

## **Iran Sodium Sulphide Company (ISSC)**

*Sodium Sulfide (Hydrated) or Sodium Sulphide (Hydrated) Flake 60 ± 2%*

### **SECTION 1: Identification of the substance/mixture and of the company/undertaking**

#### **1.1 Product identifiers**

**Product name:** Sodium Sulfide Hydrated or Sodium Sulphide Hydrated

**Brand:** ISSC

**CAS-No. :** 27610-45-3

#### **1.2 Details of the supplier of the safety data sheet**

**Company:** Iran Sodium Sulphide Company (ISSC)

**Telephone:** +98-21-8859-4432

**Fax:** +98-21-8859-4436

**E-mail address:** sale [ @ ] irss-co.co

#### **1.3 Emergency telephone number**

**Emergency Phone No. :** +98-21-55202537

### **SECTION 2: Hazards identification**

#### **2.1 Classification of the substance or mixture**

**Classification according to Regulation (EC) No 1272/2008**

**Corrosive to metals** (Category 1), H290

**Acute toxicity, Oral** (Category 3), H301

**Skin corrosion** (Category 1B), H314

**Acute aquatic toxicity** (Category 1), H400

**For the full text of the H-Statements mentioned in this Section, see Section 16.**

**Classification according to EU Directives 67/548/EEC or 1999/45/EC**

**C      Corrosive                      R34R31**

**N**      **Dangerous for the Environment**                      **R50**

**Xn**      **Harmful**                                      **R22**

\*For the full text of the R-phrases mentioned in this Section, see Section 16.

## 2.2 Label elements

Labeling according Regulation (EC) No 1272/2008

Pictogram



**Signal word**      Danger

### **Hazard statement(s)**

- H290**    May be corrosive to metals.
- H301**    Toxic if swallowed.
- H314**    Causes severe skin burns and eye damage.
- H400**    Very toxic to aquatic life.

### **Precautionary statement(s)**

- P273**    Avoid release to the environment.
- P280**    Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P301 +**
- P310**    IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
- 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 or doctor/ physician.

### **Supplemental Hazard information (EU)**

- EUH031**      Contact with acids liberates toxic gas.
- EUH071**      Corrosive to the respiratory tract.

**2.3 Other hazards - none**

**SECTION 3: Composition/information on ingredients****3.1 Substances**

**Formula:** Na<sub>2</sub>S · xH<sub>2</sub>O  
**Molecular Weight:** 78.05 g/mol (anhydrous) (~130 g/mol , 60%)  
**CAS-No. :** 27610-45-3  
**EC-No. :** 215-211-5

CAS#	Component	%
1313-82-2	Sodium sulphide non-hydrated	54
16721-80-5	Sodium hydrogensulphide non-hydrated	6-7.5
-	Sodium carbonate+Sodium sulphate	2-2.5
7732-18-5	water	38 – 40

Commercial Sodium Sulfide Hydrate is a concentrated mixture of several hydrated forms. Its appearance is yellow flakes containing 60 ± 2% Sodium Sulfide. The CAS # 1313-82-2 is for Sodium Sulfide, Anhydrous. Sometimes in literature, the CAS # for Sodium Sulfide Non hydrated is used (CAS # 1313-84-4) as Na<sub>2</sub>Si<sub>9</sub>H<sub>20</sub>.

**Hazardous ingredients according to Regulation (EC) No 1272/2008**

Component	Classification	Concentration
Sodium sulphide hydrate		
	Met. Corr. 1; Acute Tox. 3; Skin Corr. 1B; Aquatic Acute 1; H290, H301, H314, H400, EUH031, EUH071	-

**Hazardous ingredients according to Directive 1999/45/EC**

Component	Classification	Concentration
Sodium sulphide hydrated		
	Xn, C, N, R22 - R31 - R34 - R50	-

**SECTION 4: First aid measures****4.1 Description of first aid measures****General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance.

**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.

**In case of skin contact**

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Hazardous ingredients according to Directive 1999/45/EC

**If swallowed**

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.

**Notes to Physician**

Provide general supportive measures. Consult nearest Poison Control Center for all exposures except minor instances of inhalation or skin contact. Amyl nitrite or sodium nitrite, although controversial, have been recommended as antidotes for hydrogen sulfide exposure by preventing severe anoxia.

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

The most important known symptoms and effects are described in the labeling (see section 2.2).

**SECTION 5: Firefighting measures****5.1 General Fire Hazards**

Product will burn when exposed to heat or flame. Caution: Fire may produce toxic gases. Product gives off flammable vapors that may form an explosive mixture with air. Closed containers subject to heat may explode. Once moist, this compound may self-ignite upon drying in air. It is important to note that large dust clouds of this product have the potential to ignite explosively.

**5.2 Special hazards arising from the substance or mixture**

Sulfur oxides and disodium oxide. Releases hydrogen sulfide on contact with water and under fire conditions.

