Ammonium Thiosulfate

12-0-0-26S Safety Data Sheet

SECTION 1 – IDENTIFICATION

Product Name:	Ammonium Thiosulfate 12-0-0-26S
Product ID:	CHS-077
Synonyms:	ATS; 12-0-0-26S; thiosulfuric acid; diammonium salt
Chemical Family:	inorganic salt solution
Molecular Formula:	$(NH_4)_2S_2O_3$
Manufacturer:	CHS Inc. 2000 South Main Street McPherson, Kansas 67460, USA
Telephone:	620-241-2340 *(General)* 620-241-9269 *(Fax)* CHEMTREC 800-424-9300 *(EMERGENCY)*

SECTION 2 – HAZARD(S) IDENTIFICATION

Emergency Overview

Warning

PREVENTION

Do not handle until all safety precautions have been read and understood (P202).
Keep away from heat, sparks, open flames, and hot surfaces. No smoking (P210).
Avoid breathing dust, fume, mist, vapors, or gas (P261).
Do not get in eyes, on skin, or on clothing (P262).
Avoid release to the environment (P273).
Wear gloves and eye protection (P280).
Use personal protective equipment as required (P281).

NFPA

Potential Health Effects

Eye Health Effects:	Contact with the eyes by product mist or solution may cause irritation or a burning sensation.
Skin Health Effects:	Prolonged or repeated contact with product mist or solution may cause skin irritation. Absorption is unlikely to occur.
Inhalation Health Effects:	Inhalation of product mist may cause irritation of the nose, throat and respiratory tract.
Ingestion Health Effects:	Ingestion or 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.
Carcinogenic Effects:	Not listed as a carcinogen by NTP, IARC or OSHA.

Potential Environmental Effects

Environmental Effects:	Possibly toxic to aquatic life.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Ingredients				
Name	**CAS #**	**RTECS #**	**EINECS #**	**% (Volume)**
Ammonium thiosulfate	7783-18-8	XN6465000	231-982-0	50 – 60%
Ammonium sulfate	7783-20-2	BS4500000	231-984-1	0 – 6%
Ammonium sulfite	10196-04-0	Unknown	233-484-9	0.5 – 5%
Water	7732-18-5	WB4900000	215-185-5	29 – 49.5%

SECTION 4 – FIRST-AID MEASURES

Eye Contact

Immediately flush with large quantities of water for 15 minutes. Hold eyelids apart during irrigation to ensure thorough flushing of the entire area of the eye and lids. Obtain medical attention if irritation occurs.

Skin Contact

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

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.

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.

Notes to Physicians

Not available.

Medical Conditions Aggravated by Exposure

Not available.

Other Comments

None.

SECTION 5 – FIRE-FIGHTING MEASURES

NFPA 704 Hazard Classes:

Health:	1 (Slight)
Flammability:	0 (Minimal)
Instability:	0 (Minimal)
Other Hazards:	Not applicable

Unusual Fire and Explosion Hazards

Heating to dryness may cause the release of ammonia, ammonium sulfate, sulfur and oxides of sulfur. NH3 (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.

Extinguishing Media

As appropriate for combustibles involved in fire. Plan fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.

Protection of Firefighters

Wear self-contained breathing apparatus for firefighting if necessary. In addition, wear other appropriate protective equipment as conditions warrant (see *Section 8*).

Firefighting Procedures

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

Other Information

Flammable Properties: See *Section 9* for Flash Point, Explosive Limits, etc.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal Precautions

Wear respiratory protection. Avoid breathing vapors, fumes, mist, or gas. Ensure adequate ventilation. Remove all sources of ignition. No smoking. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Evacuate personnel to safe areas. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see *Section 8*).

Environmental Precautions

This product is not a water pollutant, but should be kept out of waters because of potential aquatic toxicity. Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment should be avoided. Dike or divert spill into natural containment areas before it can enter watercourses. Assure conformity with applicable government regulations.

