SAFETY DATA SHEET

SODIUM SULPHIDE

CAS No.: 1313-82-2

This Safety Data Sheet is issued by Suraj Chemicals as the distributor/supplier of record, based on manufacturer and published GHS / regulatory reference data for this substance. Users should also consult the specific manufacturer's SDS where available.

1. IDENTIFICATION

GHS Product identifier

SODIUM SULPHIDE
Sodium Sulfide Flakes, Sodium Sulphide (Yellow/Red Flakes, ~60-62% Na_2S), Disodium Sulfide, Sodium Sulfide Hydrate
CAS: 1313-82-2

Other means of identification

Not relevant

Recommended use of the chemical and restrictions on use

Relevant uses: Leather tanning/unhairing agent, dye and pigment manufacture, pulp and paper (kraft process), water treatment (heavy metal precipitation), photographic chemicals, ore flotation (depressant/activator), textile processing. For industrial user only.

Uses advised against: All uses not specified in this section or in section 7.3. Not for food, pharmaceutical or uncontrolled domestic use.

Supplier's details

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2. HAZARDS IDENTIFICATION

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), based on the harmonised/standard classification for sodium sulphide (technical flake grade, water of crystallisation <30%).

Water-react. 1	Substances which, in contact with water, emit flammable gases, Category 1, H260
Acute Tox. 4	Acute oral toxicity, Category 4, H302
Skin Corr. 1B	Skin corrosion, Category 1B, H314
Eye Dam. 1	Serious eye damage, Category 1, H318
Aquatic Acute 1	Hazardous to the aquatic environment, acute hazard, Category 1, H400

GHS label elements, including precautionary statements

GHS: Danger

Hazard statements

Water-react. 1: H260 – In contact with water releases flammable gases which may ignite spontaneously.
Acute Tox. 4: H302 – Harmful if swallowed.
Skin Corr. 1B: H314 – Causes severe skin burns and eye damage.
Eye Dam. 1: H318 – Causes serious eye damage.
Aquatic Acute 1: H400 – Very toxic to aquatic life.

Precautionary statements

P223: Keep away from any possible contact with water, because of violent reaction and possible flash fire.
P231+P232: Handle under inert gas / Protect from moisture. Protect from moisture.
P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water.
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER/doctor.
P370+P378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction. Do NOT use water on the material itself.
P391: Collect spillage.
P405: Store locked up.
P501: Dispose of contents/container in accordance with local regulations on hazardous waste.

Other hazards which do not result in classification

Contact with acids (including dilute mineral or organic acids) liberates toxic and flammable hydrogen sulfide gas. Freshly opened containers/solutions may evolve H_2S; this hazard is not separately GHS-classified for the solid but must be controlled by ventilation (see Sections 7 and 8). Not identified as PBT/vPvB.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical description: Sodium Sulphide (technical flake grade, sold as hydrate with declared minimum Na_2S content, commonly 60-62%)

In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 1313-82-2	Sodium sulphide – Water-react. 1: H260; Acute Tox. 4: H302; Skin Corr. 1B: H314; Eye Dam. 1: H318; Aquatic Acute 1: H400 – Danger	Min. 60% (as Na_2S), balance water of crystallisation and minor sulphate/thiosulphate impurities

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

Mixtures

Non-applicable

4. FIRST AID MEASURES

Description of necessary first-aid measures

Request medical assistance immediately, showing the SDS of this product.

By inhalation

Remove the person affected to fresh air immediately and keep at rest. If hydrogen sulfide exposure is suspected (rotten-egg odour, then odour fatigue), evacuate the area at once. In serious cases such as respiratory failure, apply artificial resuscitation and seek immediate medical assistance.

By skin contact

Remove contaminated clothing and footwear immediately. Rinse skin thoroughly with plenty of water for at least 15 minutes. Seek medical attention – may cause severe caustic burns.

By eye contact

Rinse eyes thoroughly with lukewarm water for at least 15 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Seek immediate medical attention – may cause serious, permanent eye damage.

By ingestion/aspiration

Rinse mouth with water. Do NOT induce vomiting (risk of further burns and H_2S release in the stomach). Give water to drink if the person is conscious. Seek immediate medical attention/call a poison centre.

