

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name UMAXX® Stabilized Nitrogen Fertilizer
Revision date 03-22-2012
Version # 02
CAS # Mixture
MSDS Number KAS_UMAXX_NA_EN
Product use Fertilizer
Synonym(s) UMAXX®
Manufacturer/Supplier Koch Agronomic Services, LLC
 4111 E 37th St N
 Wichita, KS 67220 US
 kochmsds@kochind.com
 +1.866.863.5550

Emergency For Chemical Emergency
 Call CHEMTREC day or night
 USA/Canada - 1.800.424.9300
 Outside USA/Canada - 1.703.527.3887
 (collect calls accepted)

2. Hazards Identification

Physical state Solid.
Appearance Blue-green granules
Emergency overview Dusts may irritate the respiratory tract, skin and eyes.
OSHA regulatory status This product is not hazardous according to OSHA 29CFR 1910.1200.
Potential health effects
Routes of exposure Eye contact. Skin contact. Inhalation.
Eyes Contact may cause eye irritation. Dust or powder may irritate eye tissue.
Skin Dust or powder may irritate the skin.
Inhalation Dust may irritate throat and respiratory system and cause coughing.
Ingestion Ingestion of this product may cause nausea, vomiting and diarrhea.
Signs and symptoms Symptoms can include irritation, redness, scratching of the cornea, and tearing.

3. Composition / Information on Ingredients

| Components | CAS # | Percent |
|-------------------------------------|-------------|----------|
| Urea | 57-13-6 | 60 - 100 |
| Dicyandiamide | 461-58-5 | 1 - 5 |
| N-(n-butyl)-thiophosphoric triamide | 94317-64-3 | < 0.1 |
| N-Methyl-2-pyrrolidone | 872-50-4 | < 0.1 |
| Non hazardous component | Proprietary | < 0.1 |
| Non hazardous dye | Proprietary | < 0.1 |

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
 This Safety Data Sheet is not a guarantee of product specification or NPK value(s). NPK content is on specified sales orders, customer invoices, or product specification sheets obtained from supplier.

4. First Aid Measures

First aid procedures

| | |
|---------------------|--|
| Eye contact | Dust in the eyes: Do not rub eyes. Remove contact lenses, if present and easy to do. Flush eyes immediately with large amounts of water. Get medical attention if irritation develops and persists. |
| Skin contact | Immediately flush skin with plenty of water. Get medical attention if irritation develops and persists. |
| Inhalation | Remove from area of exposure. For breathing difficulties, oxygen may be necessary. |
| Ingestion | Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical attention. |

Notes to physician

Treat symptomatically. The effects might be delayed.

General advice

Keep victim warm. Keep victim under observation. Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties

The product is not flammable.

Extinguishing media

Suitable extinguishing media Water fog. Water spray. Carbon dioxide (CO₂). Foam.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Protection of firefighters

Specific hazards arising from the chemical Fire may produce irritating, corrosive and/or toxic gases.

Protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing should be worn when fighting chemical fires.

Fire fighting

equipment/instructions

Use standard firefighting procedures and consider the hazards of other involved materials.

Specific methods

Cool material exposed to heat with water spray and remove it if no risk is involved.

6. Accidental Release Measures

Personal precautions

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stay upwind.

Environmental precautions

Prevent further leakage or spillage if safe to do so.

Methods for cleaning up

Powder Spills: Cover powder spill with plastic sheet or tarpaulin to minimize spreading and keep powder dry. Shovel into dry containers. Cover and move the containers. Flush the area with water. Avoid the generation of dusts during clean-up.

7. Handling and Storage

Handling

Avoid exposure - obtain special instructions before use. Wear appropriate personal protective equipment. Avoid generation and spreading of dust. Avoid inhalation of dust and contact with eyes. Avoid prolonged exposure. Handle and open container with care. Wash before eating, drinking and/or smoking. Wash thoroughly after handling.

Storage

Avoid exposure - obtain special instructions before use. Use care in handling/storage. Store in tightly closed original container in a well-ventilated place. Keep away from food, drink and animal feedingstuffs. Store in accordance with local/regional/national/international regulation. Keep out of reach of children. Long term storage at temperatures above 100°F (36°C) can adversely affect the efficacy of products containing N-(n-butyl)-thiophosphoric triamide.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

| Components | Type | Value | Form |
|------------|------|---|---|
| Dust (-) | TWA | 3 mg/m ³ 10 mg/m ³ | Respirable particles. Inhalable particles. |

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

| Components | Type | Value | Form |
|------------|------|---------------------|----------------------|
| Dust (-) | PEL | 5 mg/m ³ | Respirable fraction. |