Containment Procedures

Notify shift foreman immediately should release occur. The shift foreman will notify appropriate personnel and may determine whether or not to call emergency response teams and supervisors, depending on the amount of chemical release. If the release occurs outside the facility, notify the CHS, Inc. refinery.

Clean-up Procedures

Small releases: Confine and absorb small releases on sand, earth or other inert absorbent. Use water spray to dilute to weak fertilizer solution.

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 – HANDLING AND STORAGE

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.

Storage

Store in well-ventilated areas. Do not store combustibles in the area of storage vessels. Keep away from sources of heat or flame. Store tote and smaller containers out of direct sunlight at moderate temperatures.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, and/or engineering professionals.

Personal Protective Equipment

Respiratory Protection:	None generally required. If conditions exist where mist may be generated, a NIOSH/MSHA approved mist respirator should be worn.
Eye/Face Protection:	Use chemical safety goggles and full face shield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Provide an eyewash station immediately accessible to the work area.
Skin Protection:	Avoid skin contact. Neoprene rubber gloves and apron should be worn to prevent repeated or prolonged contact with the liquid. Wash contaminated clothing prior to reuse.
General 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. Handle in accordance with good industrial hygiene and safety practice.

Engineering Controls

Use adequate exhaust ventilation to prevent inhalation of product vapors.

Exposure Limits / Guidelines

Component	ACGIH TLV	NIOSH REL	OSHA PEL
Ammonium thiosulfate (7783-18-8)	N/A	N/A	N/A
Ammonium sulfate (7783-20-2)	N/A	N/A	N/A
Ammonium sulfite (10196-04-0)	N/A	N/A	N/A
Water (7732-18-5)	N/A	N/A	N/A

NONE

Note: State, local, or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Supplemental Information

	Notations		
Component	**NIOSH IDLH**	**Skin Notation**	**Sensitization**
Ammonium thiosulfate (7783-18-8)	---	---	---
Ammonium sulfate (7783-20-2)	---	---	---
Ammonium sulfite (10196-04-0)	---	---	---
Water (7732-18-5)	---	---	---

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Physical Form:	Liquid
Appearance:	Colorless to yellow to tan
Odor:	May have a slight ammonia and/or organic odor
Odor Threshold:	Not available
pH:	6.5-8.5
Freezing Point:	30-60° F (-1.1-15.6° C) typical
Boiling Point:	210-220° F (98.9-104.4° C)

Flash Point:	Not available
Flammability:	Not available
Explosive Limits:	Not available
Evaporation Rate:	Not available
Vapor Pressure:	18 mmHg @ 70° F (21.1° C)
Vapor Density:	Not available
Specific Gravity:	1.32-1.35 (11.0-11.2 lb/gal)
Density:	Not available
Solubility in Water:	Complete
Partition Coefficient:	Not available
Auto-ignition Temperature:	Not available
Decomposition Temperature:	Not available
Viscosity:	Not available
Volatile:	Not available
Molecular Formula:	Not available
Molecular Weight:	Not available

SECTION 10 – STABILITY AND REACTIVITY

Stability:	This is a stable material under normal temperatures and pressure.
Conditions to Avoid:	Temperatures above 120° F (49° C) and below 60° F (15° C).
Incompatible Materials:	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.
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.
Hazardous Polymerization:	Will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION

General Toxicity

Signs and Symptoms:	May cause stomach cramps and/or nausea, slight skin irritation with redness, mild irritation of nasal mucous membranes, and temporary eye irritation.
Aspiration Hazard:	Not available.
Sensitization:	Not available.
Specific Target Organs:	Not available.
Carcinogenicity:	No evidence available.
Germ Cell Mutagenicity:	Data not available.
Reproductive Toxicity:	Data not available.

Other Comments

None.

