



FROM NATURE'S MINERALS TO PRODUCTS FOR OUR FUTURE

# Chemical Products Corporation SAFETY DATA SHEET

SDS No. 501

Page 1 of 10 Pages

Approval date September 1, 2022

## 1. PRODUCT IDENTIFIER

Sodium sulfide aqueous solution

### 1.1 Trade Name: Sodium Sulfide Solution

SYNONYMS: Sodium Sulphide Solution; Disodium Sulfide Solution.

Molecular formula -  $\text{Na}_2\text{S}$  dissolved in water

CAS No. 27610-45-3

### 1.2 Recommended industrial uses:

- Precipitation of metals from solution
- Manufacture of other substances
- Waste and wastewater treatment
- De-hairing agent in leather processing
- Pulp and paper manufacture
- Chemical and textile industrial processes

Industrial uses advised against: None.

### 1.3 Supplier of this SDS:

Chemical Products Corporation  
102 Old Mill Road SE  
Cartersville, Georgia 30120-4127  
Telephone: 1-770-382-2144

### 1.4 EMERGENCY PHONE NUMBER: CHEMTREC, 800-424-9300 (24 hours every day)

## 2. HAZARD IDENTIFICATION

### 2.1 Classification in accordance with paragraph (d) of §1910.1200

Acute toxicity, Oral (Category 3), H301

Skin Corrosion (Category 1B), H314

Causes serious eye damage (Category 1), H318

Substance or Mixture Corrosive to Metals (Category 1), H290

### 2.2 Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of §1910.1200.



Signal Word

**DANGER**

**CAUSES SEVERE SKIN BURNS AND EYE DAMAGE**



FROM NATURE'S MINERALS TO PRODUCTS FOR OUR FUTURE

Sodium Sulfide Solution

SDS No. 501

Page 2 of 10 pages

## Hazard Statements

- H290: May be corrosive to metals.
- H301: Toxic if swallowed.
- H314: Causes severe skin burns and eye damage.
- H318: Causes serious eye damage

## Precautionary Statements

### Prevention

- P260 Do not breathe dusts or mists.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

### Response

- P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
- P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
- P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
- P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
- P363 Wash contaminated clothing before reuse.
- P390 Absorb spillage to prevent material damage.

## 2.3 Other hazards not otherwise classified that have been identified during the classification process

- Contact with acids liberates toxic gas (Hydrogen Sulfide).
- Very toxic to aquatic life

---

---

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

<u>COMPONENT</u>	<u>CAS #</u>	<u>EXPOSURE LIMITS</u>	<u>% BY WT</u>
Sodium Sulfide	1313-82-2	No ACGIH TLV or OSHA PEL established for Sodium Sulfide.  For Hydrogen Sulfide gas: OSHA PEL - 20 ppm. ACGIH TLV-TWA - 10 ppm	ca 10 -12
Water	7732-18-5		ca 88 - 90

---

---



## 4. FIRST AID MEASURES

### 4.1 Description of necessary first-aid measures

In case of inhalation - Move to fresh air. Oxygen or artificial respiration if needed. Victim to lie down in the recovery position, cover and keep him warm. Call a physician immediately.

In case of skin contact - Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water. Keep warm and in a quiet place. Call a physician or poison control center immediately. Wash contaminated clothing before re-use.

In case of eye contact - Call a physician or poison control center immediately. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Take victim immediately to hospital. In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine).

In case of ingestion - Call a physician or poison control center immediately. Take victim immediately to hospital. If swallowed, rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Artificial respiration and/or oxygen may be necessary.

### 4.2 Most important symptoms and effects, both acute and delayed

In case of inhalation – mist is corrosive to mucus membranes.

Effects – mist or dust will cause painful burns to the respiratory tract.

In case of skin contact - Redness - Swelling of tissue – Painful burns.

Effects - Corrosive

In case of eye contact - Redness - Lachrymation – Painful burns.

Effects - May cause irreversible eye damage. - May cause blindness.

