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

Prepared by
Solvay Product Stewardship (see Telephone number above)

Date Prepared
04/02/2015

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

2.1 Emergency overview

Appearance
Physical state: liquid
Color: yellow yellow
Odor: sulfurous

2.2 Potential Health Effects
**Inhalation effect**  
- no data available

**Skin effect**  
- no data available

**Eye effect**  
- no data available

**Ingestion effect**  
- no data available

**Chronic effects**  
- This product does not contain any ingredient designated by IARC or ACGIH as probable or suspected human carcinogens.

## SECTION 3: Composition/information on ingredients

### 3.1 Information on Components and Impurities

**WHMIS 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>

## 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

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flash point</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Autoignition temperature</strong></td>
<td>no data available</td>
</tr>
<tr>
<td><strong>Flammability / Explosive limit</strong></td>
<td>no data available</td>
</tr>
</tbody>
</table>

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**
SAFETY DATA SHEET

SODIUM SULFIDE (solution)

- 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>Physical state: 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 (Butylacetate = 1)</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>
<tr>
<td><strong>Vapor pressure</strong></td>
<td>no data available</td>
</tr>
<tr>
<td><strong>Vapor density</strong></td>
<td>no data available</td>
</tr>
<tr>
<td><strong>Density</strong></td>
<td>Bulk density: Not applicable</td>
</tr>
<tr>
<td><strong>Solubility</strong></td>
<td>Water solubility: Decomposes in contact with water.</td>
</tr>
<tr>
<td><strong>Partition coefficient: n-octanol/water</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Thermal decomposition</strong></td>
<td>no data available</td>
</tr>
</tbody>
</table>
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
- 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
<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skin corrosion/irritation</strong></td>
<td>Rabbit</td>
</tr>
<tr>
<td></td>
<td>Corrosive</td>
</tr>
<tr>
<td><strong>Serious eye damage/eye irritation</strong></td>
<td>Corrosive</td>
</tr>
<tr>
<td><strong>Respiratory or skin sensitization</strong></td>
<td>study scientifically unjustified</td>
</tr>
<tr>
<td><strong>Mutagenicity</strong></td>
<td></td>
</tr>
<tr>
<td>Genotoxicity in vitro</td>
<td>In vitro tests did not show mutagenic effects</td>
</tr>
<tr>
<td>Genotoxicity in vivo</td>
<td>In vivo tests did not show mutagenic effects</td>
</tr>
<tr>
<td><strong>Carcinogenicity</strong></td>
<td>no data available</td>
</tr>
<tr>
<td><strong>Toxicity for reproduction and development</strong></td>
<td></td>
</tr>
<tr>
<td>Toxicity to reproduction / fertility</td>
<td>no data available</td>
</tr>
<tr>
<td>Developmental Toxicity/Teratogenicity</td>
<td>no data available</td>
</tr>
<tr>
<td><strong>STOT</strong></td>
<td></td>
</tr>
<tr>
<td>STOT-single exposure</td>
<td>no data available</td>
</tr>
<tr>
<td>STOT-repeated exposure</td>
<td></td>
</tr>
<tr>
<td>Sodium sulfide (Na2S)</td>
<td></td>
</tr>
<tr>
<td>Oral - Mouse</td>
<td></td>
</tr>
<tr>
<td>LOAEL: 50 ppm</td>
<td></td>
</tr>
<tr>
<td>Target Organs: Skeleton</td>
<td></td>
</tr>
<tr>
<td>Inhalation - Rat</td>
<td></td>
</tr>
<tr>
<td>NOAEL: 0.88 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Target Organs: Respiratory Tract, Bone, Teeth</td>
<td></td>
</tr>
<tr>
<td>Aspiration toxicity</td>
<td>no data available</td>
</tr>
</tbody>
</table>
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: 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.
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.

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

14.4 Packing group
Packing group II
ERG No 154

14.5 Environmental hazards
Marine pollutant
YES

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

14.4 Packing group
Packing group II
ERG No 154

14.5 Environmental hazards
Marine pollutant
YES

NOM
no data 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
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 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 WHMIS (Workplace Hazardous Materials Information System) Classification

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

Classification
- D1A: Very Toxic Material Causing Immediate and Serious Toxic Effects
- E: Corrosive Material

15.3 Other regulations

no data available

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>

- 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.