SAFETY DATA SHEET

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1. Identification

Product Name **Sodium hydrosulfide (liquid)**

Synonyms Hydrogenosulfuredesodium(french);Hydrogenosulfuredesodium;anhydre.

Recommended Use It is used for manufacturing sulfide dyes, leather depilating agents, metal smelting, photography, rayon denitration, etc. It is widely used in tanning, papermaking, mineral processing, dye production, organic intermediates, printing and dyeing, pharmacy, monosodium glutamate, man-made fiber, special engineering plastics, as well as sodium hydrosulfide, sodium polysulfide, sodium thiosulfate, etc. it also has certain applications in military industry.

Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

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2. Hazard(s) identification

Classification

WHMIS 2015 Classification Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

Autothermal substances and mixtures	Category 2
Acute toxicity - oral	Category 3
Skin corrosion / irritation	Category 1
Severe eye injury / eye irritation	Category 1
Specific target organ toxicity - one contact	Category 2
Specific target organ toxicity - one contact (Respiratory tract irritation) hazard to	Category 3
Aquatic environment - acute hazard	Category 1

Label Elements

Signal Word
Danger
Hazard Statements
Self-heating; may catch fire
May be corrosive to metals
Toxic if swallowed

Causes severe skin burns and eye damage
Contact with acids liberates toxic gas
Corrosive to the respiratory tract

Precautions:

Preventive measures: keep low temperature and protect from the sun. Do not breathe dust or smoke. Keep away from kindling and heat sources. Smoking is strictly prohibited in the workplace. Avoid contact with eyes and skin and wash thoroughly after operation. Only operate outdoors or with good ventilation. Wear protective gloves / protective clothing / protective glasses / protective mask. Do not eat, drink or smoke when using this product. Avoid release into the environment.

Accident response: in case of leakage, use a clean shovel to collect the solid in a dry, clean and covered container. In case of skin contact, take off the contaminated clothes immediately and rinse with a large amount of flowing water for at least 15 minutes. The contaminated clothes can be reused after cleaning. See a doctor. In case of eye contact, lift the eyelids immediately and rinse thoroughly with a large amount of flowing water or normal saline for at least 15 minutes. If you wear contact lenses and can take them out easily, take out the contact lenses and continue to rinse. Inhale and quickly leave the site to a place with fresh air. Keep the respiratory tract unobstructed. If breathing is difficult, give oxygen. If breathing stops, perform artificial respiration immediately. See a doctor. If swallowing, rinse your mouth with water and drink milk or egg white, do not induce vomiting. See a doctor.

Safe storage: space shall be left between stacks / pallets. It shall be stored in a cool and ventilated warehouse. Keep away from fire and heat source. It shall be stored separately from strong oxidants, acids, zinc, aluminum, copper and their alloys, and mixed storage shall not be allowed. The storage place shall be locked.

Waste disposal: refer to relevant national and local regulations before disposal.

Physicochemical hazard: aqueous solution is a strong alkali, which reacts violently with acid and is corrosive. When heated, the substance decomposes to form sulfur oxides. When contacting with water, the substance decomposes into hydrogen sulfide. Corrode metal. React with strong oxidant to form sulfur oxide.

Health hazard: strong irritation to eyes, skin, mucous membrane and respiratory tract. Inhalation can cause spasm, inflammation and edema of larynx and bronchus, chemical pneumonia and pulmonary edema. Poisoning and symptoms can include burning sensation, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Direct contact with eyes can cause irreversible damage and even blindness.

Environmental hazards: no data available.

Other hazards: This product is non flammable, highly corrosive and irritant, and can cause burns to human body.

3. Composition/Information on Ingredients

Component	CAS-No	Concentration
Sodium hydrosulfide	16721-80-5	28～42%

4. First-aid measures

Skin Contact	Take off contaminated clothes immediately and rinse with a large amount of flowing water for 20 ~ 30 minutes. If you feel unwell, see a doctor.
Eye Contact	Lift the eyelids immediately and rinse thoroughly with a large amount of flowing water or normal saline for at least 15 minutes. See a doctor.
Inhale	Quickly leave the site to a place with fresh air. Keep the respiratory tract unobstructed. If breathing is difficult, give oxygen. If breathing stops, carry out artificial respiration immediately and seek medical attention.
Ingestion	Rinse with water, do not induce vomiting. See a doctor

Most important symptoms/effects:inhalation can cause spasm, inflammation and edema of larynx and bronchus, chemical pneumonia or pulmonary edema, and direct contact with eyes can cause irreversible damage or even blindness.

Advice to protect rescuers: Rescuers entering the accident scene should wear acid-base resistant gloves and protective glasses.

5. Fire-fighting measures

Special danger: It can cause decomposition in case of open fire and high heat. Hydrogen sulfide gas is released to cause poisoning, and explosive mixed gas can be formed with air.

Exinguishing method and extinguishing agent: Use fog water, foam, dry powder, carbon dioxide and sand to extinguish fire.

Precautions and protective measures for fire fighting: Firefighters must wear full-body fire and poison proof clothing, positive pressure air respirator and portable hydrogen sulfide alarm and stand in the upwind to extinguish the fire. Cut off the source of leakage as much as possible. Avoid staying in low-lying areas.

