



## Material Safety Data Sheet

### Ammonium thiosulfate solution

MSDS Number 5500 (Revised: 6/3/04)

6 Pages

<b>Section</b>	<b>1:</b>	<b>CHEMICAL PRODUCT and COMPANY IDENTIFICATION</b>
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- 1.1 Product Name** ..... **THIO-SUL®**  
 Chemical Family ..... Inorganic salt solution  
 Synonyms ..... Ammonium thiosulfate, ATS, 12-0-0-26S,  
 Thiosulfuric acid (H<sub>2</sub>S<sub>2</sub>O<sub>3</sub>), diammonium salt  
 Formula ..... (NH<sub>4</sub>)<sub>2</sub>S<sub>2</sub>O<sub>3</sub>
- 1.2 Manufacturer** ..... Tessenderlo Kerley Inc.  
 2255 N. 44<sup>th</sup> Street, Suite 300  
 Phoenix, Arizona 85008-3279  
 Information ..... (602) 889-8300
- 1.3 Emergency Contact** ..... (800) 877-1737 (Tessenderlo Kerley)  
**(800) 424-9300 (CHEMTREC)**

<b>Section</b>	<b>2:</b>	<b>COMPOSITION, INFORMATION ON INGREDIENTS</b>
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- 2.1 Chemical Ingredients (% by wt.)**
- |                      |                   |            |
|----------------------|-------------------|------------|
| Ammonium thiosulfate | CAS #:7783-18-8   | 50 - 60%   |
| Ammonium sulfate     | CAS #:7783-20-2   | 0 - 6%     |
| Ammonium sulfite (s) | CAS #: 10196-04-0 | 0.5 - 5%   |
| Water                | CAS #:7732-18-5   | 29 - 49.5% |

(See Section 8 for exposure guidelines)

<b>Section</b>	<b>3:</b>	<b>HAZARDS IDENTIFICATION</b>
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**NFPA:**      **Health - 1**      **Flammability - 0**      **Reactivity - 0**

#### EMERGENCY OVERVIEW

Contact may cause eye irritation.  
 Repeated/prolonged skin contact may cause irritation.  
 Ingestion may irritate gastrointestinal tract.  
 Heating may cause ammonia gas to evolve.

<b>Section</b>	<b>3:</b>	<b>HAZARDS IDENTIFICATION Cont.</b>
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**3.1 POTENTIAL HEALTH EFFECTS**

**EYE:** Contact with the eyes by product mist or solution may cause irritation or a burning sensation.

**SKIN CONTACT:** Prolonged or repeated contact with product mist or solution may cause skin irritation.

**SKIN ABSORPTION:** Absorption is unlikely to occur.

**INGESTION:** Ingestion of product solution may cause irritation of the gastrointestinal tract to include nausea, vomiting and diarrhea. Ammonium thiosulfate is considered to have a low toxicity to humans.

**INHALATION:** Inhalation of product mist may cause irritation of the nose, throat and respiratory tract.

**CHRONIC EFFECTS/CARCINOGENICITY:** Not listed as a carcinogen by NTP, IARC or OSHA.

<b>Section</b>	<b>4:</b>	<b>FIRST AID MEASURES</b>
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**4.1 EYES:** Immediately flush with large quantities of water for 15 minutes. Hold eyelids apart during irrigation to insure thorough flushing of the entire area of the eye and lids. Obtain medical attention if irritation occurs.

**4.2 SKIN:** Immediately flush with large quantities of water. Remove contaminated clothing under a safety shower. Obtain medical attention if irritation occurs.

**4.3 INGESTION:** If victim is conscious, give 2 to 4 glasses of water and induce vomiting by touching finger to back of throat. Obtain medical attention.

**4.4 INHALATION:** Remove victim from contaminated atmosphere. If breathing is labored, administer oxygen. If breathing has ceased, clear airway and start mouth to mouth resuscitation. If heart has stopped beating, external heart massage should be applied. Obtain medical attention.

<b>Section</b>	<b>5:</b>	<b>FIRE FIGHTING MEASURES</b>
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**5.1 FLAMMABLE PROPERTIES**

**FLASH POINT:** Not flammable

**METHOD USED:** NA

**5.2 FLAMMABLE LIMITS**

**LFL:** NA

**UFL:** NA

**5.3 EXTINGUISHING MEDIA:** As appropriate for combustibles involved in fire.

**5.4 FIRE & EXPLOSIVE HAZARDS:** Heating to dryness may cause the release of ammonia, ammonium sulfate, sulfur and oxides of sulfur. NH<sub>3</sub> (16-25%) may form flammable mixtures with air.