Most important symptoms/effects, acute and delayed

Severe caustic burns to skin, eyes and mucous membranes. Ingestion or contact with acid can generate hydrogen sulfide, which is toxic by inhalation (headache, dizziness, respiratory irritation, and at high concentration, unconsciousness). See sections 2 and 11.

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

Treat symptomatically as for a caustic alkali burn. If hydrogen sulfide inhalation is suspected, treat as for H_2S poisoning; give oxygen and seek specialist advice.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Suitable: Dry sand, dry chemical powder, alcohol-resistant foam.
Unsuitable: Do NOT use water jets directly on the material – contact with water/moisture liberates flammable, toxic hydrogen sulfide gas which may ignite spontaneously.

Specific hazards arising from the chemical

Reacts with water/moisture to liberate flammable and toxic hydrogen sulfide gas, which may ignite spontaneously in air. Combustion/decomposition may generate sulfur oxides (SO_x) and hydrogen sulfide fumes.

Special protective actions for fire-fighters

Evacuate all non-essential personnel. Wear self-contained breathing apparatus and full chemical-protective clothing. If safe to do so, remove undamaged containers from the fire area. Fight fire from a protected/upwind position; avoid direct water application onto the solid product.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Evacuate the area, ventilate well, and keep away from moisture/water and acids. Avoid contact and inhalation of dust or fumes. Use PPE per Section 8.

For emergency responders

Wear full protective equipment including respiratory protection. Keep unprotected persons away and upwind.

Environmental precautions

Prevent entry into drains, watercourses and soil – very toxic to aquatic life. Notify relevant authorities in case of significant release.

Methods and materials for containment and cleaning up

Keep dry. Sweep up carefully using clean, dry tools and place in a dry, appropriately labelled, sealed container. Do not flush spillage to drain. Ventilate the area during and after cleanup to disperse any hydrogen sulfide generated.

Reference to other sections

See sections 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling

A. General precautions for safe use

Keep strictly away from water, moisture and acids. Handle in a well-ventilated area. Avoid generation of dust.

B. Technical recommendations for the prevention of fires and explosions

Keep containers tightly closed and dry. Store away from ignition sources, acids and oxidisers. Monitor storage/dissolving areas for hydrogen sulfide with a suitable gas detector.

C. Technical recommendations on general occupational hygiene

Do not eat, drink or smoke while handling. Wash hands and exposed skin thoroughly after handling.

D. Technical recommendations to prevent environmental risks

Prevent product and dissolving-tank effluent from entering drains or watercourses without appropriate treatment/neutralisation.

Conditions for safe storage, including any incompatibilities

A. Specific storage requirements

Minimum Temp.	5°C
Maximum Temp.	30°C
Maximum time (unopened, original packaging)	6–12 Months

B. General conditions for storage

Store in a cool, dry, well-ventilated area, off the ground, in tightly closed containers, away from moisture, acids and incompatible materials (Section 10.5).

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.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

No specific Indian OEL is separately notified for sodium sulphide dust under the Factories Act, 1948. Where hydrogen sulfide (H_2S) may be evolved (e.g. dissolving tanks, acid contact), control to the recognised H_2S limits below:

Identification	Occupational Exposure Limit Type	Value
Hydrogen sulfide (evolved gas) CAS: 7783-06-4	Time Weighted average concentration (8 hrs)	1 ppm / 1.4 mg/m³
	Short-term exposure limit (15 min)	5 ppm / 7 mg/m³
Sodium sulphide dust (inert/nuisance basis) CAS: 1313-82-2	General dust (as total inhalable dust, no substance-specific OEL notified)	Available on request – apply good industrial hygiene/local exhaust ventilation

Appropriate engineering controls

Use local exhaust ventilation at dissolving tanks and dusty operations to control both dust and any hydrogen sulfide evolved. Consult manufacturer's leaflet for storage, use, cleaning and maintenance of PPE.

B. Respiratory protection

Dust respirator for routine handling of flakes/powder. Full-face respirator with acid-gas cartridge, or SCBA, where hydrogen sulfide evolution is possible (spills, acid contact, confined spaces).