In case of ingestion - Nausea - Abdominal pain - Bloody vomiting - Diarrhea -

Effects - severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

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

- This product is highly alkaline and corrosive to mucus membranes. Causes painful burns.

Notes to physician – Treat as caustic burns. Ingestion can release toxic hydrogen sulfide when contacted with stomach acid.

---

## 5. FIRE FIGHTING MEASURES

**General Hazard:** POISON, FLAMMABLE HYDROGEN SULFIDE GAS WILL BE EVOLVED FROM THIS PRODUCT ON EXPOSURE TO ACID. If this product loses its water under fire conditions and burns, toxic sulfur oxide gases will be produced. Hydrogen sulfide may collect in confined spaces above this solution.

Hydrogen sulfide forms flammable mixtures with air from about 4% up to about 45%.



FROM NATURE'S MINERALS TO PRODUCTS FOR OUR FUTURE

Sodium Sulfide Solution

SDS No. 501

Page 4 of 10 pages

### **5.1 Suitable (and unsuitable) extinguishing media.**

- Suitable extinguishing media: Water, foam, powder
- Unsuitable extinguishing media: Carbon dioxide (CO<sub>2</sub>) – toxic hydrogen sulfide gas may be released.

### **5.2 Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products).**

- If this product is involved in a fire, toxic sulfur oxide gases may be produced if all water is lost and remaining solid sodium sulfide burns.
- Poison, flammable hydrogen sulfide gas will be evolved from this product on exposure to acid.

### **5.3 Special protective equipment and precautions for fire-fighters.**

- Exposure to decomposition products may be a hazard to health.
- In the event of fire, wear self-contained breathing apparatus.
- Use personal protective equipment.
- Wear chemical resistant oversuit.
- Cool containers/tanks with water spray.
- Prevent fire extinguishing water containing this product from contaminating surface water or the ground water system.

---

---

## **6. ACCIDENTAL RELEASE MEASURES**

### **6.1 Personal precautions, protective equipment and emergency procedures**

- Advice for emergency responders - Isolate the area. Wear self-contained breathing apparatus and protective suit.
- Advice for non-emergency personnel - Prevent further leakage or spillage if safe to do so. Contain spilled liquid, absorb it to form a solid, sweep/scoop up and dispose.
- Discharge into the environment must be avoided. Do not flush into surface water or sanitary sewer system.

### **6.2 Methods and materials for containment and cleaning up**

- After absorbing spill liquid, pick up and arrange disposal without creating dust.
- Keep in suitable, closed containers for disposal.

---

---

## **7. HANDLING AND STORAGE**

### **7.1 Precautions for safe handling**

**General:** Put a vapor trap or scrubber on tank vent.

- Ensure adequate ventilation when handling this product.
- Avoid splashing
- Wear chemical safety goggles and safety shield for protection from splashing when handling.
- Do not store near acids.
- Keep away from heat.
- Provide eye wash bottles or eye wash stations in compliance with applicable standards.



FROM NATURE'S MINERALS TO PRODUCTS FOR OUR FUTURE

Sodium Sulfide Solution  
SDS No. 501  
Page 5 of 10 pages

## 7.2 Conditions for safe storage, including any incompatibilities

- Do not store in contact with copper, zinc, or aluminum.
- Poison hydrogen sulfide gas can be present in the vapor space above sodium sulfide solution and in tanks which have contained this product. Use fresh air breathing apparatus when entering tanks.
- Preferred material of construction for storage tanks is stainless steel; however, carbon steel is acceptable.

**- Keep away from incompatible products – acids and strong oxidizers**

---

---

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Value (TLV)

No data available for this product.

### 8.2 Appropriate engineering controls.

- Adequate ventilation is required to remove any mist or vapors which may be present. Any mist formed is toxic and corrosive. Safety shower and eye-wash fountain should always be available in the work area.

