

SAFETY DATA SHEET

1. Identification

Product identifier UFLEXX™ Stabilized Nitrogen Fertilizer

Other means of identification

SDS Number KAS_UFLEXX_US_EN

Synonyms UFLEXX™

Recommended use Fertilizer.

Recommended restrictions None known.

Manufacturer / Importer / Supplier / Distributor information

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
 Mexico - 1.800.681.9531
 Outside USA/Canada - 1.703.527.3887
 (collect calls accepted)

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Not classified.

OSHA defined hazards Not classified.

Label elements

Hazard symbol None.

Signal word None.

Hazard statement The mixture does not meet the criteria for classification.

Precautionary statement

Prevention Observe good industrial hygiene practices.

Response Wash hands after handling.

Storage Store away from incompatible materials.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC) Not classified.

Supplemental information

Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
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

Inhalation Move person to fresh air. Get medical attention if any discomfort continues.
Skin contact Wash off with plenty of water. Get medical attention if irritation develops or persists.
Eye contact Do not rub eye. Remove contact lenses, if present and easy to do. Flush thoroughly with water. If irritation occurs, get medical assistance.
Ingestion Rinse mouth thoroughly if dust is ingested. Get medical attention if any discomfort occurs.
Most important symptoms/effects, acute and delayed Symptoms can include irritation, redness, scratching of the cornea, and tearing.
Indication of immediate medical attention and special treatment needed Treat symptomatically.
General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media None known.
Specific hazards arising from the chemical The product is non-combustible. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace. 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. Move container from fire area if it can be done without risk.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Avoid inhalation of dust and contact with skin and eyes. Ensure adequate ventilation. Wear suitable protective clothing. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas. Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal. If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. After removal flush contaminated area thoroughly with water.
Never return spills to original containers for re-use.
Environmental precautions Prevent further leakage or spillage if safe to do so. Do not contaminate water. Do not allow to enter drains, sewers or watercourses.

7. Handling and storage

Precautions for safe handling Avoid generation and spreading of dust. Avoid inhalation of dust and contact with skin and eyes. Use with adequate ventilation. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities Keep container tightly closed. Store in a cool, dry, well-ventilated place. Long term storage at temperatures above 100°F (36°C) can adversely affect the efficacy of products containing N-(n-butyl)-thiophosphoric triamide. Store away from incompatible materials.

8. Exposure controls/personal protection

Occupational exposure limits

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

Components	Type	Value	Form
Dust (CAS -)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

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

Components	Type	Value	Form
Dust (CAS -)	TWA	5 mg/m3	Respirable fraction.

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

Components	Type	Value	Form
		15 mg/m3	Total dust.
		50 millions of particle	Total dust.
		15 millions of particle	Respirable fraction.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Dust (CAS -)	TWA	3 mg/m3	Respirable particles.
		10 mg/m3	Inhalable particles.

US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value	Form
N-Methyl-2-pyrrolidone (CAS 872-50-4)	TWA	40 mg/m3	
Urea (CAS 57-13-6)	TWA	10 ppm	Total particulate.
		10 mg/m3	

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
N-Methyl-2-pyrrolidone (CAS 872-50-4)	100 mg/l	5-Hydroxy-N-methyl-2-pyrrolidone	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US WEEL Guides: Skin designation

N-Methyl-2-pyrrolidone (CAS 872-50-4) Can be absorbed through the skin.

Appropriate engineering controls Provide adequate general and local exhaust ventilation. Observe occupational exposure limits and minimize the risk of inhalation of dust.

Individual protection measures, such as personal protective equipment

Eye/face protection Risk of contact: Wear dust goggles.

Skin protection

Hand protection Risk of contact: Wear protective gloves. Suitable gloves can be recommended by the glove supplier.

Other No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. 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. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134 and ANSI Z88.2.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance	Blue-green granules
Physical state	Solid.
Form	Granules.
Color	Blue-green.
Odor	Slight sulfurous
Odor threshold	Not available.

pH	7.2 (10% in water)
Melting point/freezing point	275 °F (135 °C) Decomposes.
Initial boiling point and boiling range	Not Applicable.
Flash point	Not available.
Evaporation rate	Not Applicable.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not Applicable.
Flammability limit - upper (%)	Not Applicable.
Vapor pressure	Not Applicable.
Vapor density	Not Applicable.
Relative density	Not available.
Solubility(ies)	Soluble.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	47.00 lb/ft ³

10. Stability and reactivity

Reactivity	The product is stable and non reactive under normal conditions of use, storage and transport.
Chemical stability	Stable under normal temperature conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
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.

