

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name UFLEXX™ Stabilized Nitrogen Fertilizer
Revision date 03-22-2012
Version # 04
CAS # Mixture
MSDS Number KAS_UFLEXX_NA_EN
Product use Fertilizer
Synonym(s) UFLEXX™
Manufacturer/Supplier Koch Agronomic Services, LLC
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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
Non hazardous dye	Proprietary	< 3
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

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

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.

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

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 Acute NOAEL Rat: 445 mg/kg 1 day
N-(n-butyl)-thiophosphoric triamide (94317-64-3)	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.
Epidemiology	No epidemiological data is available for this product.
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. May adversely affect the liver and kidney based on animal testing

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

Components	Test Results
	NOEL Daphnia: 150 mg/l
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	The product is not 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	
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	
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)	
Hazard categories	Immediate Hazard - No Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
Section 302 extremely hazardous substance (40 CRF 355, Appendix A)	No

Section 311/312 (40 CFR 370)	No
Drug Enforcement Administration (DEA) (21 CFR 1308.11-15)	Not controlled
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.
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	
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.
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