6. Accidental release measures

Protective measures, protective equipment and emergency disposal procedures for operators:

Quickly evacuate personnel from the leakage contaminated area to the safe area, isolate them, and strictly restrict access. Cut off the fire source. It is recommended that emergency treatment personnel wear self-contained positive pressure respirator and protective clothing. Cut off the source of leakage as much as possible.

Environmental protection measures:
Prevent from flowing into restricted spaces such as sewers and flood discharge ditches.

Storage and removal methods of leaked chemicals and disposal materials used:
Small leakage: wash with a large amount of water, dilute the washing water and put it into the wastewater system. Massive leakage: build a dike or dig a pit for reception. Transfer to tank car or special collector by pump, recycle or transport to waste treatment site for disposal.

7. Handling and storage

Operation precautions: closed operation, local exhaust. Operators must receive special training and strictly abide by the operating procedures. It is recommended that operators wear protective masks, protective clothing and rubber acid-base resistant gloves. Keep away from kindling and heat sources. Smoking is strictly prohibited in the workplace. Use explosion-proof ventilation system and equipment. Prevent smoke or dust from leaking into the air of the workplace. Avoid contact with strong oxidants and acids. Load and unload with care during handling to prevent damage to packaging and containers. Do not eat, drink or smoke when using this product. Provide corresponding varieties and quantities of fire-fighting equipment and leakage emergency treatment equipment. Emptied containers may leave harmful substances.

Storage precautions: store in a cool and ventilated warehouse. Keep away from fire and heat source. It shall be stored separately from strong oxidants, acids, zinc, aluminum, copper and their alloys, and mixed storage shall not be allowed. Explosion proof lighting and ventilation facilities shall be adopted. It is forbidden to use mechanical equipment and tools that are easy to produce sparks. The storage area shall be equipped with leakage emergency treatment equipment and appropriate receiving materials.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.
Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles
Hand Protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Glove material	Breakthrough time	Glove thickness	Glove comments
Wear rubber acid and alkali resistant gloves	See manufacturers recommendations	-	Splash protection only

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls

Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance and properties:	Colorless or light yellow, green yellow or orange red liquid.
PH value:	11.5
Melting point (℃):	52.54
Boiling point (℃):	decomposition
Relative density (water = 1):	1.21
Relative steam density (air = 1	no data
Critical pressure (MPA):	no data
Octanol / water partition coefficient:	- 3.5
Flash point (℃):	90
Ignition temperature (℃):	no data
Lower explosive limit (%):	no data
Upper explosion limit (%):	no data
Solubility:	soluble in water, ethanol, ether, etc.

10. Stability and reactivity

Stability:	Stable
Prohibited compounds:	Strong oxidants and acids.
Conditions to avoid contact:	Heat and light.
Decomposition products:	Hydrogen sulfide and sodium sulfide.

Hazardous Decomposition Products Thermal decomposition can lead to release of irritating gases and vapors

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Oral LD50 Category 3. ATE = 194 mg/kg. ATE = 50 - 300 mg/kg.

Dermal LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Mist LC50 Based on ATE data, the classification criteria are not met. ATE > 5 mg/l.

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium hydrosulfide	LD50 = 96 mg/kg (Rat)	Not listed	LC50 = 1500 mg/m³ (Rat) 14 min
Water	-	-	-
Sodium sulfide	LD50 = 86 mg/kg (Rat)	Not listed	Not listed
Sodium thiosulfate	LD50 > 5000 mg/kg (Rat)	Not listed	Not listed

Sodium hydrosulfide

Disodium carbonate	2800 mg/kg (Rat)	> 2000 mg/kg (rabbit)	2.3 mg/l 2h (Rat)

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Sodium hydrosulfide	16721-80-5	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Sodium thiosulfate	Not listed	LC50: = 24000 mg/L, 96h static (Gambusia affinis)	Not listed	Not listed
Disodium carbonate	EC50: = 242 mg/L, 120h (Nitzschia)	Lepomis macrochirus: LC50: 300 mg/L/96h Gambusia affinis: LC50: 740 mg/L/96h	-	EC50: = 265 mg/L, 48h (Daphnia magna)

Persistence and Degradability Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

Component	log Pow
Sodium hydrosulfide	-3.5

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No	UN2949
Proper Shipping Name	SODIUM HYDROSULFIDE
Hazard Class	8
Packing Group	II

TDG

UN-No	UN2949
Proper Shipping Name	SODIUM HYDROSULFIDE
Hazard Class	8
Packing Group	II

IATA

UN-No	UN2949
Proper Shipping Name	SODIUM HYDROSULPHIDE HYDRATE
Hazard Class	8
Packing Group	II

IMDG/IMO

UN-No	UN2949
Proper Shipping Name	SODIUM HYDROSULPHIDE, HYDRATED
Hazard Class	8
Packing Group	II

15. Regulatory information

International Inventories

Component	DSL	NDSL	TSCA	EINECS	ELINCS	PICCS	ENCS	AICS	KECL	IECSC
Sodium hydrosulfide	X	-	X	240-778-0	-	X	X	X	KE-05-1193	X

Legend

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
ENCS - Japanese Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances

Canada

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

16. Other information

Prepared By Regulatory Affairs

Shandong Huayou Chemical Co., LTD

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS