

Safety Data Sheet

Material Name: Sodium Thiosulfate Pentahydrate, Technical Grade

ID: C1-153

*** Section 1 - Identification ***

Chemical Name: Sodium Thiosulfate Pentahydrate, Technical Grade

Product Use: For Commercial Use

RESTRICTIONS on USE

NOT TO BE USED AS A PESTICIDE. THIS PRODUCT IS NOT TO BE USED IN VIOLATION OF ANY PATENTS. CHEM ONE LTD. DISCLAIMS ANY AND ALL WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR APPLICATION. IN NO EVENT SHALL CHEM ONE LTD. OR ITS SUPPLIERS BE LIABLE FOR ANY DAMAGES WHATSOEVER INCLUDING DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL, LOSS OF BUSINESS PROFITS OR SPECIAL DAMAGES, EVEN IF CHEM ONE LTD. OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OF LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES SO THE FOREGOING LIMITATION MAY NOT APPLY.

Supplier Information

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Houston, Texas 77041-1104

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Fax: (713) 896-7540

Emergency # (800) 424-9300 or +1 (703) 527-3887

NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

*** Section 2 - Hazard(s) Identification ***

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Classification of the substance or mixture: Not a hazardous substance or mixture.

Label elements, including precautionary statements: Not a hazardous substance or mixture.

Hazards not otherwise classified (HNOC): May cause eye and skin irritation. Releases toxic, irritating gas at high temperatures. May cause allergic skin reactions.

*** Section 3 - Composition / Information on Ingredients ***

CAS #	Component	Concentration by weight
10102-17-7	Sodium Thiosulfate Pentahydrate	> 90

Synonyms: Chlorine control, Declor-it, Disodium thiosulfate, S-hydril, Sodium hyposulfite, Sodium oxide sulfide, Antichlor, Sodothiol, Sulfothiorine, Ametox

*** Section 4 - First Aid Measures ***

Emergency Overview

Sodium Thiosulfate Pentahydrate is a colorless solid found in crystalline or powder forms. May cause irritation to the eyes, skin, and mucous membranes of the upper respiratory tract. Keep material away from sodium nitrite and metal nitrates. Product is not combustible. Use extinguishing media appropriate for surrounding fire. Thermal decomposition of this product produces irritating vapors and toxic gases (e.g. sulfur oxides). At 100 degrees C, highly irritating sulfur dioxide gas is given off. Sulfur dioxide is toxic, corrosive, flammable and a strong oxidizer. Emergency responders should wear proper personal protective equipment for the releases to which they are responding.

Description of first aid measures:

In case of eye contact: In case of contact with eyes, rinse immediately with plenty of water for at least 20 minutes. Seek immediate medical attention.

In case of skin contact: Remove all contaminated clothing. For skin contact, wash thoroughly with soap and water for at least 20 minutes. Seek immediate medical attention if irritation develops or persists.

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In case of ingestion: DO NOT INDUCE VOMITING. If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to a victim who is unconscious or having convulsions. Contact a physician or poison control center immediately.

If inhaled: Remove source of contamination or move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Get immediate medical attention.

Symptoms and potential health effects:

Eyes: Exposure to particulates or solution of this product may cause irritation of the eyes with symptoms such as stinging, tearing, redness and pain.

Skin: This product can cause irritation of the skin, especially after prolonged exposures. Repeated skin contact may lead to dermatitis (red, cracked skin). In sensitive individuals, exposure to this product can cause allergic reaction.

Ingestion: Ingestion of this product (especially in large volumes) can irritate the tissues of the mouth, esophagus, and other tissues of the digestive system. Symptoms of exposure can include vomiting, diarrhea, and nausea and systemic effects of cyanosis. Large doses by ingestion can also have a cathartic action, causing diarrhea.

Inhalation: Breathing dusts or particulates generated by this product can lead to irritation of the nose, throat or respiratory system. Symptoms of such exposure could include coughing, sneezing, and chest discomfort. Inhalation of vapors and fumes given off when Sodium Thiosulfate Pentahydrate is heated above 100 degrees C, (sulfur dioxide gas) will cause significant irritation.

