC)
HEALTH EMERGENCIES. CONTACT YOUR LOCAL POISON CENTER

DIAMMONIUM PHOSPHATE
18-46-0

CAUTION: RELEASES TOXIC AND IRRITATING AMMONIA. ENTER ENCLOSED AREAS ONLY WHEN USING SELF CONTAINED BREATHING APPARATUS.

## PRODUCT INFORMATION

CHEMICAL NAME AND SYNONYMS
Ammonium Phosphate Dibasic

TRADE NAME AND SYNONYMS
DAP, 18-46-0

CHEMICAL FAMILY
Ammonium Phosphates

FORMULA
$(NH_4)_2HPO_4$

CAS NUMBER
7783-28-0

LISTED IN: _____ OSHA SUBPART Z _____ ACGIH TLV LISTS; _____ NTP LIST;

_____ IARC MONOGRAPH; X NONE OF THE ABOVE

TYPICAL COMPOSITION

| | |
|---|---|
| Phosphorus, as $P_2O_5$ | 46% |
| Ammonical Nitrogen, as N | 18% |
| Fluoride Compound, as F | 2.1% |

## PHYSICAL DATA

BOILING POINT (°F) 212 Decomposes

MELTING POINT (°F) 212 Decomposes

VAPOR PRESSURE (mm Hg.) @167°F 0.9

SPECIFIC GRAVITY ($H_2O$=1) 1.6

VAPOR DENSITY (AIR=1) N/A

PERCENT, VOLATILE BY VOLUME (%) Gradually loses 8% nitrogen to air

SOLUBILITY IN WATER Highly Soluble

EVAPORATION RATE (_____ =1) N/A

APPEARANCE AND ODOR Gray granular solid, ammonia odor.

pH 8

OTHER 60 Pounds per cubic foot-loose
65 Pounds per cubic foot-tamped

## FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT (Method Used) Not Flammable

FLAMMABLE LIMITS LEL N/A UEL N/A

EXTINGUISHING MEDIA N/A

SPECIAL FIRE FIGHTING PROCEDURES Wear full protective clothing and self contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS Releases ammonia and nitrous oxide fumes.

## HEALTH INFORMATION

THRESHOLD LIMIT VALUE OSHA nuisance dust limit of 15/mg/m$^3$ or ACGIH nuisance dust limit of 10/mg/m$^3$ for the eight hour time weighted average.

EFFECTS OF OVEREXPOSURE EYE-Irritant. SKIN-Slightly irritating. INHALATION-Causes irritation of mucous membranes, coughing or difficult breathing. Ammonia gas can cause pulmary edema. INGESTION-Ingesting large amounts (over 1/2 pound) may cause nausea, vomiting and stomach pain due to fluorides.

12/28/88

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**EMERGENCY AND FIRST AID PROCEDURES**

EYES-Flush thoroughly with water. Seek medical help if irritation persists.
SKIN-Wash thoroughly with soap and water.
INHALATION-Remove to fresh air. If discomfort continues, seek medical aid.
INGESTION-If swallowed and the person is conscious, dilute stomach contents with water. DO NOT INDUCE VOMITING. Seek medical aid.

## REACTIVITY DATA

**STABILITY** ☐ UNSTABLE ☒ STABLE **CONDITIONS TO AVOID** N/A

**INCOMPATABILITY (Materials to avoid)** None listed.

**HAZARDOUS DECOMPOSITION PRODUCTS** Decomposes to ammonia and monoammoniam phosphate.

**HAZARDOUS POLYMERIZATION** ☐ MAY OCCUR ☒ WILL NOT OCCUR **CONDITIONS TO AVOID** N/A

## SPILL OR LEAK PROCEDURES

**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

Prevent large quantities from contacting vegetation and waterways.

**WASTE DISPOSAL METHOD**

If uncontaminated, recover and reuse product. Consult State or Federal environmental regulatory agencies for acceptable disposal procedures and locations.

## PERSONAL PROTECTION INFORMATION

EYE-Tight fitting goggles should be worn in dusty areas.
SKIN-If irritation occurs, long sleeves and impervious gloves should be worn.
RESPIRATORY-A NIOSH-approved dust respirator should be used when exposure exceeds the OSHA standard of 15/mg/$m^3$. When stored in closed areas, a self-contained breathing apparatus is required to protect against ammonia gas.

## SPECIAL PRECAUTIONS

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING**

Enclosed storage should be entered only when using a self-contained breathing apparatus.

