



MATERIAL SAFETY DATA SHEET

MSDS Number 4300 (Revised: 7/12/12)

6 Pages

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

- 1.1 Product Name** KTS®
 Chemical Family Inorganic salt solution
 Synonyms Potassium thiosulfate, KTS, 0-0-25-17S,
 Thiosulfuric acid (H₂S₂O₃), dipotassium salt
 Formula K₂S₂O₃
- 1.2 Use of Substance** Liquid fertilizer
- 1.3 Manufacturer** Tessengerlo Kerley Inc.
 2255 N. 44th Street, Suite 300
 Phoenix, Arizona 85008-3279
 Information (602) 889-8300
- 1.4 Emergency Contact** (800) 877-1737 (Tessengerlo Kerley)
 (800) 424-9300 (CHEMTREC)



SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS

2.1

Chemical Ingredients	CAS No.	EINECS No.	% By Wt.
Potassium thiosulfate	10294-66-3	233-666-8	50% (Typical)
Water	7732-18-5	231-791-2	50%

(See Section 8 for exposure guidelines)

SECTION 3: HAZARDS IDENTIFICATION

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 sulfur dioxide gas to evolve.

3.1 POTENTIAL HEALTH EFFECTS

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

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

3.1.3 SKIN ABSORPTION: Absorption is unlikely to occur.

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

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

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

3.1.7 ENVIRONMENTAL: Avoid releasing product into streams, rivers or lakes due to potential adverse effects on aquatic species.

SECTION 4: 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, 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.

SECTION 5: FIRE FIGHTING MEASURES

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 sulfur and oxides of sulfur and potassium sulfate.

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

SECTION 6: ACCIDENTAL RELEASE MEASURES

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).

SECTION 7: 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.

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 10.2 for materials of construction).

SECTION 8: 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.

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: None

OSHA		ACGIH	
TWA	STEL	TLV	STEL
NA	NA	NA	NA

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 APPEARANCE:	Pale yellow liquid.
9.2 ODOR:	May have a slight sulfur odor.
9.3 BOILING POINT:	~222°F (106°C)
9.4 VAPOR PRESSURE:	Not determined
9.5 VAPOR DENSITY:	Not determined
9.6 SOLUBILITY IN WATER:	Complete
9.7 SPECIFIC GRAVITY:	1.46 (12.2 lbs/gal)
9.8 FREEZING POINT:	Not determined
9.9 pH:	6.5 – 8.0
9.10 VOLATILE:	Not applicable
9.11 SALT OUT TEMPERATURE:	~15°F (-9.4°C)

SECTION 10: STABILITY AND REACTIVITY

This product is stable under normal storage and use conditions (ambient temperature and pressure). Hazardous polymerization will not occur.

10.1 CONDITIONS TO AVOID: High temperatures and fire conditions. (See Section 10.3)

10.2 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. Potassium thiosulfate solution is not compatible with lead or mercury or their alloys. These materials of construction should not be used in handling systems or storage containers for this product. (SEE Section 7.2, Storage)

10.3 HAZARDOUS DECOMPOSITION PRODUCTS: Heating this product will evolve sulfur dioxide. Heating to dryness will cause the production of potassium sulfate, sulfur and oxides of sulfur. Sulfur dioxide is a respiratory hazard.

10.4 Materials of Construction: Solutions of KTS® are stored in mild steel. Product solutions have been successfully stored in 304 stainless steel, fiberglass, polypropylene and HD polyethylene. Consult with tank manufacturers to confirm whether a specific resin is acceptable for KTS® service.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 ORAL:	Data not available
11.2 DERMAL:	Data not available
11.3 INHALATION:	Data not available
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

SECTION 12: ECOLOGICAL INFORMATION

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

Static acute 96 hour- LC_{50} for mysid shrimp is 89 mg/L.

SECTION 13: DISPOSAL CONSIDERATIONS

Potassium 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: TRANSPORT INFORMATION

Potassium thiosulfate is classified as non-hazardous by all means of shipping, both domestically and internationally.

14.1 DOT Requirements

14.1.1 Shipping Name:	Potassium thiosulfate solution
14.1.2 Hazard Class:	NA
14.1.3 UN/NA Number:	NA
14.1.4 Packing Group:	NA
14.1.5 Placard:	NA
14.1.6 Label(s):	NA

14.2 Other DOT Requirements

14.2.1 Reportable Quantity (RQ):	No
14.2.2 Emergency Response Guide:	NA
14.2.2 RR STCC code:	28-125-63

14.3 International Transportation:

14.3.1 IMO	Pollution Category - Y Proper Shipping Description - Potassium thiosulphate solution
14.7.2 IATA	Non-hazardous under IATA regulations.

SECTION 15: REGULATORY INFORMATION

15.1 OSHA: This product is listed as a hazardous chemical 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
			Page 6
	c. Section 313 (Toxic Release Reporting-Form R):		No
	d. TPQ (Threshold Planning Quantity):		No
15.3 CERCLA/SUPERFUND:	RQ (Reportable Quantity)		No
15.4 TSCA (Toxic Substance Control Act) Inventory List:			Yes
15.5 RCRA (Resource Conservation and Recovery Act) Status:			NA
15.6 DOT Hazardous Material: (See Section 14)			No
15.7 CAA Hazardous Air Pollutant (HAP)			No
15.8 Proposition 65 (CA)			No
15.9 International Regulations			
15.9.1 Canada:	Listed on Domestic Substance List (DSL) as Thiosulfuric acid ($H_2S_2O_3$), di-potassium salt		
15.9.2 WHIMIS:	Not Applicable		

SECTION 16: OTHER INFORMATION

REVISIONS: The entire MSDS was reformatted to comply to ANSI Standard Z400.1-1993, by Technical Services-Tessenderlo Kerley, Inc.

Address updated, 7/14/99

Section 8.3, Eye Protection revised and revised logo, 4/30/02

Major Revision to comply with international requirements, 4/1/2009.

Revised Section 11, Toxicological Information, 12/30/2009.

Revised pH Section 9, Physical properties, 7/12/12.

THE INFORMATION PUBLISHED IN THIS MATERIAL SAFETY DATA SHEET HAS BEEN COMPILED FROM OUR EXPERIENCE AND OSHA, ANSI, NFPA, DOT, AND TOXICOLOGICAL DATABASES.. 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.