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

1.1 Product identifier
- Trade name: SODIUM SULFIDE (solution)
- Chemical Name: Disodium sulfite
- Molecular formula: Na2S

1.2 Relevant identified uses of the substance or mixture and uses advised against

Uses of the Substance / Mixture
- Tanning agents
- Water treatment

1.3 Details of the supplier of the safety data sheet

Company
SOLVAY & CPC BARIUM STRONTIUM MONTERREY, S. DE R.L. DE C.V.  CARRETERA A GARCIA KM. 8.5
66000, GARCIA, NUEVO LEON, MEXICO
MEXICO
Tel: +52-81-81502900
Fax: +52-81-81502918

1.4 Emergency telephone

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CONTACT: CHEMTREC 800-424-9300 within the United States and Canada, or 703-527-3887 for international collect calls.

SECTION 2: Hazards identification

Although OSHA has not adopted the environmental portion of the GHS regulations, this document may include information on environmental effects.

2.1 Classification of the substance or mixture

HCS 2012 (29 CFR 1910.1200)
Acute toxicity, Category 4
Skin corrosion, Category 1A
Serious eye damage, Category 1

H302: Harmful if swallowed.
H314: Causes severe skin burns and eye damage.
H318: Causes serious eye damage.

2.2 Label elements

HCS 2012 (29 CFR 1910.1200)

Pictogram

Signal Word
- Danger

Hazard Statements
- H302: Harmful if swallowed.
- H314: Causes severe skin burns and eye damage.
- H318: Causes serious eye damage.
Precautionary Statements

Prevention
- 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 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
- P301 + P330 + P331 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- P304 + P340 + P310 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
- 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 or doctor/ physician.
- P363 Wash contaminated clothing before reuse.

Storage
- P405 Store locked up.

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

2.3 Other hazards which do not result in classification
- H401: Toxic to aquatic life.
- Corrosive
- Causes burns.
- Contact with acids liberates toxic gas.

SECTION 3: Composition/information on ingredients

3.1 Substance
- Not applicable, this product is a mixture.

3.2 Mixture
- Formula Na2S

Hazardous Ingredients and Impurities

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Identification number CAS-No.</th>
<th>Concentration [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solfuro di disodio (idrato)</td>
<td>27610-45-3</td>
<td>10 - 15</td>
</tr>
<tr>
<td>Sodium hydrogensulfide (hydrate)</td>
<td>207683-19-0</td>
<td>&lt;= 1</td>
</tr>
</tbody>
</table>

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4: First aid measures

4.1 Description of 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.
- In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine).
- Take victim immediately to hospital.

**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**

*Symptoms*
- Breathing difficulties
- Cough
- Chemical pneumonitis
- Pulmonary edema

*Effects*
- Severe respiratory irritant
  *Repeated or prolonged exposure*
- Nose bleeding
- Chronic bronchitis

**In case of skin contact**

*Symptoms*
- Redness
- Swelling of tissue
- Burn

*Effects*
- Corrosive

**In case of eye contact**

*Symptoms*
- Redness
- Lachrymation
- Swelling of tissue
- Burn
Effects
- Corrosive
- May cause irreversible eye damage.

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.
- Risk of respiratory disorder

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician
- Take victim immediately to hospital.
- Immediate medical attention is required.
- Burns must be treated by a physician.
- Risk of shock.
- Medical supervision for minimum 48 hours.

SECTION 5: Firefighting measures

Flash point
- Not applicable

Autoignition temperature
- no data available

Flammability / Explosive limit
- no data available

5.1 Extinguishing media

Suitable extinguishing media
- Foam
- powder

Unsuitable extinguishing media
- none

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting
- Will burn if dried and heated with a flame.
- Heating can release hazardous gases.

Hazardous combustion products:
- Sulfur oxides
5.3 Advice for firefighters

**Special protective equipment for fire-fighters**
- 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.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

**Advice for non-emergency personnel**
- Evacuate personnel to safe areas.
- Keep people away from and upwind of spill/leak.

**Advice for emergency responders**
- Ventilate the area.
- Wear suitable protective clothing.
- Prevent further leakage or spillage if safe to do so.
- Keep away from incompatible products

6.2 Environmental precautions
- Discharge into the environment must be avoided.
- Do not flush into surface water or sanitary sewer system.
- In case of accidental release or spill, immediately notify the appropriate authorities if required by Federal, State/Provincial and local laws and regulations.

