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

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urea</td>
<td>57-13-6</td>
<td>60 - 100</td>
</tr>
<tr>
<td>Dicyandiamide</td>
<td>461-58-5</td>
<td>1 - 5</td>
</tr>
<tr>
<td>Non hazardous dye</td>
<td>Proprietary</td>
<td>&lt; 3</td>
</tr>
<tr>
<td>N-(n-butyl)-thiophosphoric triamide</td>
<td>94317-64-3</td>
<td>&lt; 0.1</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>&lt; 0.1</td>
</tr>
<tr>
<td>Non hazardous component</td>
<td>Proprietary</td>
<td>&lt; 0.1</td>
</tr>
</tbody>
</table>
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)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dust (CAS -)</td>
<td>PEL</td>
<td>5 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m3</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dust (CAS -)</td>
<td>TWA</td>
<td>5 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
</tbody>
</table>
US. OSHA Table Z-3 (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Components</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15 mg/m³ Total dust.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 millions of particle Total dust.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 millions of particle Respirable fraction.</td>
<td></td>
</tr>
</tbody>
</table>

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dust (CAS -)</td>
<td>TWA</td>
<td>3 mg/m³ Respirable particles.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 mg/m³ Inhalable particles.</td>
<td></td>
</tr>
</tbody>
</table>

US. Workplace Environmental Exposure Level (WEEL) Guides

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-Methyl-2-pyrrolidone (CAS 872-50-4)</td>
<td>TWA</td>
<td>40 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Urea (CAS 57-13-6)</td>
<td>TWA</td>
<td>10 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 mg/m³ Total particulate.</td>
<td></td>
</tr>
</tbody>
</table>

Biological limit values

ACGIH Biological Exposure Indices

<table>
<thead>
<tr>
<th>Components</th>
<th>Value</th>
<th>Determinant</th>
<th>Specimen</th>
<th>Sampling Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-Methyl-2-pyrrolidone (CAS 872-50-4)</td>
<td>100 mg/l</td>
<td>5-Hydroxy-N-methyl-2-pyrrolidone</td>
<td>Urine</td>
<td>*</td>
</tr>
</tbody>
</table>

* - 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/ft³

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.


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.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-(n-butyl)-thiophosphoric triamide (CAS 94317-64-3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute Dermal</td>
<td>LD50</td>
<td>Rat</td>
</tr>
<tr>
<td>Acute Oral</td>
<td>LD50</td>
<td>Rat</td>
</tr>
</tbody>
</table>
Components | Species  | Test Results
--- | --- | ---
N-Methyl-2-pyrrolidone (CAS 872-50-4)  
**Acute**  
*Dermal*  
LD50  
Rabbit  
8000 mg/kg  
*Inhalation*  
LC50  
Rat  
> 5.1 mg/l  
*Oral*  
LD50  
Rat  
3914 mg/kg  
**Urea (CAS 57-13-6)**  
**Acute**  
*Oral*  
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**  
The 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)
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.