1. Identification

Product identifier: AGROTAIN® PLUS SC for UAN

Other means of identification:
- Product code: KAS_AGROPLUSSC_US_EN

Recommended use: Fertilizer Additive.

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:
- Serious eye damage/eye irritation Category 1
- Reproductive toxicity Category 2

OSHA defined hazards: Not classified.

Label elements:
- Signal word: Danger
- Hazard statement: Causes serious eye damage. Suspected of damaging fertility or the unborn child.
- Precautionary statement:
  - Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection.
  - Response: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If exposed or concerned: Get medical advice/attention.
  - Storage: Store locked up.
  - Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC): None known.

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>Dicyandiamide</td>
<td>461-58-5</td>
<td>35 - 55</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. If the affected person is not breathing, apply artificial respiration. Get medical attention immediately.

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

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. 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.

Most important symptoms/effects, acute and delayed: Risk of serious damage to eyes. Mild skin irritation. Suspected of damaging fertility or the unborn child.

Indication of immediate medical attention and special treatment needed: Treat symptomatically. The effects might be delayed.

General information: Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures


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

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

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

The product is not flammable.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Avoid inhalation of vapors/spray and contact with skin and eyes. Ensure adequate ventilation. Wear suitable protective clothing. For personal protection, see section 8 of the SDS.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. After removal flush contaminated area thoroughly with water.

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

Never return spills to original containers for re-use. For waste disposal, see Section 13 of the SDS.

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 inhalation of vapors/spray 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. Store away from incompatible materials. Long term storage at temperatures above 100°F (36°C), and long term storage of opened containers, will cause the product to degrade. As the product degrades, it can release harmful gases. Store below 100°F (36°C) and use opened containers within 30 days. Always use oldest stock first.

8. Exposure controls/personal protection

Occupational exposure limits
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>Urea (CAS 57-13-6)</td>
<td>TWA</td>
<td>10 mg/m3</td>
<td>Total particulate.</td>
</tr>
</tbody>
</table>

Biological limit values
No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls
Provide adequate general and local exhaust ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors and spray mist. Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection
Chemical goggles are recommended.

Skin protection

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

Other
Chemical resistant clothing is recommended.

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 mist, 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

Physical state  Liquid.
Form  Liquid suspension
Color  Blue.
Odor  Slight ammonia odor.
Odor threshold  Not available.

pH  8.7 (10% aqueous soln.)/8.85 (neat)

Melting point/freezing point  Not available.
Initial boiling point and boiling range  Not available.

Flash point  Not available.
Evaporation rate  Not available.
Flammability (solid, gas)  Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)  Not available.
Flammability limit - upper (%)  Not available.
Explosive limit - lower (%) Not available.
Explosive limit - upper (%) Not available.
Vapor pressure Not available.
Vapor density Not available.
Relative density Not available.
Solubility(ies) Not available.
    Solubility (water) Not available.
Partition coefficient (n-octanol/water) Not available.
Auto-ignition temperature Not available.
Decomposition temperature Not available.
Viscosity Not available.
Other information
    Explosive properties Not explosive.
    Oxidizing properties Not oxidizing.

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
    Inhalation Vapors and spray mist may irritate throat and respiratory system and cause coughing.
    Skin contact Prolonged skin contact may cause irritation.
    Eye contact Causes serious eye damage.
    Ingestion May cause discomfort if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics Risk of serious damage to eyes. Mild skin irritation. Suspected of damaging fertility or the unborn child.
Information on toxicological effects
Acute toxicity May cause discomfort if swallowed.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dicyandiamide (CAS 461-58-5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>New Zealand white rabbit</td>
<td>&gt; 2000 mg/kg, 24 hours</td>
</tr>
<tr>
<td><strong>Inhalation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50</td>
<td>Wistar rat</td>
<td>&gt; 259 mg/m3, 4 hours</td>
</tr>
<tr>
<td><strong>Oral</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Wistar rat</td>
<td>&gt; 10000 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 7000 mg/kg</td>
</tr>
<tr>
<td>N-(n-butyl)-thiophosphoric triamide (CAS 94317-64-3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rabbit</td>
<td>&gt; 2000 mg/kg</td>
</tr>
</tbody>
</table>
## Test Results