6.3 Methods and materials for containment and cleaning up
- Dam up.
- Soak up with inert absorbent material.
- Prevent product from entering sewage system.
- Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
- Refer to protective measures listed in sections 7 and 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
- Used in closed system
- Use only in well-ventilated areas.
- Keep away from heat and sources of ignition.
- Keep away from incompatible products
**Hygiene measures**

- Ensure that eyewash stations and safety showers are close to the workstation location.
- Take off contaminated clothing and shoes immediately.
- Wash contaminated clothing before re-use.
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

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

**Packaging material**

Suitable material
- Steel drum
- Polyethylene

**7.3 Specific end use(s)**

- Contact your supplier for additional information

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

Introductory Remarks: These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

**8.1 Control parameters**

- Contains no substances with occupational exposure limit values.

**8.2 Exposure controls**

**Control measures**

**Engineering measures**
- Provide appropriate exhaust ventilation at machinery.

**Individual protection measures**

**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-P2 cartridge.
- Use NIOSH approved respiratory protection.
- Use only respiratory protection that conforms to international/ national standards.

**Hand protection**
- Impervious gloves
- Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

**Suitable material**
- PVC
- Neoprene
- Natural Rubber

**Eye protection**
- Chemical resistant goggles must be worn.
- If splashes are likely to occur, wear:
  - Tightly fitting safety goggles
  - Face-shield

**Skin and body protection**
- Chemical resistant apron

- If splashes are likely to occur, wear:
  - Apron
  - Boots
  - Neoprene
  - PVC

**Hygiene measures**
- Ensure that eyewash stations and safety showers are close to the workstation location.
- Take off contaminated clothing and shoes immediately.
- Wash contaminated clothing before re-use.
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

---

**SECTION 9: Physical and chemical properties**

Physical and Chemical properties here represent typical properties of this product. Contact the business area using the Product information phone number in Section 1 for its exact specifications.

**9.1 Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td><strong>Physical state:</strong> liquid</td>
</tr>
<tr>
<td><strong>Color:</strong></td>
<td>yellow</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>sulfurous</td>
</tr>
<tr>
<td><strong>Odor Threshold</strong></td>
<td>no data available</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>12.6 (68 °F (20 °C))</td>
</tr>
<tr>
<td><strong>Freezing point</strong></td>
<td>14 - 23 °F (-10 - -5 °C)</td>
</tr>
<tr>
<td><strong>Boiling point/boiling range</strong></td>
<td>ca. 221 °F (105 °C)</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>no data available</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>The product is not flammable.</td>
</tr>
<tr>
<td><strong>Flammability (liquids)</strong></td>
<td>The product is not flammable.</td>
</tr>
<tr>
<td><strong>Flammability / Explosive limit</strong></td>
<td>Explosiveness: Not explosive</td>
</tr>
<tr>
<td><strong>Autoignition temperature</strong></td>
<td>no data available</td>
</tr>
</tbody>
</table>
**Vapor pressure**  
no data available

**Vapor density**  
no data available

**Density**  
*Bulk density:* Not applicable

**Solubility**  
*Water solubility:*  
(68 °F (20 °C)) Decomposes in contact with water.

*Solubility in other solvents:*  
Alcohol: slightly soluble

Ethanol: slightly soluble

**Partition coefficient: n-octanol/water**  
Not applicable

**Thermal decomposition**  
no data available

**Viscosity**  
no data available

**Explosive properties**  
no data available

**Oxidizing properties**  
Not considered as oxidizing.

**9.2 Other information**

**Molecular weight**  
78 g/mol

---

**SECTION 10: Stability and reactivity**

10.1 Reactivity
   - Contact with acids liberates toxic gas.

10.2 Chemical stability
   - Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
   - no data available

10.4 Conditions to avoid
   - Heat, flames and sparks.
   - Exposure to light.

10.5 Incompatible materials
   - Carbon dioxide (CO2)
   - Acids
   - Oxidizing agents
   - Metals

10.6 Hazardous decomposition products
SODIUM SULFIDE (solution)

Revision Date 04/02/2015

- Sulfur oxides
- Hydrogen sulfide (H2S)

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity
Sodium sulfide (Na2S)    LD50 : 246 mg/kg - Rat

