ThioSolv, LLC
Simple Solutions

Material Safety Data Sheet

Ammonium thiosulfate solution

Date 13-Feb-13

Section	**1.0**		
	1.1	Product Name	Ammonium thiosulfate solution
		Chemical Family	Inorganic salt solution
		Synonyms	Ammonium thiosulfate, ATS, 12-0-0-26
			Thiosulfuric acid ($H_2S_2O_3$), diammonium salt
		Formula	$(NH_4)_2S_2O_3$
	1.2	Manufacturer	ThioSolv, LLC 410 Grand Oaks Drive Spring Branch, TX 78070
	1.3	Emergency Contact	(832) 443-0952 (ThioSolv, LLC) (800) 424-9300 (Chemtrec)

Section	**2.0**	**Composition, Information on Ingredients**		
	2.1	Chemical Ingredients (% by wt.)		
		Ammonium thiosulfate	CAS #:7783-18-8	20-60%
		Ammonium sulfate	CAS #:7783-20-2	0 - 10%
		Ammonium sulfite (s)	CAS #:10196-04-0	0.2 - 10.0%
		Water	CAS #:7732-18-5	Balance

Section	**3.0**	**Hazard Identification**		
	3.1	NFPA:	Health	1
			Flammability	0
			Reactivity	0

EMERGENCY OVERVIEW

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

3.2 Potential Health Effects

Eye: Contact with the eyes by product mist from solution will cause irritation and a burning sensation and damage to to lens and cornea

Skin Contact: Prolonged or repeated contact with product mist or solution will cause skin irritation.

Skin Absorption: Absorption is unlikely to occur.

Ingestion: Ingestion of product solution will 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

Section 4.0 First Aid Measures

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, immediately give 2 to 4 glasses of water. 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 immediate medical attention.

Section 5.0 Fire Fighting Measures

5.1 **Flammable Properties**
Flash point: Not flammable
Method used: Not available

5.2 **Flammable Limits:** LFL and UFL - Not available

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, hydrogen sulfide, ammonium sulfate, sulfur and oxides of sulfur. Ammonia and hydrogen sulfide 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:** Because of the possible presence of toxic gases and the corrosive nature of the product, wear self-contained breathing apparatus, pressure demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6.0 Accidental Release Measures

6.1 **Small Releases:** Confine and absorb small releases on sand, earth or other inert absorbent. Spray water 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).

Section 7.0 Handling and Storage

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. Provide a readily-accessible eyewash.

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

Section 8.0 Exposure Controls, Personal Protection

8.1 Respiratory Protection: None generally required. If conditions exist where mist may be generated, a NIOSH/MSHA approved mist respirator should be worn.

Skin Protection: Neoprene rubber gloves, boots, and apron should be worn to prevent repeated or prolonged contact with the liquid. Wash contaminated clothing
8.2 prior to reuse.

8.3 Eye Protection: Chemical goggles and a full face shield.

8.4 Exposure Guidelines:

	OSHA		ACGIH	
	TWA	STEL	TLV	STEL
	NA	NA	N/A	N/A

8.5 Engineering Controls: Use adequate exhaust ventilation to prevent inhalation of product vapors. Maintain eyewash/safety shower in areas where product is handled.

Section 9.0 Physical and Chemical Properties

9.1	**Appearance:**	Colorless to yellow to tan liquid.	
9.2	**Odor:**	May have a slight odor of ammonia or SO2	
9.3	**Boiling Point:**	210^{O} - 220^{o} F (98.9^{o} - 104.4^{o} C)	Decomposes, releasing NH3 and SO2
9.4	**Vapor Pressure:**	~18 mm Hg @ 70^{o} F (21.1^{o} C)	
9.5	**Vapor Density:**	Not determined	
9.6	**Solubility in Water:**	Complete	
9.7	**Specific Gravity:**	1.2 - 1.38 (10.0 - 11.5 lbs/gal)	
9.8	**Freezing Point:**	crystals may form at <-20 to >+60 F depending upon concentration	
9.9	**pH:**	6.2 - 8.5	
9.10	**Volatile:**	Not applicable	

Section 10.0 Stability and Reactivity

Stability: This is a stable material under normal conditions. Heating accelerates evolution of ammonia. Heating to dryness and beyond yields hydrogen sulfide and
10.1 other gases. Hydrogen sulfide is toxic and flammable.

10.2 Hazardous Polymerization: Will not occur.

Hazardous decomposition Products: Heating this product will evolve ammonia. Heating to dryness will cause the production of ammonia, hydrogen sulfide, ammonium sulfate, sulfur and oxides of sulfur. Ammonia and hydrogen sulfide may
10.3 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 gold, 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 11.0 Toxicological Information

11.1 Oral: Oral-Rat LD_{50}: 1,950 - 2,890 mg/kg
Oral-mouse LD_{50}: 2,100 - 3,000 mg/kg

11.2 Dermal: Data not available. Skin irritation/corrosion test on Rabbit and Rat: Non-irritating.

11.3 Inhalation: Inhalation-Rat LC_{50}: >2,260 mg/m^3 (4 hrs)
Inhalation-Mouse LC_{50}: > 1,800 mg/m^3 (4 hr.)

11.4 Chronic/Carcinogenicity: Evidence not available.

11.5 Teratology: Data not available.

11.6 Reproduction: Data not available.

11.7 Mutagenicity Data not available.

Section 12.0 Ecological Information

Static acute 96 hour-LC_{50} for bluegills is 1,000 mg/L

Static acute 96 hour-LC_{50} for rainbow trout is 770 mg/L.

Static acute 96 hour-LC_{50} for sheepshead minnow is > 1,000 mg/L.

Static acute 96 hour-LC_{50} for mysid shrimp is 77 mg/L.

Section 13.0 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.

Section 14.0 Transport Information

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

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Section 15.0 Regulatory Information

15.1 OSHA: This product is listed as a hazardous material under criteria of the Federal OSHA Hazard Communication Standard, 29 CFR 1910.1200.

15.2 SARA Title III:

a. EHS (Extremely Hazardous Substance) List — 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

Chemical Name	CSA Number	Concentration
Ammonia	7664-41-7	14.6%

d. TPQ (Threshold Planning Quantity): — No

15.3 CERCLA/Superfund: RQ (Reportable Quantities) — No

15.4 TSCA (Toxic Substance Control Act) Inventory List: — Yes

15.5 RCRA (Resource Conservation and Recovery Act) Status: — NA

15.6 WHMIS (Canada) Hazard Classification: — NA

15.7 DOT Hazardous Material: (See Section 14) — No

15.8 CAA Hazardous Air Pollutant (HAP0 — No

Section 16.0 Other Information

This information was compiled from MSDSs within the industry. 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 MSDSs from time to time as new information becomes available.