

POTASSIUM THIOSULPHATE

Date of compilation: 14-08-2026 | Revised: 14-08-2026 | Version: 1

SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

POTASSIUM THIOSULPHATE
Potassium Thiosulfate; KTS; $K_2S_2O_3$;
CAS: 10294-66-3

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Liquid fertiliser component (potassium and sulphur nutrient source, e.g. fertigation formulations), fungicide/agrochemical formulation aid, photographic fixing agent, textile antichlor/desulphurising agent, dechlorination in water treatment, analytical/laboratory reagent. For industrial user only.
Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

SURAJ CHEMICALS
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1.4 Emergency phone number:

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). Potassium thiosulphate does not meet the classification criteria for any physical, health or environmental hazard class under GHS based on available data (consistent with the well-characterised low-hazard profile of thiosulfate salts generally, e.g. the closely related sodium thiosulfate, CAS 7772-98-7).

Not classified	Not a hazardous substance according to GHS criteria
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2.2 GHS label elements, including precautionary statements:

GHS: No signal word / No pictogram required

Hazard statements:

None allocated. Not classified as hazardous under GHS.

Precautionary statements:

P264: Wash hands thoroughly after handling.
P280: Wear protective gloves/eye protection when handling concentrated solutions.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P501: Dispose of contents/container in accordance with local regulations.

2.3 Other hazards which do not result in classification:

Reacts with strong acids to release sulphur dioxide and hydrogen sulphide gases along with elemental sulphur; avoid mixing with acids. Not a PBT or vPvB substance.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Potassium thiosulphate ($K_2S_2O_3$)
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 10294-66-3	Potassium Thiosulphate — Not classified as hazardous	≥ 98% (solid/technical grade); liquid fertiliser-grade solutions supplied at manufacturer-specified concentration – available on request

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

3.2 Mixtures:

Non-applicable (aqueous fertiliser-grade solutions are solutions of the single substance identified above in water; exact solution strength available on request per grade supplied)

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

Generally regarded as of low toxicological concern; first aid measures below are precautionary.

By inhalation:

Remove person to fresh air. Seek medical attention if irritation or discomfort persists.

By skin contact:

Wash with plenty of water. Remove contaminated clothing if heavily soiled.

By eye contact:

Rinse immediately with plenty of water for at least 15 minutes, holding eyelids apart. Remove contact lenses if present and easy to do. Seek medical attention if irritation persists.

By ingestion/aspiration:

Rinse mouth with water. Give water to drink if a large quantity is swallowed. Seek medical advice if discomfort persists.

4.2 Most important symptoms/effects, acute and delayed:

May cause mild, transient irritation of eyes or skin on contact with concentrated solution. No significant delayed effects known.

4.3 Indication of immediate medical attention and special treatment needed, if necessary:

Not relevant. Treat symptomatically.

SECTION 5: FIRE-FIGHTING MEASURES

- 5.1 Suitable extinguishing media:**
Suitable: Product is non-combustible (as supplied, solid or aqueous solution). Use extinguishing media suitable for the surrounding fire (water spray, foam, dry chemical powder, carbon dioxide).
Unsuitable: None known
- 5.2 Specific hazards arising from the chemical:**
Not flammable, not explosive. Product itself will not burn. Strong heating or contact with acids may release sulphur dioxide and hydrogen sulphide gases.
- 5.3 Special protective actions for fire-fighters:**
No special measures required beyond standard fire-fighting practice. Wear self-contained breathing apparatus if involved in a fire producing smoke or decomposition fumes.
- Additional provisions:**
Cool fire-exposed containers with water if practical.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures:**
For non-emergency personnel:
Avoid contact with skin and eyes. Spilled liquid may create a slip hazard. Use personal protective equipment as described in section 8.
- For emergency responders:**
No special equipment beyond standard PPE (gloves, goggles) is normally required.
- 6.2 Environmental precautions:**
Not classified as an environmental hazard. Prevent large quantities from entering drains/waterways as a general good practice; excess nutrient (K, S) loading should be avoided in sensitive water bodies.
- 6.3 Methods and materials for containment and cleaning up:**
Absorb liquid spills with inert absorbent material or dike/contain for recovery; sweep up solid spills, place in a suitable labelled container for reuse or disposal. Wash residual area with water.
- 6.4 Reference to other sections:**
See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