### 8.3 Individual protection measures, such as personal protective equipment.

- Use a NIOSH-approved dust mask if any mist is present. Cover exposed skin areas and wear general-purpose gloves. Wear chemical goggles if any mist is present and safety shield if product may splash into eyes. Use self-contained breathing apparatus or supplied-air respirator if the PEL for hydrogen sulfide might be exceeded.

---

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance: Yellow to amber colored liquid.
- Odor: "Rotten egg" odor.
- Odor threshold: Not Known.
- pH: approximately 12.5 – HIGHLY ALKALINE
- Melting point/freezing point: about -5 °C for this aqueous solution.
- Initial boiling point and boiling range: About 105°C increasing as water is evaporated
- Flash point: Not applicable.
- Evaporation Rate: Not known
- Upper/lower flammability or explosive limits: Not known.
- Vapor Pressure: Not known.
- Vapor Density: Not known.



FROM NATURE'S MINERALS TO PRODUCTS FOR OUR FUTURE

- Relative density (Specific Gravity): about 1.17 at 20 °C
- Solubility in Water: Complete.
- Partition coefficient: n-octanol/water: Not known.
- Auto-ignition temperature: Not applicable.
- Decomposition temperature: Not known.
- Viscosity: Not known.

---

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

- Reacts with acids to release toxic hydrogen sulfide gas. May react with strong oxidizing agents to release toxic sulfur dioxide gas.
- Corrosive to metals.

### 10.2 Chemical Stability

- Stable under recommended storage conditions.

### 10.3 Possibility of Hazardous Reactions

- Corrosive in contact with metals. Contact with acids liberates toxic gas.

### 10.4 Conditions to avoid (e.g., static discharge, shock, or vibration)

- Keep away from flames and hot surfaces.
- Keep away from copper, zinc, and aluminum.

### 10.5 Incompatible materials

- Acids, strong oxidizers, copper, zinc, aluminum.

### 10.6 Hazardous decomposition products

- Hazardous Sulfur oxides decomposition products may form under fire conditions.
- Toxic hydrogen sulfide released if pH of this solution drops.

---

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact)

- Most likely route of exposure to this corrosive liquid is skin contact.

### 11.2 Symptoms related to the physical, chemical and toxicological characteristics

This product is extremely destructive to mucous membranes; painful chemical burns on exposure of the upper respiratory tract, eyes, and skin. Painful chemical burns result from ingestion, inhalation, or skin or eye contact.

### **11.3 Delayed and immediate effects and also chronic effects from short- and long-term exposure**

- Immediate effects are corrosion/irritation.
- Specific target organ toxicity - STOT  
STOT-single exposure - not classified as specific target organ toxicant, single exposure according to GHS criteria.  
STOT-repeated exposure - not classified as specific target organ toxicant, repeated exposure according to GHS criteria.
- Experience with human exposure: No data available

### **11.4 Numerical measures of toxicity (such as acute toxicity estimates)**

For sodium sulfide, CAS # 1313-82-2, which constitutes 10-12% of this product-  
Dermal - LD<sub>50</sub> Rabbit < 340 mg/kg  
Oral - LD<sub>50</sub> Rat 208 mg/kg

### **11.5 Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA.**

- **IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
- **ACGIH:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
- **NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- **OSHA:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

---

## 12. ECOLOGICAL INFORMATION

### 12.1 Ecotoxicity

#### **- Very toxic to aquatic life.**

Fish: LC<sub>50</sub> - 96 h: 0.0027 mg/l

Test substance: Hydrogen sulfide (by analogy)

Crustaceans: Fresh water EC<sub>50</sub> - 96 h : 0.02 mg/l

Salt water EC<sub>50</sub> - 96 h : 0.032 mg/l

Test substance: Hydrogen sulfide (by analogy)





FROM NATURE'S MINERALS TO PRODUCTS FOR OUR FUTURE

- Toxicity to aquatic plants  
Algae, Nitzschia linearis: EC50 - 120 h: 1,900 mg/l fresh water  
By analogy

### 12.2 Persistence and degradability

- No data available. Only the strength of this product contributes to its environmental toxicity. Dilution yields only naturally-occurring chemical species. Sulfide is part of the naturally-occurring sulfur cycle and is present throughout the lithosphere.

