1. Product and Company Identification

Material name: NPK Plus Sulfur and Zinc 8-20-5 + 5S + 0.8Zn
Version #: 01
Issue date: 12-24-2012
Revision date: -
Supersedes date: -
CAS #: Mixture
MSDS number: KNC_8-20-5ZnS_B_US_EN
Product use: Fertilizer.
Synonym(s): 8-20-5 + 5S + 0.8Zn
Manufacturer/Supplier: Koch Nitrogen Company, LLC
4111 E 37th Street North
PO Box 2219
Wichita, KS 67201-2219 US
kochmsds@kochind.com
1-316-828-7672

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: Liquid.
Appearance: Clear liquid.
Emergency overview: CAUTION
May cause skin and eye irritation.

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

Potential health effects: Skin. Eyes. Ingestion. Inhalation.
Eyes: May cause eye irritation.
Skin: May cause skin irritation.
Inhalation: In high concentrations, vapors may be irritating to the respiratory system.
Ingestion: Ingestion may cause dizziness, nausea and vomiting.
Chronic effects: No data available.
Signs and symptoms: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium thiosulphate</td>
<td>7783-18-8</td>
<td>50 - 70</td>
</tr>
<tr>
<td>Ammonium Polyphosphate</td>
<td>68333-79-9</td>
<td>50 - 60</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>8 - 12</td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>7447-40-7</td>
<td>5 - 10</td>
</tr>
<tr>
<td>Zinc chelate</td>
<td>Proprietary</td>
<td>2 - 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.
General advice
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures
Flammable properties
This product is not flammable or combustible.
Extinguishing media
Suitable extinguishing media
Use fire-extinguishing media appropriate for surrounding materials.
Protection of firefighters
Specific hazards arising from the chemical
During fire, gases hazardous to health may be formed.
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 must be worn in case of fire.
Fire fighting equipment/instructions
Use water spray to cool unopened containers. Cool containers with flooding quantities of water until well after fire is out. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

6. Accidental Release Measures
Personal precautions
Avoid inhalation and contact with skin and eyes. Local authorities should be advised if significant spillages cannot be contained. Use Personal Protective Equipment recommended in Section 8 of the MSDS.
Environmental precautions
Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
Methods for containment
Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas.
Methods for cleaning up
Should not be released into the environment.
Large Spills: Dike far ahead of liquid spill for later disposal. Absorb spillage with suitable absorbent material.
Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean contaminated surface thoroughly. After removal flush contaminated area thoroughly with water.
Never return spills to original containers for re-use.
7. Handling and Storage

Handling
Avoid inhalation of vapors/spray and contact with skin and eyes. Use only with adequate ventilation. Use Personal Protective Equipment recommended in section 8 of the MSDS. Keep the workplace clean.

Storage
Store in a well-ventilated place. Store in a cool, dry place. Keep container tightly closed. Store away from incompatible materials.

8. Exposure Controls / Personal Protection

Occupational exposure limits
No exposure limits noted for ingredient(s).

Engineering controls
Provide adequate ventilation and minimize the risk of inhalation of vapors.

Personal protective equipment
Eye / face protection
Wear approved safety goggles.

Skin protection
Wear appropriate clothing to prevent repeated or prolonged skin contact. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Respiratory protection
Wear appropriate NIOSH respirator when ventilation is inadequate and occupational exposure limits are exceeded.

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.

9. Physical & Chemical Properties

Appearance
Clear liquid.

Physical state
Liquid.

Form
Liquid.

Color
No data available.

Odor
No data available.

Odor threshold
Not available.

pH
Not available.

Vapor pressure
Not available.

Vapor density
Not available.

Boiling point
Not available.

Melting point/Freezing point
Not available.

Solubility (water)
Completely miscible.

Specific gravity
Not available.

Flash point
Not available.

Flammability limits in air, upper, % by volume
Not available.

Flammability limits in air, lower, % by volume
Not available.

Auto-ignition temperature
Not available.

10. Chemical Stability & Reactivity Information

Chemical stability
Stable under normal temperature conditions.

Conditions to avoid
Heat. Extreme temperatures.

Incompatible materials
Strong oxidizing agents. Reactive metals.

Hazardous decomposition products

Possibility of hazardous reactions
Hazardous polymerization does not occur.
11. Toxicological Information

Toxicological data

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium thiosulphate (CAS 7783-18-8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Oral</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
<td>2890 mg/kg</td>
</tr>
<tr>
<td>Potassium chloride (CAS 7447-40-7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Oral</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
<td>2600 mg/kg</td>
</tr>
</tbody>
</table>

Sensitization | Not classified as a sensitizer.
Acute effects | May cause discomfort if swallowed.
Local effects | May cause skin and eye irritation.
Chronic effects | No data available.
Carcinogenicity | No data available.
Mutagenicity | No data available.
Reproductive effects | No data available.
Symptoms and target organs | Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Further information | No other specific acute or chronic health impact noted.

12. Ecological Information

Ecotoxicological data

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium chloride (CAS 7447-40-7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
<td>Water flea (Daphnia magna)</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Western mosquitofish (Gambusia affinis)</td>
</tr>
</tbody>
</table>

Ecotoxicity | The product contains a substance which causes risk of hazardous effects to the environment.
Persistence and degradability | No data available.
Bioaccumulation / Accumulation | Not available.
Mobility in environmental media | This product is miscible in water.

13. Disposal Considerations

Disposal instructions | 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.
Waste from residues / unused products | Since emptied containers 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 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.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration
Ammonium thiosulphate (CAS 7783-18-8) 1.0 %

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance
Ammonium thiosulphate (CAS 7783-18-8) 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 - No
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)
Yes

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
D2B - Other Toxic Effects-TOXIC

WHMIS labeling

Inventory status

<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>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</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>Yes</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)

State regulations
This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.
US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
Not listed.

US. Massachusetts RTK - Substance List
Ammonium thiosulphate (CAS 7783-18-8) Listed.

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

US. Pennsylvania RTK - Hazardous Substances
Ammonium thiosulphate (CAS 7783-18-8) Listed.

Mexico regulations
This safety data sheet was prepared in accordance with the Official Mexican Standard (NOM-018-STPS-2000).

16. Other Information

Further information
HMIS® is a registered trade and service mark of the NPCA.
A HMIS® Health rating including an * indicates a chronic hazard.

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

NFPA ratings
Health: 1
Flammability: 0
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.