- 7.1 Precautions for safe handling:**
A. General precautions for safe use:
Avoid contact with skin and eyes. Keep away from strong acids (gas evolution: SO₂/H₂S) and strong oxidisers.
- B. Technical recommendations for the prevention of fires and explosions:**
Not applicable – product is non-combustible.
- C. Technical recommendations on general occupational hygiene:**
Do not eat, drink or smoke while handling. Wash hands after handling.
- D. Technical recommendations to prevent environmental risks:**
Avoid uncontrolled release of large quantities to soil or water bodies.
- 7.2 Conditions for safe storage, including any incompatibilities:**
A. Specific storage requirements:
- | | |
|------------------------|--|
| Storage temperature | Ambient; protect liquid grade from freezing/extreme temperature cycling |
| Recommended shelf life | 12 months in original sealed packaging (solid grade, stored dry); liquid fertiliser grade per manufacturer's specification |
- B. General conditions for storage:**
Store in a cool, dry (solid grade) or frost-free (liquid grade), well-ventilated place in tightly closed containers, away from strong acids and strong oxidisers.
- 7.3 Specific end use(s):**
Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

- 8.1 Control parameters:**
No substance-specific occupational exposure limit has been established for potassium thiosulphate by OSHA, ACGIH or Indian regulatory bodies. General limits for particulates not otherwise classified are commonly applied as guidance for the solid grade:
- | Identification | Occupational Exposure Limit Type | Value |
|--|----------------------------------|----------|
| Potassium Thiosulphate (as inert/nuisance dust guidance, solid grade)
CAS: 10294-66-3 | Inhalable fraction, 8-hr TWA | 10 mg/m³ |
| | Respirable fraction, 8-hr TWA | 3 mg/m³ |
- 8.2 Appropriate engineering controls:**
Use local exhaust ventilation where dust is generated (solid grade) or where mist may form during solution handling.
- B. Respiratory protection:**
Not normally required under adequate ventilation. Dust mask recommended for solid grade bagging/milling operations.
- C. Specific protection for the hands:**
Protective gloves recommended for prolonged handling.
- D. Eye and face protection:**
Safety glasses or goggles recommended where splash or dust generation is significant.
- E. Bodily protection:**
Ordinary work clothing; protective overalls for bulk handling/dosing operations.
- F. Additional emergency measures:**
Eyewash station recommended in areas of regular handling.
- Environmental exposure controls:**
No special environmental exposure controls required beyond good housekeeping.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance	
Physical state at 20°C	Solid (crystalline) or clear liquid, depending on grade supplied
Appearance	White crystalline solid, or colorless to pale yellow liquid (fertiliser-grade solution)
Color	White (solid) / colorless to pale yellow (solution)
Odor	Odorless to faint sulphurous odor

Odour threshold	Not established
Volatility	
Boiling point at atmospheric pressure	Not applicable (solid decomposes on heating); solution grade >100°C (aqueous, concentration dependent)
Vapour pressure at 20°C	Not applicable / negligible (solid); approximates water for dilute solutions
Evaporation rate	Not applicable (solid)
Product Description	
Density at 20°C	Solid: not established precisely (highly soluble, hygroscopic salt); solution grade ~1.2–1.4 g/cm³ (concentration dependent, available on request)
Molecular weight	190.33 g/mol (anhydrous K&sub2;S&sub2;O&sub3;)
pH (aqueous solution, 20°C)	~7.5–9.0 (near neutral to mildly alkaline)
Solubility in water at 20°C	Freely/highly soluble (hygroscopic solid)
Partition coefficient n-octanol/water	Not applicable (inorganic salt)
Decomposition temperature	Decomposes on strong heating, releasing SO&sub2;/sulphur species
Melting point/freezing point	Not precisely established for the anhydrous solid (read-across: melts with decomposition, consistent with related alkali thiosulfates)
Flammability	
Flash Point	Non-applicable (non-combustible)
Flammability (solid, gas)	Non-flammable
Autoignition temperature	Not applicable
Lower / Upper flammability limit	Not applicable
Particle Characteristics	
Median particle size	Solid grade only, grade dependent – available on request

Some physical constants for the anhydrous solid are not independently standardised in public literature and are derived by read-across from the closely related, well-characterised sodium thiosulfate (CAS 7772-98-7); exact grade-specific values (especially for liquid fertiliser-grade solutions) are available on request.

9.2 Other information:

Explosive properties	Not explosive
Oxidising properties	Not an oxidiser – mild reducing agent
Corrosive to metals	Not generally corrosive; may tarnish/react with copper and silver (characteristic reducing/complexing behaviour of thiosulfates)
Heat of combustion	Not applicable (non-combustible)
Surface tension	Not established (solution grade, available on request)
Viscosity	Not established (solution grade, available on request)

SECTION 10: STABILITY AND REACTIVITY

- 10.1 Reactivity:
- Reacts with strong acids to release sulphur dioxide and hydrogen sulphide gases with precipitation of elemental sulphur. Mild reducing agent – reacts with strong oxidisers, potentially vigorously with concentrated oxidisers.
- 10.2 Chemical stability:
- Chemically stable under normal conditions of storage, handling and use. Solid grade is hygroscopic.
- 10.3 Possibility of hazardous reactions:
- Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected, other than gas evolution on contact with strong acids.
- 10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Avoid strong heating	Not applicable	Avoid – hygroscopic (solid grade)

10.5 Incompatible materials:

Strong Acids	Strong Oxidisers	Copper / Silver
Avoid – releases SO&sub2;/H&sub2;S gases	Avoid – potentially vigorous reaction	May react/tarnish (complexing agent)

- 10.6 Hazardous decomposition products:
- Sulphur dioxide, hydrogen sulphide and elemental sulphur on contact with acids or strong heating. Non-hazardous under normal use.