Notes to physician and special treatment:

Provide general supportive measures and treat symptomatically.

*** Section 5 - Fire Fighting Measures ***

General Fire Hazards

Heating this product above 100 degrees C will release hazardous sulfur dioxide gas. Explosion hazard with sodium nitrite and metal nitrites.

Hazardous Combustion Products

Sulfur dioxide gas.

Extinguishing Media

Use methods for the surrounding fire and other materials involved in the fire.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self-contained breathing apparatus. If possible control runoff from fire control or dilution water to prevent environmental contamination.

NFPA Ratings: Health Hazard: 2* Fire Hazard: 0 Instability Hazard: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

*** Section 6 - Accidental Release Measures ***

Personal precautions

Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. In case of large spills, follow all facility emergency response procedures. Remove soiled clothing and launder before reuse. Avoid all skin contact with the spilled material. Have emergency equipment readily available.

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Methods and materials for containment and clean-up

Stop the flow of material, if this can be done without risk. Contain the discharged material. If sweeping of a contaminated area is necessary use a dust suppressant agent, which does not react with product (see Section 10 for incompatibility information). Small releases can be cleaned-up wearing gloves, goggles and suitable body protection. In case of a large spill (in which excessive dusts can be generated), clear the affected area, protect people, and respond with trained personnel. Do not allow the spilled product to enter public drainage system or open water courses. Place all spill residues in an appropriate container and seal. Thoroughly wash the area after a spill or leak clean-up.

Environmental precautions

Prevent spill rinsate from contamination of storm drains, sewers, soil or groundwater.

*** Section 7 - Handling and Storage ***

Handling Procedures

All employees who handle this material should be trained to handle it safely. Do not breathe dust. Avoid all contact with skin and eyes. Avoid accumulation of dusts of this product. Use this product only with adequate ventilation. Wash thoroughly after handling.

Storage Procedures

Keep container tightly closed when not in use. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Storage areas should be made of corrosion- and fire-resistant materials. Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Use corrosion-resistant structural materials, lighting, and ventilation systems in the storage area. Floors should be sealed to prevent absorption of this material. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Have appropriate extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers).

Empty containers may contain residual particulates; therefore, empty containers should be handled with care. Do not cut, grind, weld, or drill near this container. Never store food, feed, or drinking water in containers that held this product. Keep this material away from food, drink and animal feed. Do not store this material in open or unlabeled containers. Limit quantity of material stored.

*** Section 8 - Exposure Controls / Personal Protection ***

Exposure Guidelines

A: General Product Information

Sulfur dioxide, which may be released at high temperatures, has an OSHA established exposure limit of 2 ppm TWA and 5 ppm STEL (15 minutes). NIOSH has recommended an exposure limit of 2 ppm TWA and has established a level of 100 ppm as Immediately Dangerous to Life and Health (IDLH).

B: Component Exposure Limits

ACGIH, OSHA, and NIOSH have not developed exposure limits for any of this product's components.

Component	CAS #	Value	Type/Regulation
Particulates Not Otherwise Classified	N/A	10 mg/m ³	ACGIH – TWA (inhalable fraction)
		3 mg/m ³	ACGIH – TWA (respirable fraction)
		15 mg/m ³	OSHA – TWA (total dust)
		5 mg/m ³	OSHA – TWA (respirable fraction)
		4 mg/m ³	DFG MAKs – TWA (inhalable fraction)
		1.5 mg/m ³	DFG MAKs – TWA (respirable fraction)

Engineering Controls

Use mechanical ventilation such as dilution and local exhaust. Use a corrosion-resistant ventilation system and exhaust directly to the outside. Supply ample air replacement.

PERSONAL PROTECTIVE EQUIPMENT

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132). Please reference applicable regulations and standards for relevant details.

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Personal Protective Equipment: Eyes/Face

Wear safety glasses (or goggles). . If necessary, refer to U.S. OSHA 29 CFR 1910.133.

Personal Protective Equipment: Skin

Wear impervious gloves, boots and coveralls to avoid skin contact. If necessary, refer to U.S. OSHA 29 CFR 1910.138.