**5.3 Extinguishing Media**

Use flooding quantities of water. Use water to cool fire-exposed containers. Do not use carbon dioxide. Use foam or powder.

**5.3.1 Extinguishing Media which shall not be used for safety reasons**

- Water & Carbon dioxide

**5.4 Fire Fighting Equipment/Instructions**

Firefighters should wear full protective clothing. Move containers from fire area, if this is without risk. Fight fire from a safe distance.

**5.5 NFPA Ratings: Health Hazard: 3 Fire Hazard: 1 Physical Hazard: 1 Other:**

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

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**6.2 Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains, rivers or lakes. Discharge into the environment must be avoided.

**6.3 Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Do not flush with water. Keep in suitable, closed containers for disposal.

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Never allow product to get in contact with water during storage. Do not store near acids. Product is sensitive to light and moisture.

**7.3 Specific end use(s)**

Laboratory chemicals, Manufacture of substances.

## **SECTION 8: Exposure controls/personal protection**

### **8.1 General Product Information**

If hydrogen sulfide is produced during the handling of sodium sulfide, follow the applicable exposure limit for this gas. The ACGIH TWA for hydrogen sulfide is 14 mg/m<sup>3</sup>. The ACGIH STEL for hydrogen sulfide is 21 mg/m<sup>3</sup>.

#### **The exposure limits given are for Hydrogen Sulfide.**

ACGIH: 10 (NIC = 5) ppm, TWA (NIC = Notice of Intended Change)  
15 ppm, STEL  
OSHA: 20 (ceiling), ppm, STEL  
50 ppm (ceiling), 10 minute peak, once per shift, STEL  
NIOSH : 10 ppm (ceiling), 10 minutes, STEL  
DFG MAKs: 10 ppm, TWA  
2 MAK, 10 minute momentary value, PEAK

### **8.2 Control parameters**

Components with workplace control parameters

### **8.3 Exposure controls**

#### **Appropriate engineering controls**

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

#### **Personal protective equipment**

##### **Eye/face protection**

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### **Skin protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.

Wash and dry hands.

##### **Body Protection**

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

##### **Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

##### **Control of environmental exposure**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

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.

<b>Appearance</b>	Lightly brown Flake (turns gray upon exposure to light and air)
<b>Odor</b>	Hydrogen sulfide(rotten egg, low)
<b>Physical State</b>	Solid
<b>pH</b>	Strongly alkaline
<b>Vapor Pressure</b>	Not applicable
<b>Vapor Density</b>	Not applicable
<b>Boiling Point</b>	Not applicable
<b>Melting Point</b>	194 deg F (90 deg C)
<b>Solubility (H2O)</b>	18 g/100 ml water @ 25 deg C
<b>Specific Gravity</b>	1.427 @ 16 deg C (water = 1)
<b>Freezing Point</b>	Not applicable
<b>Particle Size</b>	Not determined
<b>Softening Point</b>	Not applicable
<b>Evaporation Rate</b>	Not applicable
<b>Viscosity</b>	Not applicable
<b>Percent Volatile</b>	Not available
<b>Relative Density</b>	1.61 g/cc @ 25 deg C
<b>Chemical Formula</b>	Na <sub>2</sub> S•3H <sub>2</sub> O; Na <sub>2</sub> S•xH <sub>2</sub> O
<b>Molecular Weight</b>	78.05g/ml as Na <sub>2</sub> S (anhydrous)

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Contact with acids liberates toxic gas.

### 10.2 Chemical stability

Moderately stable. Aqueous solutions and moist solid may slowly give off hydrogen sulfide gas.

### 10.3 Conditions to avoid

Avoid contact with water, heat, ignition, CO<sub>2</sub> and percussion sources, and incompatible materials listed below under "Incompatibility". Finely divided material may explode in air.

### 10.4 Incompatible materials

Acids - releases highly toxic and flammable hydrogen sulfide. Oxidizing agents - can react violently and form sulfur dioxide. Diazonium salts - react explosively. N,N-Dichloromethylamine - reacts explosively. Carbon - reaction releases heat. Contact with water releases hydrogen sulfide. Sodium Sulfide is incompatible with combustible materials.

### 10.5 Hazardous decomposition products

Sulfur oxides and disodium oxide. Releases hydrogen sulfide on contact with water and under fire conditions.

## **SECTION 11: Toxicological information**

### **11.1 Information on toxicological effects**

Sodium Sulfide Hydrated is corrosive and may cause severe irritation and possibly burns to the skin, eyes, respiratory tract, and digestive system. A 25-27% solution of sodium sulfide hydrated caused skin corrosion in rabbits when exposed to the skin for 4 hours. Effects of exposure (inhalation, ingestion, or skin contact) may be delayed. Ingestion may result in decomposition to hydrogen sulfide in stomach, with subsequent systemic poisoning. Frequent exposure to low concentrations leads to tolerance, but exposure to high concentrations may cause sensitization reactions (sulfides). Probable oral lethal dose (human) is 50-500 mg/kg. Severe overexposure to hydrogen sulfide gas (produced when sodium sulfide contacts water or in fire conditions) may result in memory loss, paralysis of facial muscles, nerve damage, pulmonary edema, unconsciousness, or death.