**OTHER PRECAUTIONS** None

# Material Safety Data Sheet

LIMESTONE: AGLIME & CRUSHED STONE

Identity (Trade Name As Used On Label)

APPOMATTOX LIME COMPANY
Manufacturer

MSDS Number*

ROUTE 4 BOX 399
Address

CAS Number*

APPOMATTOX, VIRGINIA 24522

AUGUST 20, 1996
Date Prepared

804-933-8258
Phone Number (For Information)

JAMES W. MACDONALD, JR.
Prepared By*

Emergency Phone Number Telex*

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

## SECTION 1 - MATERIAL IDENTIFICATION AND INFORMATION

| COMPONENTS — Chemical Name & Common Names (Hazardous Components 1% or greater; Carcinogens 0.1% or greater) | % * | OSHA PEL | ACGIH TLV | OTHER LIMITS RECOMMENDED |
|---|---|---|---|---|
| 0-0-0 Lime Stone | | | | |
| Non-Hazardous Ingredients | 100 | | | |
| TOTAL | 100 | | | |

## SECTION 2 - PHYSICAL / CHEMICAL CHARACTERISTICS

| | | | |
|---|---|---|---|
| Boiling Point | NA | Specific Gravity ($H_2O$ = 1) | 2.5 - 2.9 |
| Vapor Pressure (mm Hg and Temperature) | NA | Melting Point | NA |
| Vapor Density (Air = 1) | NA | Evaporation Rate ( = 1) | NA |
| Solubility in Water | -0- | Water Reactive | -0- |

Appearance and Odor ANGULAR WHITE, TAN, PINK AND GREEN PARTICLES RANGING IN SIZE FROM POWDER TO BOULDERS (NO ODOR)

## SECTION 3 - FIRE AND EXPLOSION HAZARD DATA

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Flash Point and Method Used | NA | Auto-Ignition Temperature | NA | Flammability Limits in Air % by Volume | NA | LEL | UEL |
| Extinguisher Media | NA | | | | | | |
| Special Fire Fighting Procedures | NA | NON-FLAMMABLE | | | | | |
| Unusual Fire and Explosion Hazards | NONE KNOWN | | | | | | |

*Optional

## SECTION 4 - REACTIVITY HAZARD DATA

**STABILITY**
☒ Stable
☐ Unstable

Conditions To Avoid: NONE KNOWN

Incompatability (Materials to Avoid): NONE KNOWN

Hazardous Decomposition Products: RESPIRABLE DUST PARTICLES MAY BE GENERATED BY HANDLING

**HAZARDOUS POLYMERIZATION**
☐ May Occur
☒ Will Not Occur

Conditions To Avoid: NA

## SECTION 5 - HEALTH HAZARD DATA

**PRIMARY ROUTES OF ENTRY**
☒ Inhalation ☐ Ingestion
☐ Skin Absorption ☐ Not Hazardous

**CARCINOGEN LISTED IN**
☐ NTP ☐ OSHA
☐ IARC Monograph ☒ Not Listed

**HEALTH HAZARDS**
Acute: IRRITATION OF EYES, THROAT AND NASAL PASSAGES
Chronic: AIRBORNE RESPIRABLE DUST CONTAINING QUARTZ CAN RESULT IN SILICOSIS

Signs and Symptoms of Exposure: TLV: AIRBORNE NUISANCE DUST: TOTAL = 10mg/m3, RESPIRABLE = 5mg/m3

Medical Conditions Generally Aggravated by Exposure: IRRITATION OF EYES THROAT AND NASAL PASSAGES

**EMERGENCY FIRST AID PROCEDURES** - Seek medical assistance for further treatment, observation and support if necessary.

Eye Contact

1-2.

# MATERIAL SAFETY DATA SHEET

POTASH

CAUTION-MAY CAUSE SKIN AND EYE IRRITATION

Texasgulf Inc.
Glenwood at Glen Eden
P.O. Box 30321
Raleigh, North Carolina 27622-0321 (919) 881-2700
TRANSPORTATION EMERGENCIES. CALL (800) 424-9300 (CHEMTREC)
HEALTH EMERGENCIES. CONTACT YOUR LOCAL POISON CENTER

## PRODUCT INFORMATION

CHEMICAL NAME AND SYNONYMS
Potassium Chloride

TRADE NAME AND SYNONYMS
Potash, potassium muriate, muriate of potash

CHEMICAL FAMILY
Inorganic salt

FORMULA
KCl

CAS NUMBER
7447-40-7

LISTED IN: _____ OSHA SUBPART Z _____ ACGIH TLV LISTS; _____ NTP LIST;

_____ IARC MONOGRAPH; X NONE OF THE ABOVE

| TYPICAL COMPOSITION | % |
|---|---|
| Potassium chloride | 96.6-99.5 |
| Sodium chloride | 0.1- 2.6 (CAS #7647-14-5) |

## PHYSICAL DATA

BOILING POINT (°F) Sublimes @2732

MELTING POINT (°F) 1423

VAPOR PRESSURE (mm Hg.) N/A

SPECIFIC GRAVITY ($H_2O$=1) 1.98

VAPOR DENSITY (AIR=1) N/A

PERCENT, VOLATILE BY VOLUME (%) N/A

SOLUBILITY IN WATER 25% @ 68°F

EVAPORATION RATE (_____ =1) N/A

APPEARANCE AND ODOR White or red crystals or granules, odorless.

pH 7 at 1% soln.