Acute inhalation toxicity
no data available

Acute dermal toxicity
study scientifically unjustified

Acute toxicity (other routes of administration)
no data available

Skin corrosion/irritation
Rabbit
Corrosive

Serious eye damage/eye irritation
Corrosive

Respiratory or skin sensitization
study scientifically unjustified

Mutagenicity

Genotoxicity in vitro
In vitro tests did not show mutagenic effects

Genotoxicity in vivo
In vivo tests did not show mutagenic effects

Carcinogenicity
no data available

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

Toxicity for reproduction and development

Toxicity to reproduction / fertility
no data available

Developmental Toxicity/Teratogenicity
no data available

STOT

STOT-single exposure
no data available

STOT-repeated exposure
Sodium sulfide (Na2S) Oral - Mouse
LOAEL: 50 ppm  
Target Organs: Skeleton

Inhalation - Rat  
NOAEL: 0.88 mg/kg  
Target Organs: Respiratory Tract, Bone, Teeth

Aspiration toxicity  
no data available

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Compartment

Acute toxicity to fish
Hydrogen sulfide (H2S)  
LC50 - 96 h : 0.0027 mg/l - Fish

Sodium sulfide (Na2S)  
LC50 - 96 h : 0.55 mg/l - Brachydanio rerio (zebrafish)

Acute toxicity to daphnia and other aquatic invertebrates.
Hydrogen sulfide (H2S)  
EC50 - 96 h : 0.02 mg/l - Crustaceans  
Fresh water

EC50 - 96 h : 0.032 mg/l - Crustaceans  
Sea water

Toxicity to microorganisms
Sodium sulfide (Na2S)  
LOEC - 16 h : 6.6 mg/l - Pseudomonas putida

Chronic toxicity to fish
Hydrogen sulfide (H2S)  
NOEC: 0.0046 mg/l - 826 Days - Lepomis macrochirus (Bluegill sunfish)

M-Factor
Sodium sulfide (Na2S)  
Acute aquatic toxicity = 1  
(according to the Globally Harmonized System (GHS))

12.2 Persistence and degradability

Abiotic degradation
**Photodegradation**

- Chemical degradation
  - Half-life (direct photolysis): 1 h
  - Sensitizer: OH/O3 radicals
  - Degradat. indirect photolysis: 0.6 - 2 %
  - Test substance: Hydrogen sulfide
  - Medium: Air
  - Degradation products:
    - Sulphur dioxide
    - sulfates
    - Sulfides

**Biodegradation**

- **Biodegradability**
  - **aerobic**
    - Method: Oxidation
    - Test substance: Sulfides
    - Degradation products:
      - sulfites
      - sulfates
  - **anaerobic**
    - Method: biodegradation by sulforeduction
    - Test substance: sulfates
    - Degradation products:
      - Hydrogen sulfide
  - **anaerobic**
    - Method: methanogenesis
    - Test substance: sulfates
    - Inhibitor

12.3 Bioaccumulative potential

- **Bioconcentration factor (BCF)**
  - Does not bioaccumulate.

12.4 Mobility in soil

- **Adsorption potential (Koc)**
  - Water/soil: considerable solubility and mobility
  - Air: mobility as solid aerosols

12.5 Results of PBT and vPvB assessment

- No data available

12.6 Other adverse effects

- No data available

**Remarks**

Very toxic to aquatic organisms. Product fate is highly dependent on environmental conditions: pH, temperature, redox potential, mineral and organic content of the medium, ....
SECTION 13: Disposal considerations

13.1 Waste treatment methods

**Product Disposal**
- In accordance with local and national regulations.
- Where possible recycling is preferred to disposal or incineration.
- Use an FeCl₃ solution to precipitate FeS.
- Filtrate the product and send the cake to a landfill for industrial waste.

**Waste Code**
- Environmental Protection Agency
- Hazardous Waste – YES
- RCRA Hazardous Waste (40 CFR 302)
- Corrosive waste – (C)

**Advice on cleaning and disposal of packaging**
- The empty and clean containers are to be reused in conformity with regulations.
- Uncleaned empty packaging
- Dispose of as unused product.