Personal Protective Equipment: Respiratory

No specific guidelines are available. If airborne concentrations are above the applicable exposure limits, use NIOSH-approved respiratory protection. An approved dust and mist air-purifying respirator may be adequate. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

Personal Protective Equipment: General

Wash hands thoroughly after handling material. Do not eat, drink or smoke in work areas. Have a safety shower or eye-wash fountain available .

Protective Clothing Pictograms:



*** Section 9 - Physical & Chemical Properties ***

Physical Properties:

Physical State:	Solid
Appearance:	White crystalline or powder
Odor:	Odorless
Odor Threshold:	Not applicable
pH:	6.5 – 8.0 (1% solution)
Melting Point/Range:	48 °C (118 °F)
Boiling Point/Range:	Not applicable, decomposes
Flash Point:	Not applicable
Evaporation Rate:	Not applicable
Flammability:	Not flammable
Flammability/Explosive Limits:	Not applicable
Vapor Pressure:	Zero
Vapor Density:	Not applicable
Specific Gravity:	1.69
Solubility in Water:	42% by weight at 0 °C
Partition Coefficient:	Not determined
Autoignition Temperature:	Not applicable
Decomposition Temperature:	Above 100 °C
Viscosity:	Not applicable
Chemical Formula:	$\text{Na}_2\text{S}_2\text{O}_3 \cdot 5(\text{H}_2\text{O})$
Molecular Weight:	248.2
Softening Point:	Not applicable
Particle Size:	Not determined
Bulk Density:	Not determined
Heat of Combustion:	Not determined

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Additional Information

The data provided in this section are to be used for product safety handling purposes. Please refer to Product Data Sheets, Certificates of Conformity or Certificates of Analysis for chemical and physical data for determinations of quality and for formulation purposes

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

Product is normally stable in solid form. May be unstable in solution. Sodium Thiosulfate is hygroscopic; on exposure to air it will absorb water.

Conditions to Avoid

Avoid high temperatures, exposure to air, moisture and incompatible materials.

Incompatibility

This material is incompatible with strong oxidizers and acids. Sodium Thiosulfate can react violently with Sodium Nitrite. Sodium Thiosulfate is also incompatible with mercury and iodine.

Hazardous Decomposition

Sulfur oxides and hydrogen sulfide.

Hazardous Polymerization

Will not occur.

*** Section 11 - Toxicological Information ***

Acute and Chronic Toxicity

A: General Product Information

Poisonous by intravenous route. Mildly toxic by ingestion. Human systemic effects by ingestion, including cyanosis.

Chronic: Long term skin overexposure to this product may lead to dermatitis (red, itchy skin).

B: Component Analysis

Sodium Thiosulfate:

Route of Exposure	Test Type and Value
Oral:	TD _{Lo} (human) = 300 mg/kg, 7 days; pulmonary system effects
Inhalation:	Not determined
Dermal:	Not determined
Intraperitoneal:	LD ₅₀ (mouse) = 5600 mg/kg
Intravenous:	LD ₅₀ (mouse) = 2350 mg/kg LD _{Lo} (dog, adult) = 3000 mg/kg LD ₅₀ (rat) = > 2500 mg/kg

Carcinogenicity:

A: General Product Information

Sodium Thiosulfate is not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

B: Component Carcinogenicity

No information available.

Epidemiology

Prolonged skin contact may cause allergic skin reactions (allergic dermatitis).

Mutagenicity

No information available.

Teratogenicity

No information available.

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Other Toxicological Information

Thiosulfate occurs naturally in the body.

*** Section 12 - Ecological Information ***

Ecotoxicity

A: General Product Information

This compound may be harmful to aquatic life in high concentrations.

B: Aquatic Toxicity

No information available.

Persistence and degradability

No information available.

Bioaccumulative potential

No potential for food chain concentration.

Mobility in soil

No information available.

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

As shipped, this product is not considered a hazardous waste.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

All wastes must be handled in accordance with local, state and federal regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

*** Section 14 - Transportation Information ***

NOTE: The shipping classification information in this section (Section 14) is meant as a guide to the overall classification of the product. However, transportation classifications may be subject to change with changes in package size. Consult shipper requirements under I.M.O., I.C.A.O. (I.A.T.A.) and 49 CFR to assure regulatory compliance.