OTHER

## FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT (Method Used) Not combustible

FLAMMABLE LIMITS LEL N/A UEL N/A

EXTINGUISHING MEDIA N/A

SPECIAL FIRE FIGHTING PROCEDURES None

UNUSUAL FIRE AND EXPLOSION HAZARDS None

## HEALTH INFORMATION

THRESHOLD LIMIT VALUE None established. OSHA nuisance dust limit of 15/mg/m$^3$ and the ACGIH nuisance dust TLV of 10/mg/m$^3$ for the eight hour time weighted average applies.

EFFECTS OF OVEREXPOSURE EYE-Irritant. SKIN-Slightly irritating. INHALATION-Irritates trachea and upper breathing passages. INGESTION-Large doses can cause G.I. irritation, purging, weakness and circulatory disturbances. Low toxicity. (Toxicity $LD_{50}$ Rat 3020 mg/kg)

2-2

EMERGENCY AND FIRST AID PROCEDURES

EYE-Flush thoroughly with water. Seek medical attention if irritation persists.
SKIN-Wash thoroughly with soap and water.
INHALATION-Remove to fresh air. If discomfort continues, seek medical attention.
INGESTION-If person is conscious, give large amounts of water to drink and induce vomiting. Seek medical aid.

## REACTIVITY DATA

STABILITY ☐ UNSTABLE ☒ STABLE — CONDITIONS TO AVOID None

INCOMPATABILITY (Materials to avoid) Strong acids-can cause release of toxic chloride gasses.

HAZARDOUS DECOMPOSITION PRODUCTS None

HAZARDOUS POLYMERIZATION ☐ MAY OCCUR ☒ WILL NOT OCCUR — CONDITIONS TO AVOID None

## SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Prevent large quantities from contact with waterways or vegetation.

WASTE DISPOSAL METHOD If uncontaminated, recover and reuse product. Consult State or Federal environmental regulatory agencies for acceptable disposal procedures and location.

## PERSONAL PROTECTION INFORMATION

EYE-Tight fitting goggles should be worn in dusty areas.
SKIN-If irritation occurs, long sleeves and impervious gloves should be worn.
RESPIRATORY-A NIOSH-approved dust respirator should be used when exposure exceeds the OSHA standard of 15/mg/$m^3$.

## SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING None

OTHER PRECAUTIONS - Potash is mildly corrosive to steel when wet.

Agrium Advanced Technologies

# MATERIAL SAFETY DATA SHEET

MSDS

DATE: 01/10/2008 NEW [ ] REVISED [X]

Agrium Advanced Technologies
P.O. Box 1187
Sylacauga, AL 35150

EMERGENCY PHONE NUMBERS:
Agrium AT: 1-800-422-4248
CHEMTREC: 1-800-424-9300

## SECTION - I - PRODUCT INFORMATION

PRODUCT NAME: **XCU Polymer-Coated Sulfur-Coated Urea (PCSCU) GRADES: 30-0-0 to 43-0-0**
**Regular, or Mini**
PRODUCT NUMBER: N/A
CHEMICAL NAME: Polyurethane-Coated Sulfur-Coated Urea
CHEMICAL FAMILY: Amide, Urethane, Sulfur
EPA REGISTRATION NUMBER: NA EPA ESTABLISHMENT NUMBER: NA
NFPA RATING: Health - 1 Flammability - 0 Reactivity - 0 Special - None
NFPA CODES: 0=Least 1=Slight 2=Moderate 3=High 4=Extreme

## SECTION - II - INGREDIENT INFORMATION

| INGREDIENT | CAS NUMBER | PEL | TLV | % BY WEIGHT |
|---|---|---|---|---|
| Urea | 57-13-6 | NI | NI | 70 - 91 |
| Sulfur | 7704-34-9 | NI | NI | 5 - 29 |
| Polyurethane coating | NA | NI | NI | 0.5 - 5.5 |
| Pigment | NA | NA | NA | 0 - .11 |
| Wax | NA | NI | NI | 0.5 |

## SECTION - III - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: Urea (decomposes), Polyurethane (NA)
Sulfur: 462°C(832° F)
Vapor Pressure (mmHg): Negligible
Vapor Density (Air =1): Negligible
Bulk Density: 44-53 lb/ft$^3$
Specific Gravity: 1.3 - 1.5
Melting Point: Urea: 132.7°C (270.9°F), Polyurethane (NA)
Sulfur: 136.7°C (246°F)
Angle of Repose: 32° - 34°
pH: 7.2 (Crushed sample in $H_2O$, 10% urea solution)
Solubility in Water: Urea; 100 parts in 100 parts water @ 17°C. Polyurethane and sulfur coating are water insoluble.
Appearance and Odor: light yellow-green fertilizer granules. No appreciable odor.

