

CHEMICAL PRODUCTS CORPORATION

SAFETY DATA SHEET

SDS No. 49A

February 8, 2019

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1. PRODUCT IDENTIFIER

Product Name: **Sodium Sulfide Flake**

Trade Name: **Sodium Sulfide Flakes - 60-62%**

Sodium Sulfide, Hydrated with not less than 30% water

SYNONYMS: Sodium Sulfide Hydrated; Disodium Sulfide hydrate.

RECOMMENDED USES: - For industrial use to precipitate metals from solution
- 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
P.O. Box 2470
Cartersville, Georgia 30120-1688
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

Corrosive to Metals, Category 1	H290: May be corrosive to metals.
Acute toxicity, Category 3	H301: Toxic if swallowed.
Skin corrosion, Category 1B	H314: Causes severe skin burns and eye damage.
Serious eye damage, Category 1	H318: Causes serious eye damage.

2.2 Signal word, hazard statement(s), symbol(s) and precautionary statement(s)



Signal Word **DANGER**
CAUSES SEVERE SKIN BURNS AND EYE DAMAGE

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

- P234 Keep only in original container.
- 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 and P301 + P330 + P331
IF SWALLOWED: Rinse mouth. **Do NOT induce vomiting.**
Immediately call a POISON CENTER/doctor.
- P303 + P361 + P353
IF ON SKIN (or hair): Take off immediately all contaminated clothing.
Rinse SKIN with water [or shower].
- P304 + P340 + P310
IF INHALED: Immediately call a POISON CENTER or doctor.
Remove person to fresh air and keep comfortable for breathing.
- 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.

Storage

- P404 Store in a closed container.
- P406 Store in corrosive resistant container.

Disposal

- P501 Dispose of contents/ container to an approved waste disposal plant.

Additional Hazards

- Contact with acids liberates toxic gas (Hydrogen Sulfide).
- Dust is corrosive to the respiratory tract.
- Toxic to aquatic life

3. COMPOSITION / INFORMATION ON INGREDIENTS

<u>COMPONENT</u>	<u>CAS #</u>	<u>Concentration</u>
Sodium Sulfide, hydrate	27610-45-3	90-95%
Sodium Hydrosulfide, hydrated	207683-19-0	5-10%
Thiosulfuric acid (H ₂ S ₂ O ₃), sodium salt (1:2)	7772-98-7	1-5%
Carbonic acid, sodium salt (1:2)	497-19-8	1-5%

4. FIRST AID MEASURES

Show this safety data sheet to the doctor in attendance.

4.1 Description of necessary first-aid measures

Ingestion: **Get immediate medical assistance.** Rinse mouth and have victim drink as much milk or water as possible. Do not induce vomiting. Take victim immediately to hospital. Never give anything by mouth to an unconscious person. Artificial respiration and/or oxygen may be necessary.

Inhalation: Move victim to fresh air and call a physician immediately. Begin artificial respiration or give oxygen immediately if necessary. Begin CPR immediately if necessary.

Eye Contact: Call Physician and take victim immediately to hospital. Flush eyes with large quantities of water for at least 15 minutes, including under the eyelids. If opening the lids is difficult, administer an analgesic eye wash (oxybuprocaine).

Skin Contact: Call a physician or poison control center immediately and flush skin with large quantities of water after removing contaminated clothing and shoes. Keep victim warm and wash contaminated clothing before reuse.

4.2 Most important symptoms and effects, both acute and delayed

In case of inhalation

Symptoms

- irritation

Effects

- No hazards to be specially mentioned.

In case of skin contact

Symptoms

- Redness
- Swelling of tissue
- Burn

Effects

- Corrosive

In case of eye contact

Symptoms

- Redness
- Excessive tear production
- Swelling of tissue
- Burn

Effects

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

In case of ingestion

Symptoms

- Nausea
- Abdominal pain
- Bloody vomiting
- Diarrhea
- Suffocation
- Cough
- Severe shortness of breath

Effects

- If ingested, 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

- Address chemical burns from the high alkalinity of this product.
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5. FIRE FIGHTING MEASURES

5.1 Suitable (and unsuitable) extinguishing media.

- Dry powder is the preferred extinguishing media; foam is acceptable.
- Avoid CO₂ fire extinguishers
- Use of water can result in highly alkaline run-off

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. 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.

- Wear self-contained breathing apparatus for firefighting.
-

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment, and emergency procedures.

- Keep this product away from acids because toxic hydrogen sulfide gas will be generated.