SECTION 11: TOXICOLOGICAL INFORMATION

- 11.1 Information on toxicological effects:
- Potassium thiosulphate has a low order of toxicity, consistent with the well-documented low toxicity of the thiosulfate anion generally (read-across from sodium thiosulfate, CAS 7772-98-7, a closely related, extensively studied salt used medically and industrially).
- A. Ingestion (acute effect):
- Low acute oral toxicity. Large doses may cause mild gastrointestinal disturbance.
- B. Inhalation (acute effect):
- Dust or mist may cause mild, transient irritation of the nose, throat and respiratory tract.
- C. Contact with skin and eyes (acute effect):
- Not classified as a skin or eye irritant; concentrated solution or dust may cause mild, transient irritation.
- D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):
- Not classified as a carcinogen, mutagen or reproductive toxicant by IARC, OSHA, NTP or ACGIH.
- E. Sensitizing effects:
- Not known to be a skin or respiratory sensitizer.
- F. Specific target organ toxicity (STOT) – single exposure:
- Not classified.
- G. Specific target organ toxicity (STOT) – repeated exposure:
- Not classified.
- H. Aspiration hazard:
- Not applicable.
- Product-specific toxicological information:

Identification	Acute Toxicity	Genus
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Potassium Thiosulphate CAS: 10294-66-3	LD50 oral: >2,000 mg/kg (practically non-toxic; by read-across from sodium thiosulfate, CAS 7772-98-7, LD50 oral rat ~5,000 mg/kg)	Rat
	LD50 dermal: Not established	–

Substance-specific animal toxicity data for potassium thiosulphate are not extensively published; the value above is a conservative estimate derived by read-across from the closely related sodium salt, a standard and scientifically accepted practice for structurally analogous, well-characterised ionic species.

SECTION 12: ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment under GHS criteria; thiosulfate is readily oxidised in aerobic environments.

12.1 Toxicity:

Acute Toxicity	Species	Genus
LC50: >100 mg/L (96h, low order of aquatic toxicity, read-across from thiosulfate salts)	Non-applicable	Fish
EC50: Not established	Non-applicable	Crustacean

12.2 Persistence and degradability:

Not applicable in the organic-biodegradation sense – inorganic salt; thiosulfate is readily oxidised to sulphate under aerobic conditions in the environment.

12.3 Bioaccumulative potential:

Not expected to bioaccumulate (inorganic, highly water-soluble ionic species).

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Not relevant (ionic)	Not relevant	Highly mobile (soluble)	Highly mobile

12.5 Results of PBT and vPvB assessment:

Non-applicable – not a PBT or vPvB substance.

12.6 Other adverse effects:

As a fertiliser-related product, contributes potassium and sulphur nutrients to soil/water when used as intended; avoid uncontrolled large releases outside of agronomic application.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Dilute with large volumes of water and dispose of via authorized effluent treatment systems, or dispose of as non-hazardous chemical/solid waste, subject to local regulatory approval. Empty packaging can be recycled or disposed of as non-hazardous waste after ensuring it is empty of residue.
Refer to national and local regulations on waste management.

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023):

14.1 UN number	Not assigned – not regulated
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-hazardous for transport
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	None
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG):

14.1 UN number	Not assigned – not regulated
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-hazardous for transport
14.4 Packing group	N/A
14.5 Marine pollutant	No
14.6 Special precautions for user	None
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO):

14.1 UN number	Not assigned – not regulated
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-hazardous for transport
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	None
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question:

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation:

Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 (not applicable – non-hazardous)
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
Fertiliser Control Order, 1985 (where applicable to liquid fertiliser-grade product)

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3:

Not classified – no hazard statements allocated to this product.
The information provided is for informative purposes and refers to the substance identified in section 3.

Advice related to training:

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:

Publicly available chemical safety data for potassium thiosulphate (CAS 10294-66-3) and, where noted, read-across data for the closely related sodium thiosulfate (CAS 7772-98-7), including PubChem and standard industry safety data sheets.

Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer | PBT: Persistent, Bioaccumulative and Toxic | vPvB: very Persistent, very Bioaccumulative

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

END OF SAFETY DATA SHEET