Toxicological Effects of Components

Toxicological Information		
Component	**Category**	**Data**
Ammonium thiosulfate Solution	Exposure Routes	Inhalation; ingestion; skin and/or eye contact.
	Symptoms	May cause stomach cramps and/or nausea, slight skin irritation with redness, mild irritation of nasal mucous membranes, and temporary eye irritation.
	Target Organs	Eyes, skin.
	Short-Term Exposure	May cause stomach cramps and/or nausea, slight skin irritation with redness, mild irritation of nasal mucous membranes, and temporary eye irritation.
	Long-Term Exposure	May cause stomach cramps and/or nausea, slight skin irritation with redness, mild irritation of nasal mucous membranes, and temporary eye irritation.

SECTION 12 – ECOLOGICAL INFORMATION

Toxicity:	Possibly toxic to aquatic life.
Persistence & Degradability:	Not available.
Bio-accumulative Potential:	Not available.
Mobility:	Not available.
Other Adverse Effects:	Not available.

SECTION 13 – DISPOSAL CONSIDERATIONS

The generator of a waste is always responsible for making proper hazardous waste determinations. The transportation, storage, treatment, and disposal of this waste material must be conducted in compliance with all applicable federal, state, and local requirements and regulations.

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 – TRANSPORATION INFORMATION

DOT – United States – Department of Transportation

Shipping Name:	Ammonium thiosulfate solution
ID Number:	Not available.
Hazard Class:	Not available.
Packing Group:	Not available.
DOT Placard:	Not available.
DOT Label(s):	Not available.
IMO Shipping Name:	Ammonium thiosulfate solution
RQ (Reportable Quantity):	Not available.
RR STCC Number:	28-191-73

SECTION 15 – REGULATORY INFORMATION

United States Regulations

CERCLA/SARA Section 311/312 (Title III Hazard Categories)

Acute Health: Yes

Chronic Health: No

Fire Hazard: No

Pressure Hazard: No

Reactive Hazard: No

This material may contain one or more of the following chemicals identified by the EPA under Title 40 of the Code of Federal Regulations (CFR), including the CAA (40 CFR 50-97), CERCLA (40 CFR 302.4), SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), and/or TSCA (40 CFR 700-766).

Components Listed by Selected Parts of US 40 CFR					
Component	**CAA**	**CERCLA**	**Sara Section 302 / Section 304**	**SARA Section 313**	**TSCA**
Ammonia 14.6% (7664-41-7)	No	100RQ.	500 TPQ. (Section 302) 100 RQ. (Section 304)	Listed	Yes

This material may contain one or more chemicals identified on individual state hazardous substances lists. Contact each jurisdiction for more information.

Right-To-Know:
Massachusetts, Pennsylvania, New Jersey

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16 – OTHER INFORMATION

Preparation & Version Information

Version 002 – Last revision on 2020-09-20.
Version 001 – Last revision on 2014-12-26.
Prepared by Certified Environmental Management, Ltd. (www.cemih.com).

Guide to Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
ANSI	American National Standards Institute
CAA	Clean Air Act (United States)
CAS	Chemical Abstracts Service
CEIL	Ceiling Exposure Limit
CERCLA	The Comprehensive Environmental Response, Compensation, & Liability Act (United States)
CFR	Code of Federal Regulations (United States)
EINECS	European Chemical Substances Information System
EPA	Environmental Protection Agency (United States)
GHS	Globally Harmonized System
IARC	International Agency for Research on Cancer
NFPA	National Fire Protection Association
NTP	National Toxicology Program (United States)
OSHA	Occupational Safety and Health Administration (United States)
PEL	Permissible Exposure Limit (OSHA)
RCRA	Resource Conservation and Recovery Act (United States)
RQ	Reportable Quantity
SARA	Superfund Amendments and Reauthorization Act (United States)
STEL	Short Term Exposure Limit (15 minutes)
TLV	Threshold Limit Value (ACGIH)
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act (United States)
TWA	Time Weighted Average (8 hours)
UN	United Nations

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