## SECTION - IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: NA Flammable Limits: LEL: NA UEL: NA
Extinguishing Media: Water spray, dry chemical, $CO_2$, sand, or fine earth. Material essentially is non-flammable.
Special Fire Fighting Procedures: Wear full protective clothing and self-contained breathing apparatus. Short term exposure to smoke, fumes, and gases can lead to irreversible lung injury without early signs and symptoms. Use extinguishing media suitable for the surrounding fire. Evacuate downwind if large quantities of product are involved in fire.
Unusual Fire and Explosion Hazards: The use of high speed bucket elevators, contact paddle blenders, drag lines, augers, or other rough or abusive handling or application equipment can break or abrade the sulfur coating creating sulfur dust. Sulfur dust forms an explosive mixture in air at concentrations between 35 mg/m$^3$ and 1400 mg/m$^3$. Decomposition products may be toxic.

## SECTION - V - REACTIVITY DATA

Stability: Stable

Incompatibility (Materials to avoid): Keep separate from ammonium nitrate fertilizer, or fertilizers containing same.

Hazardous Decomposition or Byproducts: Thermal degradation may produce cyanuric acid, cyanic acid, biuret, ammonia, hydrogen cyanide, carbon dioxide, sulfur oxides, and nitrogen oxides.

Hazardous Polymerization: Will not occur.

## SECTION - VI - HEALTH HAZARD DATA

### ACUTE AND CHRONIC HEALTH HAZARDS / EMERGENCY AND FIRST AID PROCEDURES

Route(s) of entry: Inhalation; Ingestion

Eyes: May cause moderate irritation. If eye contact occurs, flush eyes with running water for 15 minutes.

Skin: May cause moderate irritation. Wash with soap and water if irritation occurs.

Inhalation: No appreciable dust with this product, however, if symptoms of moderate irritation to the nose, throat or lungs occur, remove to fresh air.

Ingestion: May cause headache, nausea, and vomiting. Immediately call a physician or Poison Control Center @ (202) 625-3333 for assistance.

Signs and Symptoms of Exposure: Moderate irritation to eyes, skin, or respiratory tract. No chronic health effects data have been established.

Other Health Warnings: Call a physician if irritation persists. Wash hands with soap and water after handling.

Notes to physician: Treat symptomatically.

## SECTION - VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Storage: Store in original container in a cool dry area. Keep out of reach of children and domestic animals. Store separately from feed, food, and pesticides so that cross contamination does not occur.

Procedures in case of spill or release: If material is uncontaminated, collect and reuse as recommended for product. Avoid dusts, or use NIOSH/MSHA approved respirator. Caution should be used when walking through spilled product on a hard floor, since loose granules can create a slip hazard.

Waste Disposal Method: Apply as fertilizer if uncontaminated. If contaminated, dispose of in accordance with all Federal, State, and Local laws.

Other Precautions: Washing facilities should be available.

## SECTION - VIII - CONTROL MEASURES

Ventilation Requirements: Provide local or general ventilation if dust exposure exceeds the nuisance dust limit of 10 $mg/m^3$. Applicators should stand up-wind if excess dust is observed.

### PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: None required for normal use of this product. A NIOSH/MSHA approved respirator should be used if dust exposure exceeds level of 10 $mg/m^3$.

Protective Clothing: No protection normally required. Long sleeves and impervious gloves should be worn by those with unusually sensitive skin.

Eye Protection: Use of safety glasses with side shields is recommended.

## SECTION - IX - ADDITIONAL INFORMATION

This product is a plant food. However, large spills could possibly kill vegetation or cause illness in animals. Contamination of waterways may cause fish kill. Prevent large quantities from contacting vegetation or waterways. Keep animals away from large spills.

## SECTION - X- SARA TITLE III REQUIREMENTS

Section 302 Extremely Hazardous Substances: No

Section 311/312 Hazardous Substances: No

Section 313 Toxic Chemicals: No

SARA Hazard Category: None

Carcinogenic Compound(s) (IARC/NTP/OSHA/ACGIH): None

## OTHER PRECAUTIONS AND COMMENTS

The information in this Material Safety Data Sheet is believed to accurately reflect the scientific evidence used in making the hazard determination. It is considered only as a guide, and not a warranty or representation for which we assume legal responsibility. Independent decisions must be made on the suitability and use of this product dependent on variable storage conditions or locally applicable laws or government regulations. The buyer and user assume all risk and liability of storage, handling, and use of this product not in accordance with the terms of the product label.

**NA = NOT APPLICABLE**

**NI = NOT INDICATED**

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