11. Toxicological information

Information on likely routes of exposure

Ingestion	May irritate and cause stomach pain, vomiting and diarrhea.
Inhalation	Dust may irritate respiratory system.
Skin contact	Dust may irritate skin.
Eye contact	Dust may irritate the eyes.

Symptoms related to the physical, chemical and toxicological characteristics Symptoms can include irritation, redness, scratching of the cornea, and tearing.

Information on toxicological effects

Acute toxicity May irritate and cause stomach pain, vomiting, diarrhea and nausea.

Components	Species	Test Results
N-(n-butyl)-thiophosphoric triamide (CAS 94317-64-3)		
Acute		
<i>Dermal</i>		
LD50	Rat	> 2000 mg/kg
<i>Oral</i>		
LD50	Rat	> 2823 mg/kg

Components	Species	Test Results
N-Methyl-2-pyrrolidone (CAS 872-50-4)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	8000 mg/kg
<i>Inhalation</i>		
LC50	Rat	> 5.1 mg/l
<i>Oral</i>		
LD50	Rat	3914 mg/kg
Urea (CAS 57-13-6)		
Acute		
<i>Oral</i>		
LD50	Rat	14300 mg/kg
Skin corrosion/irritation	May cause irritation through mechanical abrasion.	
Serious eye damage/eye irritation	May cause eye irritation.	
Respiratory sensitization	No data available.	
Skin sensitization	Not a skin sensitizer.	
Germ cell mutagenicity	No data available.	
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.	
Reproductive toxicity	The product contains a small amount of substance that is suspected of damaging fertility or the unborn child.	
Specific target organ toxicity - single exposure	No data available.	
Specific target organ toxicity - repeated exposure	No data available.	
Aspiration hazard	Not classified.	
Chronic effects	Prolonged exposure may cause chronic effects.	
Further information	No other specific acute or chronic health impact noted.	

12. Ecological information

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.

Components	Species	Test Results	
N-(n-butyl)-thiophosphoric triamide (CAS 94317-64-3)			
Aquatic			
Crustacea	EC50	Daphnia	290 mg/l, 48 hours
Fish	LC50	Fish	1140 mg/l, 96 hours
N-Methyl-2-pyrrolidone (CAS 872-50-4)			
Aquatic			
Crustacea	EC50	Daphnia magna	> 1000 mg/l, 24 hours
Urea (CAS 57-13-6)			
Aquatic			
Fish	LC50	Leuciscus idus	> 6810 mg/l, 96 hours
Persistence and degradability	No data available.		
Bioaccumulative potential	No data available.		
Partition coefficient n-octanol / water (log Kow)			
N-Methyl-2-pyrrolidone (CAS 872-50-4)		-0.54	
Urea (CAS 57-13-6)		-2.11	
Mobility in soil	This product is water soluble and may disperse in soil.		
Other adverse effects	No data available.		

13. Disposal considerations

Disposal instructions Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as a hazardous material by DOT.

IATA

Not regulated as a dangerous good.

IMDG

Not regulated as a dangerous good.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

US federal regulations This product is not hazardous according to OSHA 29CFR 1910.1200.

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. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

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

SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting) Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Food and Drug Administration (FDA) Not regulated.

US state regulations WARNING: This product contains chemical(s) known to the State of California to cause birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List

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

US. New Jersey Worker and Community Right-to-Know Act

N-Methyl-2-pyrrolidone (CAS 872-50-4) 500 lbs

US. Pennsylvania RTK - Hazardous Substances

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

US. Rhode Island RTK

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

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

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

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

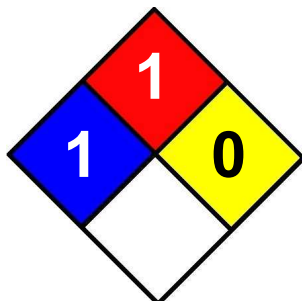
16. Other information, including date of preparation or last revision

Issue date 08-January-2014

Revision date -

Version # 01

NFPA Ratings



List of abbreviations

EC50: Effective concentration, 50%.
LC50: Lethal Concentration, 50%.

References

EPA: Acquire database
HSDB® - Hazardous Substances Data Bank

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.