SECTION 14: Transport information

Transportation status: IMPORTANT! Statements below provide additional data on listed transport classification. The listed Transportation Classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

**DOT**

14.1 UN number UN 3266
14.2 Proper shipping name CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROSULPHIDE)
14.3 Transport hazard class 8
Label(s) 8
14.4 Packing group
Packing group II
ERG No 154
14.5 Environmental hazards Marine pollutant YES

**TDG**

14.1 UN number UN 3266
14.2 Proper shipping name CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROSULPHIDE)
14.3 Transport hazard class 8
Label(s) 8
14.4 Packing group  
Packing group: II  
ERG No: 154  

14.5 Environmental hazards  
Marine pollutant: YES  

NOM  
nodata available  

IMDG  

14.1 UN number: UN 3266  

14.2 Proper shipping name: CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROSULPHIDE)  

14.3 Transport hazard class: 8  
Label(s): 8  

14.4 Packing group  
Packing group: II  

14.5 Environmental hazards  
Marine pollutant: YES  

14.6 Special precautions for user  
EmS F-A, S-B  
For personal protection see section 8.  

IATA  

14.1 UN number: UN 3266  

14.2 Proper shipping name: CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROSULPHIDE)  

14.3 Transport hazard class: 8  
Label(s): 8  

14.4 Packing group  
Packing group: II  
Packing instruction (cargo aircraft): 855  
Max net qty / pkg: 30.00 L  
Packing instruction (passenger aircraft): 851  
Max net qty / pkg: 1.00 L  

14.5 Environmental hazards  
Marine pollutant: YES  

14.6 Special precautions for user  
For personal protection see section 8.  

Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transportation regulations for hazardous materials, it would be advisable to check their validity with your sales office.
SECTION 15: Regulatory information

15.1 Notification status

<table>
<thead>
<tr>
<th>Inventory Information</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States TSCA Inventory</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>Mexico INSQ (INSQ)</td>
<td>Listed on Inventory, Anhydrous form</td>
</tr>
<tr>
<td>Canadian Domestic Substances List (DSL)</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>New Zealand. Inventory of Chemical Substances</td>
<td>Listed on Inventory, Anhydrous form</td>
</tr>
<tr>
<td>Australia Inventory of Chemical Substances (AICS)</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>Japan. CSCL - Inventory of Existing and New Chemical Substances</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>Korea. Korean Existing Chemicals Inventory (KECI)</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>China. Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Listed on Inventory</td>
</tr>
</tbody>
</table>

15.2 Federal Regulations

US. EPA EPCRA SARA Title III

SARA HAZARD DESIGNATION SECTIONS 311/312 (40 CFR 370)

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Hazard</td>
<td>no</td>
</tr>
<tr>
<td>Reactivity Hazard</td>
<td>yes</td>
</tr>
<tr>
<td>Sudden Release of Pressure Hazard</td>
<td>no</td>
</tr>
<tr>
<td>Acute Health Hazard</td>
<td>yes</td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td>no</td>
</tr>
</tbody>
</table>

Section 313 Toxic Chemicals (40 CFR 372.65)

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.

Section 302 Emergency Planning Extremely Hazardous Substance Threshold Planning Quantity (40 CFR 355)

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Section 302 Emergency Planning Extremely Hazardous Substance Reportable Quantity (40 CFR 355)

This material does not contain any components with a SARA 302 RQ.

Section 304 Emergency Release Notification Reportable Quantity (40 CFR 355)

This material does not contain any components with a section 304 EHS RQ.

US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Reportable quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydrogensulfide (hydrate)</td>
<td>207683-19-0</td>
<td>5000 lb</td>
</tr>
</tbody>
</table>
15.3 State Regulations

US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)
This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

SECTION 16: Other information

NFPA (National Fire Protection Association) - Classification

<table>
<thead>
<tr>
<th>Category</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>3 serious</td>
</tr>
<tr>
<td>Flammability</td>
<td>1 slight</td>
</tr>
<tr>
<td>Instability or Reactivity</td>
<td>1 slight</td>
</tr>
<tr>
<td>Special Notices</td>
<td>None</td>
</tr>
</tbody>
</table>

HMIS (Hazardous Materials Identification System (Paint & Coating)) - Classification

<table>
<thead>
<tr>
<th>Category</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>3 serious</td>
</tr>
<tr>
<td>Flammability</td>
<td>1 slight</td>
</tr>
<tr>
<td>Reactivity</td>
<td>1 slight</td>
</tr>
<tr>
<td>PPE</td>
<td>Determined by User; dependent on local conditions</td>
</tr>
</tbody>
</table>

Further information
- Product evaluated under the US GHS format.

Date Prepared: 04/02/2015

- ACGIH American Conference of Governmental Industrial Hygienists
- OSHA Occupational Safety and Health Administration
- NTP National Toxicology Program
- IARC International Agency for Research on Cancer
- NIOSH National Institute for Occupational Safety and Health

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. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose, and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. It should be used in conjunction with technical sheets but do not replace them. Thus, the information only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in another manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.