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

| Components | Type | Value | Form |
|------------|------|----------|-------------|
| | | 15 mg/m3 | Total dust. |

US. OSHA Table Z-3 (29 CFR 1910.1000)

| Components | Type | Value | Form |
|------------|------|----------|----------------------|
| Dust (-) | TWA | 5 mg/m3 | Respirable fraction. |
| | | 15 mg/m3 | Total dust. |
| | | 50 mppcf | Total dust. |
| | | 15 mppcf | Respirable fraction. |

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

| Components | Type | Value | Form |
|------------|------|----------|-----------------------|
| Dust (-) | TWA | 3 mg/m3 | Respirable particles. |
| | | 10 mg/m3 | Total particulate. |

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

| Components | Type | Value | Form |
|------------|------|----------|----------------------|
| Dust (-) | TWA | 3 mg/m3 | Respirable fraction. |
| | | 10 mg/m3 | Total dust. |

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

| Components | Type | Value | Form |
|--------------------------------------|------|-----------|-----------------------|
| Dust (-) | TWA | 3 mg/m3 | Respirable particles. |
| | | 10 mg/m3 | Inhalable |
| N-Methyl-2-pyrrolidone (872-50-4) | TWA | 400 mg/m3 | |

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

| Components | Type | Value | Form |
|------------|------|----------|-------------|
| Dust (-) | TWA | 10 mg/m3 | Total dust. |

Exposure guidelines

Follow standard monitoring procedures.

Engineering controls

Provide adequate general and local exhaust ventilation. Provide eyewash station.

Personal protective equipment**Eye / face protection**

Chemical goggles are recommended.

Skin protection

Neoprene gloves. Chemical resistant clothing is recommended. Routinely wash work clothing and protective equipment to remove contaminants.

Respiratory protection

Wear air supplied respiratory protection if exposure concentrations are unknown. In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter. Wear respiratory protection during operations where spraying or misting occurs. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134.

9. Physical & Chemical Properties

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|---|-----------------------------|
| Appearance | Blue-green granules |
| Color | Blue-green. |
| Odor | Slight sulfurous |
| Odor threshold | Not available. |
| Physical state | Solid. |
| Form | Granules. |
| pH | 7.2 (10% in water) |
| Melting point | 275 °F (135 °C) Decomposes. |
| Freezing point | Not available. |
| Boiling point | Not applicable. |
| Flash point | Not available. |
| Evaporation rate | Not applicable. |
| Flammability limits in air, upper, % by volume | Not applicable. |
| Flammability limits in air, lower, % by volume | Not applicable. |

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| Vapor pressure | Not applicable. |
| Vapor density | Not applicable. |
| Specific gravity | 1.32 |
| Solubility (water) | Soluble. |
| Partition coefficient (n-octanol/water) | Not available. |
| Auto-ignition temperature | Not available. |
| Decomposition temperature | Not available. |
| Density | 47 lb/ft ³ |

10. Chemical Stability & Reactivity Information

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| Chemical stability | Stable under normal temperature conditions. |
| Conditions to avoid | Extreme temperatures. |
| Incompatible materials | Acids. Strong reducing agents. Strong oxidizing agents. |
| Hazardous decomposition products | Ammonia. Hydrogen sulfide. During combustion: Carbon oxides. Nitrogen oxides. Sulfur oxides. |
| Possibility of hazardous reactions | Hazardous polymerization does not occur. |

11. Toxicological Information

Toxicological data

| Components | Test Results |
|--|--|
| Urea (57-13-6) | Acute Oral LD50 Rat: 8471 mg/kg |
| N-Methyl-2-pyrrolidone (872-50-4) | Acute Dermal LD50 Rabbit: 8000 mg/kg Acute Dermal LD50 Rat: > 5000 mg/kg Acute Inhalation LC50 Rat: > 5.1 mg/l Acute Oral LD50 Rat: 3914 mg/kg |
| N-(n-butyl)-thiophosphoric triamide (94317-64-3) | Acute Oral LD50 Rat: 445 mg/kg 1 day Acute Dermal LD50 Rat: > 2000 mg/kg Acute Oral LD50 Rat: > 2823 mg/kg |
| Acute effects | Dust in the eyes will cause irritation. Dust may irritate skin. High concentrations of dust may irritate throat and respiratory system and cause coughing. |
| Local effects | May cause redness and pain. Ingestion may cause irritation and malaise. |
| Sensitization | Not classified. |
| Chronic effects | The product contains a substance which can have a cumulative effect. |
| Carcinogenicity | Not classified. |
| Mutagenicity | No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic. |
| Neurological effects | Not available. |
| Reproductive effects | The product contains a small amount of substance that is suspected of damaging fertility or the unborn child. |
| Teratogenicity | Not classified. |
| Symptoms and target organs | Contact may cause eye irritation with redness, tearing, pain, and/or blurred vision. |