US DOT Information

Shipping Name: Not applicable.

Hazard Class: Not applicable

UN/NA #: Not applicable

Packing Group: Not applicable

Required Label(s): Not applicable RQ Quantity: Not applicable

International Air Transport Association (IATA) For Shipments by Air transport: Not considered hazardous.

International Maritime Organization (I.M.O.) Classification I.M.O. Classification: Not considered hazardous under IMDG regulations

*** Section 15 - Regulatory Information ***

US Federal Regulations

A: General Product Information

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CAS# 10102-17-7 is not on the TSCA Inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form is on the inventory (40CFR720.3(u)(2)). CAS# 7772-98-7 is listed on the TSCA inventory.

B: Component Analysis

Sodium Thiosulfate is not listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

SARA 302 There are no specific Threshold Planning Quantities for Sodium Thiosulfate. The default Federal MSDS submission (EHS TPQ) and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.

C: Sara 311/312 Tier II Hazard Ratings:

Component	CAS #	Fire Hazard	Reactivity Hazard	Pressure Hazard	Immediate Health Hazard	Chronic Health Hazard
Sodium Thiosulfate	10102-17-7	No	No	No	Yes	Yes

State Regulations

A: General Product Information

California Proposition 65

Sodium Thiosulfate is not on the California Proposition 65 chemical lists.

B: Component Analysis - State

Component	CAS #	CA	FL	MA	MN	NJ	PA
Sodium Thiosulfate	10102-17-7	No	No	No	No	No	No

Other Regulations

A: General Product Information

Not determined.

B: Component Analysis - Inventory

Component	CAS #	TSCA
Sodium Thiosulfate	10102-17-7	Exempted

Sodium Thiosulfate Pentahydrate is not on the TSCA inventory; as a hydrate of a listed compound (Sodium Thiosulfate), it is exempt from listing.

*** Section 16 - Other Information ***

Other Information

Chem One Ltd. ("Chem One") shall not be responsible for the use of any information, product, method, or apparatus herein presented ("Information"), and you must make your own determination as to its suitability and completeness for your own use, for the protection of the environment, and for health and safety purposes. You assume the entire risk of relying on this Information. In no event shall Chem One be responsible for damages of any nature whatsoever resulting from the use of this product or products, or reliance upon this Information. By providing this Information, Chem One neither can nor intends to control the method or manner by which you use, handle, store, or transport Chem One products. If any materials are mentioned that are not Chem One products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed. Chem One makes no representations or warranties, either express or implied of merchantability, fitness for a particular purpose or of any other nature regarding this information, and nothing herein waives any of Chem One's conditions of sale. This information could include technical inaccuracies or typographical errors. Chem One may make improvements and/or changes in the product (s) and/or the program (s) described in this information at any time. If you have any questions, please contact us at Tel. 713-896-9966 or E-mail us at Safety@chemone.com.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration

Revision Log

09/19/00 3:10 PM SEP Changed company name, Sect 1 and 16, from Corporation to Ltd.

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06/02/01 9:31 AM Checked exposure limits; made changes to Section 9; overall review, add SARA 311/312 Hazard Ratings.
09/30/03 11:00 PM HDF General review of entire MSDS. Up-graded Section 3 Health Hazard information, HMIS categories.
Update of PNOG exposure limits to Section 8. Up-Dated Section 14 Transportation Information.
08/26/04 11:23 AM HDF Revised Section 5 regarding reactivity with Sodium Nitrite
06/22/05 1:52 PM SEP Update IATA Section 14
10/22/07 4:37 PM SEP Updated IATA Section 14
10/15/08 10:26 AM DLY Changed Chem One Physical Address, Section 1
12/27/2010 2:58 PM SEP Updated IATA
02/09/2015 GHS Revision all sections
01/24/2018 Corrected TSCA section to reflect the regulation requirements of this chemical

This is the end of SDS # C1-153

Revised By:
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09/27/2018 Melanie Koch added NFPA section no other changes were made.
06/17/2019 Revised Sections 2, 4 and 9, removed ANSI Labeling.
04/15/2021 Modified format. Revised Section 15 information.