1. Product and Company Identification

Material name Agrotain® Ultra
Revision date 10-06-2011
Version # 01
CAS # Mixture
MSDS Number KAS_Agotain_Ultra
Product use Fertilizer Coating
Manufacturer/Supplier Koch Agronomic Services, LLC
4111 E 37th St N
Wichita, KS 67220 US
kochmsds@kochind.com
1.316.828.7672

2. Hazards Identification

Physical state Liquid.
Appearance Green liquid.
Emergency overview WARNING
Causes eye irritation. May cause skin and respiratory tract irritation. Possible reproductive hazard - contains material that may cause adverse reproductive effects.

OSHA regulatory status This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

Potential health effects

Routes of exposure
Eyes Causes eye irritation.
Skin Irritating to skin.
Inhalation Irritating to respiratory system.
Ingestion Irritating to mouth, throat, and stomach.

Chronic effects Can cause adverse reproductive effects - such as birth defects, miscarriages, or infertility. Pregnant women or women of child-bearing age should not be exposed to this product.

Signs and symptoms May cause severe irritation or burns to the eyes, skin, gastrointestinal tract, and respiratory system.

Potential environmental effects 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.

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene glycol</td>
<td>57-55-6</td>
<td>40 - 70</td>
</tr>
<tr>
<td>N-(n-butyl)-thiophosphoric triamide</td>
<td>94317-64-3</td>
<td>15 - 40</td>
</tr>
<tr>
<td>N-methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>10 - 30</td>
</tr>
<tr>
<td>Non-hazardous dye</td>
<td>Proprietary</td>
<td>1 - 5</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

First aid procedures

**Eye contact**
Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

**Skin contact**
Immediately flush skin with plenty of water. Get medical attention if irritation develops and persists.

**Inhalation**
Move person to fresh air. If the affected person is not breathing, apply artificial respiration. Get medical attention immediately.

**Ingestion**
Rinse mouth thoroughly. Drink 1 or 2 glasses of water. 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
- 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 containers exposed to heat with water spray and remove container, if no risk is involved.

6. Accidental Release Measures

**Personal precautions**
Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them.

**Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not contaminate water.

**Methods for containment**
Dike the spilled material, where this is possible. Prevent entry into waterways, sewer, basements or confined areas.

**Methods for cleaning up**
Should not be released into the environment.

Large Spills: Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use. For waste disposal, see section 13 of the MSDS.

7. Handling and Storage

**Handling**
Avoid exposure - obtain special instructions before use. Do not breathe mist or vapor. Wear personal protective equipment. Do not use in areas without adequate ventilation. Avoid prolonged exposure. Wash thoroughly after handling. Do not empty into drains. Handle and open container with care. Use care in handling/storage. Wash before eating, drinking and/or smoking.

**Storage**
Avoid exposure - obtain special instructions before use. Store in a well-ventilated place. Store in original tightly closed container. Keep away from food, drink and animal feedingstuffs. Use care in handling/storage. 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

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-methyl-2-pyrrolidone (872-50-4)</td>
<td>TWA</td>
<td>400 mg/m³</td>
</tr>
</tbody>
</table>

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

Chemical resistant clothing is recommended. Routinely wash work clothing and protective equipment to remove contaminants. The use of neoprene gloves is recommended. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Respiratory protection

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

9. Physical & Chemical Properties

Appearance  Green liquid.
Color        Green.
Odor         Ammonia-like.
Odor threshold  0.1 ppm
Physical state  Liquid.
Form         Liquid.
pH           Not available.
Melting point  Not available.
Freezing point  Not available.
Boiling point  Not available.
Flash point  178 °F (81.1 °C)
Evaporation rate  Not available.
Flammability  Does not support combustion at 187°F
Flammability limits in air, upper, % by volume  Not Applicable.
Flammability limits in air, lower, % by volume  Not Applicable.
Vapor pressure  Not available.
Vapor density  Not available.
Specific gravity  1.06
Solubility (water)  Soluble
Partition coefficient (n-octanol/water)  No data available.
Auto-ignition temperature  Not available.
Decomposition temperature  Not available.

10. Chemical Stability & Reactivity Information

Chemical stability  Stable under normal temperature conditions.
Conditions to avoid  Extreme temperatures.
11. Toxicological Information

Toxicological data

<table>
<thead>
<tr>
<th>Components</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene glycol (57-55-6)</td>
<td>Acute Oral LD50 Rat: 30 g/kg</td>
</tr>
<tr>
<td>N-methyl-2-pyrrolidone (872-50-4)</td>
<td>Acute Dermal LD50 Rabbit: 8000 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Acute Dermal LD50 Rat: &gt; 5000 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Acute Inhalation LC50 Rat: &gt; 5.1 mg/l</td>
</tr>
<tr>
<td></td>
<td>Acute Oral LD50 Rat: 3914 mg/kg</td>
</tr>
<tr>
<td>N-(n-butyl)-thiophosphoric triamide (94317-64-3)</td>
<td>Acute NOAEL Rat: 445 mg/kg 1 day</td>
</tr>
<tr>
<td></td>
<td>Acute Dermal LD50 Rat: &gt; 2000 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Acute Oral LD50 Rat: &gt; 2823 mg/kg</td>
</tr>
</tbody>
</table>

Acute effects
May cause severe irritation or burns to the eyes, skin, gastrointestinal tract, and respiratory system.

Local effects
Irritating to respiratory system and skin. Irritating to respiratory system. Irritating to eyes. Irritating to skin. Risk of serious damage to eyes.

Sensitization
Not classified as a sensitizer.

Chronic effects
Prolonged exposure may cause chronic effects. May damage fertility or the unborn child.

Carcinogenicity
Not classified.

Epidemiology
No epidemiological data is available for this product.

Mutagenicity
Not classified.

Reproductive effects
Possible reproductive hazard.

Teratogenicity
Avoid contact during pregnancy/while nursing.

Symptoms and target organs
Contact may produce eye irritation with associated redness, swelling, tears and pain. May adversely affect the liver and kidney based on animal testing

Further information
Symptoms may be delayed.

12. Ecological Information

Ecotoxicological data

<table>
<thead>
<tr>
<th>Components</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene glycol (57-55-6)</td>
<td>EC50 Water flea (Daphnia magna): &gt; 10000 mg/l 48 hours</td>
</tr>
<tr>
<td></td>
<td>LC50 Fathead minnow (Pimephales promelas): 710 mg/l 96 hours</td>
</tr>
<tr>
<td>N-methyl-2-pyrrolidone (872-50-4)</td>
<td>EC50 Daphnia magna: &gt; 1000 mg/l 24 hours</td>
</tr>
<tr>
<td>N-(n-butyl)-thiophosphoric triamide (94317-64-3)</td>
<td>EC50 Daphnia: 290 mg/l 48 hours</td>
</tr>
<tr>
<td></td>
<td>LC50 Fish: 1140 mg/l 96 hours</td>
</tr>
<tr>
<td></td>
<td>NOEL Daphnia: 150 mg/l</td>
</tr>
</tbody>
</table>

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)
No data 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.

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 a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

CERCLA/SARA Hazardous Substances - Not applicable.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
PHOSPHOROTHIOIC TRIAMIDE, N-BUTYL- (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 - Yes
Delayed Hazard - Yes
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

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
Controlled

WHMIS classification
D2A - Other Toxic Effects-VERY TOXIC
D2B - Other Toxic Effects-TOXIC

WHMIS labeling

State regulations
WARNING: This product contains a chemical 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
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: 2*
Flammability: 1
Physical hazard: 0

NFPA ratings
Health: 2
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
10-06-2011