Keep containers/storage vessels in fire area cooled with water spray. Heating may cause the release of ammonia vapors.

**5.5 FIRE FIGHTING EQUIPMENT:** As in any fire, wear self-contained breathing apparatus, pressure demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

<b>Section</b>	<b>6:</b>	<b>ACCIDENTAL RELEASE MEASURES</b>
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**6.1 Small releases:** Confine and absorb small releases on sand earth or other inert absorbent. Use water spray to dilute to weak fertilizer solution.

**6.2 Large releases:** Confine area to qualified personnel. Shut off release if safe to do so. Dike spill area to prevent runoff into sewers, drains or surface waterways (potential aquatic toxicity). Recover as much of the solution as possible. Treat remaining material as a small release (above).

<b>Section</b>	<b>7:</b>	<b>HANDLING and STORAGE</b>
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**7.1 Handling:** Avoid contact with eyes. Use only in a well ventilated area. Wash thoroughly after handling. Avoid prolonged or repeated breathing of vapors. Avoid prolonged or repeated contact with the skin.

**7.2 Storage:** Store in well ventilated areas. Do not store combustibles in the area of storage vessels. Keep away from any sources of heat or flame. Store tote and smaller containers out of direct sunlight at moderate temperatures. (See Section 10.4 for materials of construction)

<b>Section</b>	<b>8:</b>	<b>EXPOSURE CONTROLS, PERSONAL PROTECTION</b>
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**8.1 RESPIRATORY PROTECTION:** None generally required. If conditions exist where mist may be generated, a NIOSH/MSHA approved mist respirator should be worn.

**8.2 SKIN PROTECTION:** Neoprene rubber gloves and apron should be worn to prevent repeated or prolonged contact with the liquid. Wash contaminated clothing prior to reuse.

**8.3 EYE PROTECTION:** Chemical goggles and a full face shield.

**8.4 EXPOSURE GUIDELINES:**

	OSHA		ACGIH	
	<u>TWA</u>	<u>STEL</u>	<u>TLV</u>	<u>STEL</u>
None	NA	NA	NA	NA

**8.5 ENGINEERING CONTROLS:** Use adequate exhaust ventilation to prevent inhalation of product vapors.

<b>Section</b>	<b>9:</b>	<b>PHYSICAL and CHEMICAL PROPERTIES</b>
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<b>9.1 APPEARANCE:</b>	Colorless to yellow to tan liquid.
<b>9.2 ODOR:</b>	May have a slight ammonia and/or organic odor.
<b>9.3 BOILING POINT:</b>	210 °F(98.9 °C) - 220 °F (104.4 °C)
<b>9.4 VAPOR PRESSURE:</b>	18 mm Hg @ 70 °F (21.1 °C)
<b>9.5 VAPOR DENSITY:</b>	Not determined
<b>9.6 SOLUBILITY IN WATER:</b>	Complete
<b>9.7 SPECIFIC GRAVITY:</b>	1.32 - 1.35 (11.0 - 11.2 lbs/gal)
<b>9.8 FREEZING POINT:</b>	30 °F – 60°F (-1.1 °C – 15.6°C) typical
<b>9.9 pH:</b>	6.5 - 8.5
<b>9.10 VOLATILE:</b>	Not applicable

**Section 10: STABILITY and REACTIVITY**

**10.1 STABILITY:** This is a stable material

**10.2 HAZARDOUS POLYMERIZATION:** Will not occur

**10.3 HAZARDOUS DECOMPOSITION PRODUCTS:** Heating this product will evolve ammonia. Heating to dryness will cause the production of ammonia, ammonium sulfate, sulfur and oxides of sulfur. Ammonia (16-25%) may form flammable mixtures with air.

**10.4 INCOMPATIBILITY:** Strong oxidizers such as nitrates, nitrites or chlorates can cause explosive mixtures if heated to dryness. Acids will cause the release of sulfur dioxide, a severe respiratory hazard. Alkalies will accelerate the evolution of ammonia. Ammonium thiosulfate solution is not compatible with copper, zinc or their alloys (i.e. bronze, brass, galvanized metals, etc.). These materials of construction should not be used in handling systems or storage containers for this product. (SEE Section 7.2, Storage)

**Section 11: TOXICOLOGICAL INFORMATION**

**11.1 ORAL:** Oral-Rat LD<sub>50</sub>: 1,950 - 2,890 mg/kg  
Oral-Mouse LD<sub>50</sub>: 2,100 - >3,000 mg/kg

**11.2 DERMAL:** Data not available. Skin Irritation/corrosion test on Rabbit & Rat: Non-Irritating

**11.3 INHALATION:** Inhalation-Rat LC<sub>50</sub>: > 2,260 mg/m<sup>3</sup> (4 hrs)  
Inhalation-Mouse LC<sub>50</sub>: > 1,800 mg/m<sup>3</sup> (4 hrs)

**11.4 CHRONIC/CARCINOGENICITY:** No evidence available

**11.5 TERATOLOGY:** Data not available

**11.6 REPRODUCTION:** Data not available

**11.7 MUTAGENICITY:** Data not available

Additional product testing data is available from "TFI Product testing Program", The Fertilizer Institute, April 2003 .