### Inhalation

<table>
<thead>
<tr>
<th>Test Results</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC₅₀</td>
<td>Wistar rat</td>
<td>&gt; 2.1 mg/l, 4 hours</td>
</tr>
</tbody>
</table>

### Oral

<table>
<thead>
<tr>
<th>Test Results</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD₅₀</td>
<td>Wistar rat</td>
<td>&gt; 2000 mg/kg</td>
</tr>
</tbody>
</table>

### Urea (CAS 57-13-6)

#### Acute

<table>
<thead>
<tr>
<th>Test Results</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD₅₀</td>
<td>Rat</td>
<td>14300 mg/kg</td>
</tr>
</tbody>
</table>

### Skin corrosion/irritation

Prolonged exposure may cause skin irritation.

### Serious eye damage/eye irritation

Causes serious eye damage.

### Respiratory or skin sensitization

- **Respiratory sensitization**: No data available.
- **Skin sensitization**: No data available.
- **Germ cell mutagenicity**: No data available.
- **Carcinogenicity**: This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
  - **IARC Monographs. Overall Evaluation of Carcinogenicity**: Not listed.
  - **NTP Report on Carcinogens**: Not listed.

### Reproductive toxicity

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 available.

### 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

#### Dicyandiamide (CAS 461-58-5)

##### Aquatic

#### Acute

<table>
<thead>
<tr>
<th>Species</th>
<th>EC₅₀ Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algae</td>
<td>Selenastrum capricornutum (Pseudokirchnerella subcapitata)</td>
</tr>
<tr>
<td>Crustacea</td>
<td>Daphnia magna</td>
</tr>
<tr>
<td>Fish</td>
<td>Lepomis macrochirus</td>
</tr>
<tr>
<td>Oncorhynchus mykiss</td>
<td></td>
</tr>
</tbody>
</table>

#### Chronic

<table>
<thead>
<tr>
<th>Species</th>
<th>LC₅₀ Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crustacea</td>
<td>Daphnia magna</td>
</tr>
<tr>
<td>Fish</td>
<td>Oryzias latipes</td>
</tr>
</tbody>
</table>

#### N-(n-butyl)-thiophosphoric triamide (CAS 94317-64-3)

##### Aquatic

<table>
<thead>
<tr>
<th>Species</th>
<th>EC₅₀ Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algae</td>
<td>Selenastrum capricornutum</td>
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<tr>
<td>Crustacea</td>
<td>Daphnia magna</td>
</tr>
<tr>
<td>Fish</td>
<td>Daphnia</td>
</tr>
</tbody>
</table>
### Components Test Results

<table>
<thead>
<tr>
<th>Species</th>
<th>LC50</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lepomis macrochirus</td>
<td>1140 mg/l, 96 hours</td>
<td></td>
</tr>
<tr>
<td>Leuciscus idus</td>
<td>&gt; 6810 mg/l, 96 hours</td>
<td></td>
</tr>
</tbody>
</table>

### Persistence and degradability
No data available.

### Bioaccumulative potential
No data available.

### Partition coefficient n-octanol / water (log Kow)
- 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 dangerous goods.

#### IATA
Not regulated as dangerous goods.

#### IMDG
Not regulated as dangerous goods.

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

### 15. Regulatory information

#### US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 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.

  - Not regulated.

- **CERCLA Hazardous Substance List (40 CFR 302.4)**
  - Not listed.

#### 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

- **SARA 302 Extremely hazardous substance**
  - Not listed.

- **SARA 311/312 Hazardous chemical**
  - Yes

- **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)

US state regulations

US. Massachusetts RTK - Substance List
Not regulated.

US. New Jersey Worker and Community Right-to-Know Act
Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law
Not listed.

US. Rhode Island RTK
Not regulated.

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>No</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*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 04-April-2017
Revision date -
Version # 01

Further information
HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings
Health: 3*
Flammability: 1
Physical hazard: 0

NFPA ratings

List of abbreviations
EC50: Effective Concentration, 50%.
LC50: Lethal Concentration, 50%.

References
EPA: Acquire database
HSDB® - Hazardous Substances Data Bank
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.