#### **B: Component Analysis - LD50/LC50**

##### **Sodium sulfide (1313-82-2)**

Oral LD50 Mouse: 205 mg/kg; Oral LD50 Rat: 208 mg/kg; Intraperitoneal LD50 147 mg/kg

#### **B: Component Analysis - TDLo/LDLo**

##### **Sodium sulfide (1313-82-2)**

Inhalation LCLo Rat 2 mg/kg 17 weeks-intermittent; Behavioral: changes in motor activity (specific assay); Blood: pigmented or nucleated red blood cells; Nutritional and Gross Metabolic: weight loss or decreased weight gain

#### **Carcinogenicity**

##### **A: General Product Information**

Information not available.

##### **B: Component Carcinogenicity**

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

##### **Epidemiology**

Information not available.

##### **Neurotoxicity**

Information not available.

##### **Mutagenicity**

Information not available.

##### **Teratogenicity**

Information not available.

##### **Other Toxicological Information**

None

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Acute toxicity

- Fishes, LC50, 96 h, 0,0027 mg/l (Hydrogen sulphide)
- Fishes, *Lepomis macrochirus*, NOEC, 826 Days, 0,0046 mg/l (Hydrogen sulphide)
- Crustaceans, EC50, 96 h, 0,02 mg/l (Fresh water) (Hydrogen sulphide)
- Crustaceans, EC50, 96 h, 0,032 mg/l (Marine water) (Hydrogen sulphide)

#### Chronic toxicity

- Amphipod (*Eohaustorius estuarius*), LOEC, 48 h, 1,92 mg/l (Hydrogen sulphide)
- Amphipod (*Eohaustorius estuarius*), LC50, 3,32 mg/l (Hydrogen sulphide)
- Algae, *Nitzscheria linearis*, EC50, 120 h, 1.900 mg/l (Sodium sulfate) Remarks: fresh water
- Algae, *Skeletonema costatum*, EC50, 4 h, 0,104 mg/l (Sodium sulfide) Remarks: salt water

### 12.2 Persistence and degradability

no data available

### 12.3 Bioaccumulative potential

no data available

### 12.4 Mobility

Mobile in soil and also has mobility in air as solid particles (micrometer size).

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

Very toxic to aquatic life.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

#### Contaminated packaging

Dispose of as unused product.

## SECTION 14: Transport information

### 14.1 UN number

ADR/RID: 1849  
IMDG: 1849  
IATA: 1849

### 14.2 UN proper shipping name

ADR/RID: SODIUM SULPHIDE, HYDRATED  
IMDG: SODIUM SULPHIDE, HYDRATED  
IATA: Sodium sulphide, hydrated



**14.3 Transport hazard class (es)**

ADR/RID: 8  
 IMDG: 8  
 IATA: 8

**14.4 Packaging group**

ADR/RID: II  
 IMDG: II  
 IATA: II

**14.5 Environmental hazards**

ADR/RID: yes  
 IMDG Marine pollutant: yes  
 IATA: no

**14.6 Special precautions for user**

no data available

**SECTION 15: Regulatory information****15.1 Inventory information**

The following components appear on one or more of the following hazardous substances lists:

Component	CAS#	TSCA	DSL	EINECS	AICS	ENCS	IECS
Sodium Sulfide Hydrated	27610-45-3	NO	NO	NO	NO	NO	NO
Sodium Sulfide	1313-82-2	YES	YES	YES	YES	YES	YES

- TSCA: Toxic Substances Control Act (USA)
- DSL: Domestic Substances List (Canada)
- EINECS: EU list of existing chemical substances
- AICS: Inventory of Chemical Substances (Australia)
- ENCS: Inventory of Existing & New Chemical Substances (Japan)
- IECS: Inventory of Existing Chemical Substances (China)

**SECTION 16: Other information****Full text of H-Statements referred to under sections 2 and 3.**

**Acute Tox.** Acute toxicity  
**Aquatic Acute** Acute aquatic toxicity  
**EUH031** Contact with acids liberates toxic gas.  
**EUH071** Corrosive to the respiratory tract.  
**H290** May be corrosive to metals.  
**H301** Toxic if swallowed.  
**H314** Causes severe skin burns and eye damage.  
**H400** Very toxic to aquatic life.  
**Met. Corr.** Corrosive to metals  
**Skin Corr.** Skin corrosion

**Full text of R-phrases referred to under sections 2 and 3**

**C** Corrosive  
**N** Dangerous for the environment  
**Xn** Harmful  
**R22** Harmful if swallowed.  
**R31** Contact with acids liberates toxic gas.  
**R34** Causes burns.  
**R50** Very toxic to aquatic organisms