- Exposure to gaseous decomposition products can be a hazard to health. Sulfur oxides may be generated in a fire situation.
- 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 from contaminating surface water or the ground water system.**

6.2 Methods and materials for containment and cleaning up.

- Do not let product enter drains. Discharge into the environment must be avoided. Pick up and arrange disposal without creating dust. Do not flush with water. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

- Ensure adequate ventilation. Keep container tightly closed in a dry and well-ventilated place. Keep product away from water.
- Keep away from heat.
- Keep away from incompatible products – acids and strong oxidizers.

Hygiene measures

- Eye wash bottles or eye wash stations in compliance with applicable standards should be readily available.
- When using do not eat, drink or smoke.
- Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities.

- Store in original container.
- Keep in a well-ventilated place.
- Keep in a dry place.
- Keep in properly labeled containers.
- Keep container closed.
- Keep away from heat.
- Avoid dust formation.
- Keep away from incompatible products

Suitable Packaging material: Steel drum or Polyethylene

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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

-No established PEL or TLV for sodium sulfide, hydrated with 30% or more water.

8.2 Appropriate engineering controls.

- Provide appropriate exhaust ventilation at places where dust is formed.

8.3 Individual protection measures, such as personal protective equipment.

- **Respiratory protection**

- In case of insufficient ventilation, wear suitable respiratory equipment.
- When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- In case of decomposition (see section 10), face mask with combined type B-P3 cartridge.
- Use only respiratory protection that conforms to international/national standards.
- Use NIOSH approved respiratory protection.

Hand protection

- chemical resistant gloves

Suitable material

- PVC
- Neoprene
- Natural Rubber

Eye protection

- Goggles

Skin and body protection

- Dust impervious protective suit
- Apron
- Boots

Suitable material

- Neoprene
- PVC

Hygiene measures

- Eye wash bottles or eye wash stations in compliance with applicable standards.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Form: flakes

Physical state: solid

Color: yellow

Particle size: 3,500 µm

d 50

Odor odorless rotten-egg like slight

Odor Threshold No data available

pH: Highly alkaline. No data available.

Melting point/Freezing point: about 1,200 °C (2,192 °F)

Initial boiling point and boiling range: No data available.

Flash point: No data available.

Evaporation rate: No data available.

Flammability (solid, gas): No data available.

Upper/lower flammability or explosive limits: No data available.

Vapor pressure: No data available.

Vapor density: No data available.

Relative density – Specific Gravity: about 4.2 at 20 °C (68 °F).

Solubility: about 8 grams per 100 ml of water at 21 °C (70 °F) – soluble.

Partition coefficient: n-octanol/water: No data available.

Auto-ignition temperature: No data available.

Decomposition temperatures: No data available.

Viscosity: No data available.

Molecular weight 132.09 g/mol

pH 12.9 (1 %)

13.1 saturated aqueous solution

Melting point/freezing point Melting point/range: 156 - 199 °F (69 - 93 °C) (ca. 747.81 mmHg (997 hPa))

Initial boiling point and boiling range Boiling point/boiling range:

Not applicable

Flash point Not applicable, inorganic

Evaporation rate (Butylacetate = 1) Not applicable, inorganic

Flammability (solid, gas) The product is not flammable.

Flammability / Explosive limit Explosiveness:

Not explosive

Autoignition temperature > 806 °F (> 430 °C)

Vapor pressure Not applicable, inorganic

Vapor density Not applicable, inorganic

Density

Relative density 1.64 (70 °F (21 °C))

Solubility Water solubility:

178 g/l (68 °F (20 °C))

Solubility in other solvents:

Alcohol : slightly soluble

Partition coefficient: n-octanol/water Not applicable, inorganic

Decomposition temperature Not applicable

Viscosity Viscosity, dynamic : Solid form, Not applicable

Explosive properties No data available

Oxidizing properties Not considered as oxidizing.

9.2 Other information

Corrosion of Metals Corrosive to metals

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.

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.

10.5 Incompatible materials

- Carbon dioxide (CO₂)
- Acids
- Oxidizing agents
- Metals

10.6 Hazardous decomposition products

- Sulfur oxides under oxidizing/very high temperature/fire conditions
- Hydrogen Sulfide (H₂S) in contact with acids or acid gases such as CO₂.
- Other decomposition products - No data available

11. TOXICOLOGICAL INFORMATION

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

- No data available. Skin contact expected to be most likely exposure.