C. Specific protection for the hands

Chemical-resistant gloves (PVC, neoprene, or nitrile rubber).

D. Eye and face protection

Chemical splash goggles and face shield.

E. Bodily protection

Chemical-resistant apron or coveralls; closed protective footwear.

F. Additional emergency measures

Emergency shower and eyewash station should be available near handling/dissolving areas. Portable H_2S gas detector recommended in confined or poorly ventilated work areas.

Environmental exposure controls

Avoid environmental spillage of both the product and its container. See subsection 7.1.D.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	
Physical state at 20°C	Solid (flakes)
Appearance	Flakes
Color	Yellow to brick-red/dark red
Odor	Sulfurous (rotten egg-like, from trace H_2S)
Odour threshold	Not relevant *
Volatility	
Boiling point at atmospheric pressure	Non-applicable (decomposes before boiling)
Vapour pressure at 20°C / 50°C	Not relevant *
Evaporation rate at 20°C	Not relevant *
Product Description	
Density (solid, anhydrous basis)	Approx. 1.43 g/cm³
Dynamic / Kinematic viscosity	Non-applicable (solid)
Concentration	Min. 60% Na_2S (technical flake grade)
pH (1% aqueous solution)	Approx. 12–13 (strongly alkaline)
Vapour density at 20°C	Not relevant *
Partition coefficient n-octanol/water 20°C	Not relevant (inorganic salt)
Solubility in water at 20°C	Fully soluble (exothermic dissolution)
Decomposition temperature	Decomposes on strong heating; hydrate melts/loses water of crystallisation approx. 90–100°C
Melting point/freezing point	Approx. 950°C (anhydrous Na_2S); commercial flake grade softens/dehydrates well below this
Flammability	
Flash Point	Non-applicable (solid, not a liquid)
Flammability (solid, gas)	Not flammable itself, but in contact with water/moisture emits flammable hydrogen sulfide gas
Autoignition temperature	Not relevant *
Lower / Upper flammability limit	Not relevant for the solid *
Particle Characteristics	
Median equivalent diameter	Available on request (flake size grade dependent)

** Not relevant due to the nature of the product, not providing information on the properties of its hazards.*

Other information

Explosive properties	Not explosive by itself; risk of flash fire from H_2S evolved on wetting
Oxidising properties	Not oxidising – sodium sulphide is a reducing agent
Corrosive to metals	Corrosive/tarnishing to copper, brass and other non-ferrous metals; causes pitting corrosion in the presence of moisture
Heat of combustion	Not relevant *
Surface tension at 20°C	Not relevant *
Refraction index	Not relevant *

10. STABILITY AND REACTIVITY

Reactivity

Reacts with water/moisture and rapidly with acids to release flammable and toxic hydrogen sulfide gas. Reacts with oxidising agents. Corrosive to copper and copper alloys.

Chemical stability

Stable when kept dry, cool and tightly sealed. Hygroscopic – absorbs moisture from air and slowly oxidises on prolonged exposure.

Possibility of hazardous reactions

Contact with acids or strong oxidisers can cause vigorous/hazardous reactions releasing hydrogen sulfide and, in the case of oxidisers, potential fire.

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Gradual oxidation/hygroscopic absorption	Accelerates decomposition/oxidation	No particular effect	Avoid contact with moisture – H_2S release risk

Incompatible materials

Water / Moisture	Acids	Oxidising Agents	Copper & Copper Alloys
Releases flammable, toxic H_2S; may ignite spontaneously	Vigorous reaction, releases H_2S	Risk of vigorous reaction/fire	Corrosion/tarnishing

Hazardous decomposition products

Hydrogen sulfide, sulfur oxides (on combustion), sodium oxides.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect)

Harmful if swallowed. Causes severe caustic burns to the mouth, throat, oesophagus and stomach; may release hydrogen sulfide internally.

B. Inhalation (acute effect)

Dust may irritate the respiratory tract. If hydrogen sulfide is evolved (contact with moisture/acid), inhalation is toxic and may cause headache, dizziness, respiratory irritation and, at high concentration, rapid unconsciousness.