12. Ecological Information

Ecotoxicological data

| Components | Test Results |
|--|--|
| Urea (57-13-6) | EC50 Water flea (Daphnia magna): 3910 mg/l 48 hours |
| N-Methyl-2-pyrrolidone (872-50-4) | EC50 Daphnia magna: > 1000 mg/l 24 hours |
| N-(n-butyl)-thiophosphoric triamide (94317-64-3) | EC50 Daphnia: 290 mg/l 48 hours LC50 Fish: 1140 mg/l 96 hours NOEL Daphnia: 150 mg/l |

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| Ecotoxicity | The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. |
| Environmental effects | An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. |
| Persistence and degradability | Expected to be readily biodegradable. |
| Bioaccumulation / Accumulation | No data available. |
| Partition coefficient (n-octanol/water) | Not available. |
| Mobility in environmental media | The product is soluble in water. |

13. Disposal Considerations

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| Disposal instructions | Do not discharge into drains or water courses. |
| Waste from residues / unused products | Dispose in accordance with all applicable regulations. |
| Contaminated packaging | Empty containers should be taken to an approved waste handling site for recycling or disposal. |

14. Transport Information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

TDG

Not regulated as dangerous goods.

15. Regulatory Information

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| US federal regulations | This product is not hazardous according to OSHA 29CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List. N-(n-butyl)-thiophosphoric triamide (NBPT) is subject to a Significant New Use Rule (SNUR) codified in 40 CFR 721.6090. |
|-------------------------------|--|

TSCA Section 12(b) Export Notification(40 CFR 707, Subpt. D)

N-(n-butyl)-thiophosphoric triamide (CAS 94317-64-3) 1.0 % One-Time Export Notification only.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

N-Methyl-2-pyrrolidone (CAS 872-50-4) 1.0 %

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

N-Methyl-2-pyrrolidone (CAS 872-50-4) Listed.

CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

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| Hazard categories | Immediate Hazard - No Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No |
|--------------------------|--|

Section 302 extremely hazardous substance (40 CFR 355, Appendix A) No

Section 311/312 (40 CFR 370) No

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|--|----------------|
| Drug Enforcement Administration (DEA) (21 CFR 1308.11-15) | Not controlled |
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| Canadian regulations | This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR. |
|-----------------------------|---|

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| WHMIS status | Non-controlled |
| State regulations | WARNING: This product contains chemical(s) known to the State of California to cause birth defects or other reproductive harm. |
| US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance | |
| N-Methyl-2-pyrrolidone (CAS 872-50-4) | Listed. |
| US - California Proposition 65 - CRT: Listed date/Developmental toxin | |
| N-Methyl-2-pyrrolidone (CAS 872-50-4) | Listed: June 15, 2001 Developmental toxin. |
| US - Massachusetts RTK - Substance: Listed substance | |
| N-Methyl-2-pyrrolidone (CAS 872-50-4) | Listed. |
| US - New Jersey Community RTK (EHS Survey): Reportable threshold | |
| N-Methyl-2-pyrrolidone (CAS 872-50-4) | 500 LBS |
| US - New Jersey RTK - Substances: Listed substance | |
| N-Methyl-2-pyrrolidone (CAS 872-50-4) | Listed. |
| US - Pennsylvania RTK - Hazardous Substances: Listed substance | |
| N-Methyl-2-pyrrolidone (CAS 872-50-4) | Listed. |
| Mexico regulations | This safety data sheet was prepared in accordance with the Official Mexican Standard (NOM-018-STPS-2000). |

16. Other Information

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|---------------------------------|---|
| Recommended restrictions | Use in accordance with supplier's recommendations. |
| Further information | HMIS® is a registered trade and service mark of the NPCA. |
| HMIS® ratings | Health: 1 Flammability: 1 Physical hazard: 0 |
| NFPA ratings | Health: 1 Flammability: 1 Instability: 0 |
| Disclaimer | NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Safety Data Sheet (SDS) and was prepared pursuant to Government regulation(s) that identify specific types of information to be provided. This SDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. Additional information may be needed to evaluate other uses of the product, including use of the product in combination with any materials or in any processes other than those specifically referenced. Information provided herein with respect to any hazards that may be associated with the product is not meant to suggest that use of the product in a given application will necessarily result in any exposure or risk to workers or the general public. No responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product. Purchasers and users assume all risk of use, storage and handling of the product in compliance with applicable federal, state and local laws and regulations. Purchasers and users of the product specifically should advise all of their employees, agents, contractors and customers who will use the product of this (M)SDS. |
| Issue date | 10-13-2011 |