11.2 Symptoms related to the physical, chemical and toxicological characteristics

Acute toxicity

- Acute oral toxicity - This product is classified as acute toxicity category 3
Disodium sulfide (hydrate) LD₅₀: 246 mg/kg - Rat, male and female
Method: OECD Test Guideline 401
- Acute inhalation toxicity - Corrosive to the respiratory tract.
- Acute dermal toxicity - No data available
Disodium sulfide (hydrate)
- Acute toxicity (other routes of administration)
No data available

Skin corrosion/irritation

Disodium sulfide (hydrate) - Corrosive

Serious eye damage/eye irritation

Disodium sulfide (hydrate) - Corrosive

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

Respiratory or skin sensitization - No data available

Mutagenicity

- Genotoxicity in vitro
Disodium sulfide (hydrate) - Ames test with and without metabolic activation
Method: OECD Test Guideline 471 - negative
- Gene mutation assays in mammalian cells - Strain: mouse lymphoma cells with and without metabolic activation
Method: OECD Test Guideline 476 - negative
- Genotoxicity in vivo
Disodium sulfide (hydrate) In vivo micronucleus test – Intraperitoneal route
Mouse, male and female - Method: OECD Test Guideline 474 - negative
- Carcinogenicity - No data available

This product does not contain any ingredient designated as probable or suspected human carcinogens by:

NTP

IARC

OSHA

Toxicity for reproduction and development

- Toxicity to reproduction / fertility
Disodium sulfide (hydrate) - By analogy - Test substance, Hydrogen sulfide
Reproduction / developmental toxicity screening test - Rat, male and female
Inhalation
Method: OECD Test Guideline 421 - Fertility NOAEL Parent: 80 ppm
- Developmental Toxicity/Teratogenicity
Disodium sulfide (hydrate) - By analogy - Test substance, Hydrogen sulfide
Inhalation
Method: OECD Test Guideline 421 - Teratogenicity NOAEL:80ppm

Specific target organ toxicant

- Single exposure - disodium sulfide (hydrate) is not classified as a specific target organ toxicant according to GHS criteria.
- Repeated exposure - disodium sulfide (hydrate) is not classified as specific target organ toxicant according to GHS criteria.

Experience with human exposure - No data available

Aspiration toxicity - No data available

11.4 Numerical measures of toxicity (such as acute toxicity estimates) - No data available.

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.

- 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 (aquatic and terrestrial, where available)

- Very toxic to aquatic life. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Fish: LC50 - 96 h: 0.0027 mg/l

Test substance: Hydrogen sulfide (by analogy)

Crustaceans: Fresh water EC50 - 96 h : 0.02 mg/l

Salt water EC50 - 96 h : 0.032 mg/l

Test substance: Hydrogen sulfide (by analogy)

- Toxicity to aquatic plants

EC50 - 4 h : 0.104 mg/l - Skeletonema costatum (marine diatom)

Salt 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. Very toxic to aquatic organisms. Product fate is highly dependent on environmental conditions: pH, temperature, redox potential, mineral and organic content of the medium.

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.....: Sodium sulfide, hydrated.

Technical Shipping Name.....: Sodium sulfide flakes – 60-62%

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

U.N./N.A. Number.....: UN 1849.

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

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

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

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

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

Product Label.....: Sodium Sulfide Flakes – 60-62%

Marine pollutant: No

Poison Inhalation Hazard: No

IMDG

UN number: 1849

Class: 8 Packing group: II EMS-No: F-A, S-B

Proper shipping name: SODIUM SULPHIDE, HYDRATED

Marine pollutant: No

IATA

UN number: 1849 Class: 8 Packing group: II

Proper shipping name: Sodium sulphide, hydrated

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.....: Listed on TSCA Inventory as ACTIVE

CERCLA Reportable Quantity.....: None

(For minor constituent, Sodium hydrosulfide, CAS #16721-80-5, the 5000 lb RQ exceeds a reasonably attainable upper limit)

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 - 3 | (Materials that can affect health or cause serious injury, during periods of short exposure, even though prompt medical treatment is given) |
| Fire - 1 | (Materials that must be strongly heated before ignition will occur) |
| Reactivity - 1 | (Materials that are normally stable, but become explosive at elevated temperatures and pressure) |

Special - NA

Reason for Issue..... : 29 CFR 1910 compliance.

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

Title..... : Technical Director.

Approval Date..... : February 8, 2019

Supersedes Date.....: May 12, 2016.

MSDS Number.....: 49A

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