SAFETY DATA SHEET  Ammonium Thiosulfate, 12-0-0, 26% Sulfur

1. Identification

Product name  Ammonium Thiosulfate, 12-0-0, 26% Sulfur
Product code  120026
Other Identification:  Chemical Family: Inorganic salt solution
Formula: \((\text{NH}_4)_2\text{S}_2\text{O}_3\)
Recommended use  Turf & Horticulture - Inorganic Salt Solution
Corporate Office  Plant Food Company, Inc.
38 Hightstown-Cranbury Station Road
Cranbury, NJ 08512 United States
Telephone Information: 1-609-448-0935
Website  www.plantfoodco.com
E-mail  pfc@plantfoodco.com
Contact person  Grant Platz, Ted Platz
Emergency phone number  1-800-424-9300 CCN725928
Call CHEMTREC Day or Night Within USA and Canada or +1 703-527-3887 (collect calls accepted)
Other Countries  1-609-448-0935

2. Hazard(s) identification

Physical hazards  Not classified.
Health hazards  Acute toxicity, oral
Category 4
Serious eye damage/eye irritation
Category 2A
Specific target organ toxicity, single exposure
Category 3
respiratory tract irritation
Environmental hazards  Hazardous to the aquatic environment, acute hazard
OSHA defined hazards  Label elements
Not classified.

Signal word  Warning
Hazard statement  Harmful if swallowed. Causes serious eye irritation. May cause respiratory irritation.
Precautionary statement  Use only outdoors or in a well-ventilated area. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not get on skin or eyes. If swallowed: Call a poison center/director if you feel unwell. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/director if you feel unwell. Rinse mouth. If eye irritation persists: Get medical advice/attention.
Prevention  Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Response  If swallowed: Call a poison center/doctor if you feel unwell. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/director if you feel unwell. Rinse mouth. If eye irritation persists: Get medical advice/attention.
Storage  Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal  Dispose of contents/container in accordance with local/regional/national/international regulations.

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Synonym Common Name</th>
<th>CAS Number</th>
<th>EINECS No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thiosulfuric acid diammonium salt</td>
<td>Ammonium thiosulfate</td>
<td>7783-187-8</td>
<td>231-992-0</td>
<td>50-60</td>
</tr>
<tr>
<td>Diazonium sulfate</td>
<td>Ammonium sulfate</td>
<td>7783-20-2</td>
<td>231-984-1</td>
<td>0-9</td>
</tr>
<tr>
<td>Ammonium sulfite</td>
<td>Ammonium sulfite</td>
<td>10196-04-0</td>
<td>233-484-9</td>
<td>0.1 - 54</td>
</tr>
<tr>
<td>Water</td>
<td>Water</td>
<td>7732-18-5</td>
<td>231-791-2</td>
<td>Remaining</td>
</tr>
</tbody>
</table>

Other components below reportable levels

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation  Remove victim from contaminated atmosphere. If breathing is labored, administer oxygen. If breathing has stopped, immediately flush with large quantities of water. Remove contaminated clothing under a safety shower. Continue to ventilate and give oxygen. Keep victim warm and under observation. Symptoms may be delayed.

Skin contact  Immediately flush eyes with plenty of water for at least 15 minutes. Continue rinsing. Remove contact lenses, if present. If eye irritation persists: Get medical advice/attention.

Eye contact  Immediately flush eyes with plenty of water for at least 15 minutes. Continue rinsing. Remove contact lenses, if present. If eye irritation persists: Get medical advice/attention.

Ingestion  If swallowed: Call a poison center/director if you feel unwell. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/director if you feel unwell. Rinse mouth. If eye irritation persists: Get medical advice/attention.

Most important symptoms/effects, acute and delayed  Irritation of eyes and mucous membranes.

Indication of immediate medical attention and special treatment needed  Indications of potential long-term effects

General information  Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

5. Fire-fighting measures

Flammable Properties:  NFPA: Health - 0 Flammability - 0 Reactivity - 0
SAFETY DATA SHEET  Ammonium Thiosulfate, 12-0-0, 26% Sulfur

Suitable extinguishing media

Not flammable, use media suitable for combustibles involved in fire.

Unsuitable extinguishing media

Not applicable.

Specific hazards arising from the chemical

During fire, gases hazardous to health may be formed. Heating (flames) of closed or sealed containers may

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Move containers from

fire area if you can do so without risk. Keep containers/storage vessels infire area cooled with water spray.

Fire-fighting equipment/instructions

Specific methods

Move container from fire area if it can be done without risk.

General fire hazards

Heating this product will evolve ammonia

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep people away from and upwind of spill/leak. Keep out of low areas. Keep unnecessary personnel away. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective

Methods and materials for containment and cleaning up

Stop the flow of material, if this is without risk.

Large Spills: Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Use water spray to reduce vapors or divert vapor cloud drift. Prevent entry into waterways, sewer, basements or confined areas. 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 SDS.

Environmental precautions

Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Do not taste or swallow. Avoid breathing mist or vapor. Avoid contact with eyes. Provide adequate ventilation. Wear appropriate personal protective equipment. When using, do not eat, drink or smoke. Observe good industrial hygiene practices. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

No exposure limits noted for ingredient(s).

Biological limit values

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

Appropriate engineering controls

Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear eye/face protection. Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection

For prolonged or repeated skin contact use suitable protective gloves.

Other

Wear suitable protective clothing. Wash contaminated clothing prior to reuse.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using, do not eat, drink or smoke. 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 and chemical properties

Appearance

Aqueous solution.

Physical state

Liquid.

Form

Liquid.

Color

Colorless to yellow to black

Odor

ammonia smell

Odor threshold

Not available.

pH

7-8

Salt-Out / Crystallization Temp

Melting point/freezing point

30 °F - 60°F (-1.1°C - 15.6°C) (Typical)

Initial boiling point and boiling range

210°F - 220°F (98.9°C - 104.4°C)

Flash point

Not available.

Evaporation rate

Not determined.

Flammability (solid, gas)

Not applicable

Upper/lower flammability or explosive limits

Not applicable

Flammability limit - lower (%)

Not available.

Flammability limit - upper (%)

Not available.

Explosive limit - lower (%)

Not available.

Explosive limit - upper (%)

Not available.

Vapor pressure

18 mm Hg (2.4 kPa) @ 70° F (21.1°C)

Vapor density

Not available.

Relative density

1.32 - 1.35 (11.0 - 11.2 lbs/gal)

Solubility

800 gm/L @ 20°C (water) 100% ammonium thiosulfate

Partition coefficient (n-octanol/water)

Not available.
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Auto-ignition temperature Not available.
Decomposition temperature 302°F (150°C) 100% ammonium thiosulfate
Viscosity 4.7 Cp (0.0047 Pa s) at 25°C (77°F)

Other information

<table>
<thead>
<tr>
<th>pH in aqueous solution</th>
<th>7 - 8 (1% Solution)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pounds per gallon</td>
<td>11.0 - 11.2 lbs/gal</td>
</tr>
<tr>
<td>Shelf life</td>
<td>&gt; 2 years</td>
</tr>
</tbody>
</table>

10. Stability and reactivity
Reactivity
Avoid interaction with heat (flames), oxidizers, acids or alkalis (see details below in this section).

Chemical stability
Material is stable under normal conditions.

Possibility of hazardous reactions
Strong oxidizers such as nitrates, nitrates or chlorates can cause explosive mixtures if heated to dryness.

Conditions to avoid
Temperatures above 120°F (49°C) and below 60°F (15°C).

Incompatible materials
Avoid interaction with heat (flames), oxidizers, acids or alkalis (see details below in this section).

Hazardous decomposition products
Heating this product will evolve ammonia, Heating to dryness will produce ammonia, ammonium sulfate, sulfur and oxides of sulfur.

11. Toxicological information
Information on likely routes of exposure
Oral-Rat LD₅₀: 1,950 - 2,890 mg/kg (ammonium thiosulfate).
Oral-Mouse LD₅₀: 2,100 > 3,000 mg/kg (ammonium thiosulfate).
Inhalation-Rat LC₅₀: > 2,260 mg/m³ (4 hrs-ammonium thiosulfate).
Inhalation-Mouse LC₅₀: > 1,800 mg/m³ (4 hrs-ammonium thiosulfate).
Inhalation-Rabbit LC₅₀: > 2,200 ug/m³ (1 hr-ammonium thiosulfate).
Skin contact
Not available. Skin irritation/corrosion test on Rabbit & Rat: Non-Irritating Rat > 2,000 mg/kg (ammonium sulfate).

Eye contact
Eyes irritation/corrosion. Rabbit, OECD 405. Non-irritating (ammonium thiosulfate)

Chronic/Carcinogenicity:
Not listed in NTP, IARC or by OSHA.

Teratology:
Data not available.

Reproduction:
Data not available.

Mutagenicity:
Data not available.

12. Ecological information
Ecotoxicity
Static acute 96 hour-LC₅₀ for bluegills is 1,000 mg/L.
Static acute 96 hour-LC₅₀ for rainbow trout is 770 mg/L.
Static acute 96 hour-LC₅₀ for sheepshead minnow is > 1,000 mg/L.
Static acute 96 hour-LC₅₀ for mysid shrimp is 77 mg/L.

Persistence and degradability
No data is available on the degradability of this product.

Bioaccumulative potential
This product is not bioaccumulative.

Mobility in soil
Not available.

Other adverse effects
None

13. Disposal considerations
Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international 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
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and empty containers should be taken to an approved waste handling site for recycling or disposal. 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.

15. Regulatory information
US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.
CERCLA Hazardous Substance List (40 CFR 302.4)
Not listed.
SARA 304 Emergency release notification
Not regulated.
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.
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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

SARA 302 Extremely hazardous substance
Not listed.

Section 313 (FORM R):
Ammonia (CAS #7664-41-7) - 14.6%

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.

US. California Proposition 65
WARNING: This product contains a chemical known to the State of California to cause birth defects or other

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

issue date 6/1/2015
Revision date 7/15/2013
Version # 2

Disclaimer
While the information contained herein are presented in good faith and believed to be accurate, it is provided for your guidance
only. Because many factors may affect processing or application, we recommend that you make tests to determine the suitability
of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including warranties
of merchantability or fitness for a particular purpose, are made regarding products described or information set forth, or that the
products, or information may be used without infringing the intellectual property rights of others. In no case shall the information
provided be considered a part of our terms and conditions of sale. Further, you expressly understand and agree that the
information furnished by our company hereunder are given gratis and we assume no obligation or liability for the information given
or results obtained, all such being given and accepted at your risk.

Revision Information
Composition / Information on Ingredients: Ingredients
Physical & Chemical Properties: Multiple Properties