### 12.3 Bioaccumulative potential

- No data available. No appreciable bioconcentration is expected in the environment.

### 12.4 Mobility in soil

- No data available. Considerable solubility and mobility expected.

### 12.5 Other adverse effects

- No data available. Sulfide ion reacts with oxygen; waters containing sulfide ions will be depleted of dissolved oxygen.

---

---

## 13. DISPOSAL CONSIDERATIONS

- Any disposal practice must be in compliance with local, state, and federal laws and regulations.
- Where possible recycling is preferred to disposal or incineration.
- Use a Ferric Chloride solution to precipitate sulfur and ferrous sulfide, then filter and send the cake to a landfill for industrial waste.

---

---

## 14. TRANSPORT INFORMATION

D.O.T. Shipping Name:  
Corrosive liquid, basic, inorganic, n.o.s. (Sodium sulfide solution)

Technical Shipping Name.....: Sodium Sulfide Solution

D.O.T. Hazard Class.....: 8 - Corrosive. Packing Group II.

U.N./N.A. Number.....: UN 3266.

Product R.Q. (lbs).....: None

D.O.T. Label.....: CORROSIVE.

D.O.T. Placard.....: CORROSIVE.





FROM NATURE'S MINERALS TO PRODUCTS FOR OUR FUTURE

Sodium Sulfide Solution  
SDS No. 501  
Page 9 of 10 pages

Freight Class Bulk.....: Inorganic chemical.

Freight Class Package.....: Inorganic chemical.

Product Label.....: Sodium Sulfide Solution.

Marine pollutant: No

Poison Inhalation Hazard: No

IMDG

UN number: 3266

Class:8 Packing group: II

Proper shipping name:

Corrosive liquid, basic, inorganic, n.o.s. (Sodium sulfide solution)

Marine pollutant: No

IATA

UN number: 3266 Class:8 Packing group: II

Proper shipping name:

Corrosive liquid, basic, inorganic, n.o.s. (Sodium sulfide solution)

---

---

## 15. REGULATORY INFORMATION

OSHA Status: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard, 29 CFR 1910.1200. It's GHS classification is: Corrosive to Metals, Category 1; Acute toxicity (oral), Category 3; Skin corrosion, Category 1B; and Serious eye damage, Category 1.

TSCA Status.....: Sodium sulfide is listed on TSCA Inventory as ACTIVE

CERCLA Reportable Quantity...: No.

SARA Title III:

Section 302: Extremely Hazardous Substances....: None.

Section 311/312: Hazard Categories:

Physical hazard - Corrosive to Metals

Health Hazards

- Acute toxicity

- Skin corrosion or irritation

- Serious eye damage or eye irritation



Section 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

RCRA Status: If discarded in its purchased form, this product should be expected to be a D003 reactive hazardous waste because of its sulfide content. Under RCRA, it is the responsibility of the product user to determine, at the time of disposal, whether a waste containing the product, or derived from the product, should be classified as a hazardous waste under 40 CFR 261.20-24.

## 16. OTHER INFORMATION

**NFPA Rating** (National Fire Protection Association):

- Health - 2** (Materials which on intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given)
- Fire - 1** (Materials which must be preheated before ignition can occur)
- Reactivity - 1** (Materials that are normally stable, but become explosive at elevated temperatures and pressure.)

**Special - NA**

**Reason for Issue**..... : Review and reapproval.

**Prepared by**..... : Jerry A. Cook.

**Title**..... : Technical Director.

**Approval Date**..... : September 1, 2022.

**Supersedes Date**.....: June 2, 2015.

**MSDS Number**.....: 501.

---

**Disclaimer:** The information contained herein is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions; it does not represent any guarantee of the properties of the product. Chemical Products Corporation makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances. The data on this sheet relates only to the specific material designated herein. Chemical Products Corporation assumes no legal responsibility for use or reliance upon these data.