C. Contact with skin and eyes (acute effect)

Causes severe skin burns and serious, potentially irreversible eye damage on direct contact, particularly in the presence of moisture.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity)

Classification criteria for carcinogenicity, mutagenicity and reproductive toxicity are not met based on available data.

E. Sensitizing effects

Classification criteria for respiratory or skin sensitisation are not met based on available data.

F. Specific target organ toxicity (STOT) – single exposure

Not classified for the solid; hydrogen sulfide evolved on wetting is a recognised acute respiratory/systemic hazard (see 11.1.B).

G. Specific target organ toxicity (STOT) – repeated exposure

Classification criteria are not met based on available data.

H. Aspiration hazard

Classification criteria are not met based on available data.

Product-specific toxicological information

Identification	Acute Toxicity	Genus
Sodium sulphide CAS: 1313-82-2	LD50 oral: 208 mg/kg	Rat
	LD50 dermal: Available on request	–

12. ECOLOGICAL INFORMATION

Very toxic to aquatic life.

Toxicity

Acute Toxicity	Species	Genus
LC50: approx. 3–5 mg/L (96h, literature range)	Non-applicable	Fish
EC50: approx. 2–4 mg/L (48h, literature range)	Non-applicable	Crustacean (Daphnia)

Persistence and degradability

Readily oxidises in aerobic aqueous/soil environments to sulfate and other sulfur species; not expected to persist in its original form.

Bioaccumulative potential

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

Mobility in soil

Koc	Henry	Dry Soil	Moist Soil
Not relevant	Not relevant	Soluble/mobile	Reacts, oxidises

Results of PBT and vPvB assessment

Non-applicable (inorganic substance)

Other adverse effects

Deoxygenation of receiving water bodies can occur due to the reducing/oxygen-demanding nature of sulphide; avoid any discharge to watercourses.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Do not discharge to drains untreated. Oxidise/neutralise residues under controlled conditions (e.g. with hydrogen peroxide or hypochlorite, under professional supervision) before disposal, or hand over to a licensed hazardous waste contractor. Do not reseal contaminated material in the original container.

Refer to national and local regulations on waste management.

14. TRANSPORT INFORMATION

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

14.1 UN number	UN1385
14.2 UN proper shipping name	SODIUM SULPHIDE, HYDRATED, with not less than 30% water
14.3 Transport hazard class(es)	4.2 (Labels: 4.2, 8)
14.4 Packing group	II
14.5 Environmental hazard	Yes
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG 41-22)

14.1 UN number	UN1385
14.2 UN proper shipping name	SODIUM SULPHIDE, HYDRATED, with not less than 30% water
14.3 Transport hazard class(es)	4.2 (Labels: 4.2, 8)
14.4 Packing group	II
14.5 Marine pollutant	Yes
14.6 Special precautions for user	EmS Codes: F-A, S-B | Stow away from acids
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024)

14.1 UN number	UN1385
14.2 UN proper shipping name	SODIUM SULPHIDE, HYDRATED, with not less than 30% water
14.3 Transport hazard class(es)	4.2 (Labels: 4.2, 8)
14.4 Packing group	II
14.5 Environmental hazard	Yes
14.6 Special precautions for user	Forbidden on passenger aircraft in certain quantities – consult current IATA DGR
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

15. REGULATORY INFORMATION

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
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996
Water (Prevention and Control of Pollution) Act, 1974
Public Liability Insurance Act, 1991

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

H260: In contact with water releases flammable gases which may ignite spontaneously.
H302: Harmful if swallowed.
H314: Causes severe skin burns and eye damage.
H318: Causes serious eye damage.
H400: Very toxic to aquatic life.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear 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

The United Nations Economic Commission for Europe (UNECE); publicly available GHS classification and physical/toxicological reference data for CAS 1313-82-2.

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 | BCF: Bioconcentration factor | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Koc: Partition coefficient of organic carbon | PBT: Persistent, Bioaccumulative, Toxic | vPvB: very Persistent, very Bioaccumulative

Disclaimer: 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.

(This document is computer generated and therefore does not require any signature.)