**Section 12: ECOLOGICAL INFORMATION**

Static acute 96 hour-LC<sub>50</sub> for bluegills is 1,000 mg/L.  
Static acute 96 hour-LC<sub>50</sub> for rainbow trout is 770 mg/L.  
Static acute 96 hour-LC<sub>50</sub> for sheepshead minnow is > 1,000 mg/L.  
Static acute 96 hour-LC<sub>50</sub> for mysid shrimp is 77 mg/L.

**Section 13: DISPOSAL CONSIDERATIONS**

Ammonium thiosulfate is not considered a hazardous waste under Federal Hazardous Waste Regulations, 40 CFR 261. Consult state and local regulations for different or more restrictive disposal regulations.

<b>Section</b>	<b>14: TRANSPORT INFORMATION</b>
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<b>14.1 DOT Shipping Name:</b>	Ammonium thiosulfate solution (See Regulatory Information, 15.7)
<b>14.2 DOT Hazard Class:</b>	NA
<b>14.3 UN/NA Number:</b>	NA
<b>14.4 Packing Group:</b>	NA
<b>14.5 DOT Placard:</b>	NA
<b>14.6 DOT Label(s):</b>	NA
<b>14.7 IMO Shipping Name:</b>	Ammonium thiosulfate solution
<b>14.8 RQ (Reportable Quantity):</b>	NA
<b>14.9 RR STCC Number:</b>	28-191-73

<b>Section</b>	<b>15: REGULATORY INFORMATION</b>
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<b>15.1 OSHA:</b>	This product is listed as a hazardous material under criteria of the Federal OSHA Hazard Communication Standard, 29 CFR 1910.1200.		
<b>15.2 SARA TITLE III:</b>	a.	<b>EHS (Extremely Hazardous Substance) List:</b>	No
	b.	Section 311/312, (Tier I,II) Categories:	Immediate (acute) Yes
		Fire	No
		Sudden release	No
		Reactivity	No
		Delayed (chronic)	No
	c.	Section 313 (Toxic Release Reporting-Form R):	Yes
		<u>Chemical Name</u>	<u>CAS Number</u>
		Ammonia	7664-41-7
			Concentration
			14.6%
	d.	<b>TPQ (Threshold Planning Quantity):</b>	No
<b>15.3 CERCLA/SUPERFUND:</b>	RQ (Reportable Quantity)		No
<b>15.4 TSCA (Toxic Substance Control Act) Inventory List:</b>			Yes
<b>15.5 RCRA (Resource Conservation and Recovery Act) Status:</b>			NA
<b>15.6 WHMIS (Canada) Hazard Classification:</b>			NA
<b>15.7 DOT Hazardous Material: (See Section 14)</b>			No
<b>15.8 CAA Hazardous Air Pollutant (HAP)</b>			No

<b>Section</b>	<b>16: OTHER INFORMATION</b>
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**REVISIONS:** The entire MSDS was reformatted to comply to ANSI Standard Z400.1-1993, by Technical Services-Tessengerlo Kerley, Inc.

Address updated, 4/30/99

Section 8.3, Eye Protection revised and logo revised, 4/29/02

Section 2.1, ingredient adjusted, Section 11 toxicity data added, Section 14.1 clarified, and Section 9 adjusted 6/15/04

THE INFORMATION PUBLISHED IN THIS MATERIAL SAFETY DATA SHEET HAS BEEN COMPILED FROM OUR EXPERIENCE AND OSHA, ANSI, NFPA, DOT, ERG, AND CHRIS. IT IS THE USER'S RESPONSIBILITY TO DETERMINE THE SUITABILITY OF THIS INFORMATION FOR THE ADOPTION OF NECESSARY SAFETY PRECAUTIONS. WE RESERVE THE RIGHT TO REVISE MATERIAL SAFETY DATA SHEETS PERIODICALLY AS NEW INFORMATION BECOMES AVAILABLE.
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