Click [http://www.guidechem.com/cas-7787783-06-4.html](http://www.guidechem.com/cas-7787783-06-4.html) for suppliers of this product

Hydrogen sulfide (H2S) (cas 7783-06-4) MSDS

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifiers

<table>
<thead>
<tr>
<th>Product name</th>
<th>Hydrogen sulfide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Number</td>
<td>295442</td>
</tr>
<tr>
<td>Brand</td>
<td>Anonymous</td>
</tr>
<tr>
<td>Index-No.</td>
<td>016-001-00-4</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>7783-06-4</td>
</tr>
</tbody>
</table>

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

Identified uses: Laboratory chemicals, Manufacture of substances

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]
- Flammable gases (Category 1)
- Gases under pressure (Liquefied gas)
- Acute toxicity, Inhalation (Category 2)
- Acute aquatic toxicity (Category 1)

Classification according to EU Directives 67/548/EEC or 1999/45/EC
- Extremely flammable. Very toxic to aquatic organisms. Very toxic by inhalation.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008 [CLP]

<table>
<thead>
<tr>
<th>Pictogram</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Pictogram" /></td>
</tr>
</tbody>
</table>

Signal word: Danger

Hazard statement(s): 
- H220: Extremely flammable gas.
- H280: Contains gas under pressure; may explode if heated.
- H330: Fatal if inhaled.
- H400: Very toxic to aquatic life.

Precautionary statement(s): 
- P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P260: Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
- P273: Avoid release to the environment.
- P284: Wear respiratory protection.
- P310: Immediately call a POISON CENTER or doctor/ physician.
- P410 + P403: Protect from sunlight. Store in a well-ventilated place.

Supplemental Hazard Statements: none


Hazard symbol(s): 

<table>
<thead>
<tr>
<th>R-phrase(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R12: Extremely flammable.</td>
</tr>
<tr>
<td>R26: Very toxic by inhalation.</td>
</tr>
<tr>
<td>R50: Very toxic to aquatic organisms.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S-phrase(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S9: Keep container in a well-ventilated place.</td>
</tr>
<tr>
<td>S16: Keep away from sources of ignition - No smoking.</td>
</tr>
<tr>
<td>S36: Wear suitable protective clothing.</td>
</tr>
<tr>
<td>S38: In case of insufficient ventilation, wear suitable respiratory equipment.</td>
</tr>
<tr>
<td>S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).</td>
</tr>
<tr>
<td>S61: Avoid release to the environment. Refer to special instructions/ Safety data sheets.</td>
</tr>
</tbody>
</table>

2.3 Other hazards - none
3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulphide</td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>7783-06-4</td>
</tr>
<tr>
<td>EC-No.</td>
<td>231-977-3</td>
</tr>
<tr>
<td>Index-No.</td>
<td>016-001-00-4</td>
</tr>
</tbody>
</table>

Molecular Weight: 34.08 g/mol

3.2 Formula: H2S

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
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

Hydrogen sulfide is strongly bound to methemoglobin in a manner similar to cyanide. Toxicologically, its reaction with enzymes in the blood stream inhibits cell respiration resulting in pulmonary paralysis, sudden collapse, and death. It is recognized by its characteristic odor of "rotten eggs". The detectable, minimum perceptible odor occurs at 0.13ppm, rapid olfactory fatigue can occur at high concentrations (>100 ppm). At concentrations of 20ppm hydrogen sulfide begins acting as an irritant on the mucous membranes of the eyes and respiratory tract and increases with concentration and exposure time. Eye irritation is characterized by irritation of the conjunctiva with photophobia to keratoconjunctivitis and vesication of the cornea epithelium. Prolonged exposure to moderate concentrations (250ppm) may cause pulmonary edema. At concentrations over 500ppm, drowsiness, dizziness, excitement, headache, unstable gait, and other systemic symptoms occur within a few minutes. Sudden loss of consciousness without premonition, anxiety, or sense of struggle are characteristic of acute exposure at concentrations above 700ppm. At concentrations of 1000-2000ppm hydrogen sulfide is rapidly absorbed through the lung into the blood. In this range a single inhalation may cause coma and may be rapidly fatal. Initially hyperpnea occurs, followed by rapid collapse and respiratory inhibition. At higher concentrations, hydrogen sulfide exerts an immediate paralyzing effect on the respiratory centers. When concentration reaches 5000ppm, imminent death almost always results. Exposure to and/or consumption of alcohol may increase toxic effects.

4.3 Indication of any immediate medical attention and special treatment needed

no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Sulphur oxides

5.3 Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.2 Environmental precautions

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

6.3 Methods and materials for containment and cleaning up

Clean up promptly by sweeping or vacuum.
6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
Moisture sensitive.

7.3 Specific end uses
no data available

8. EXPOSURE CONTROLS/PERSOENAL PROTECTION

8.1 Control parameters
Components with workplace control parameters

8.2 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.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body Protection
Complete suit protecting against chemicals. Flame retardant antistatic protective clothing. 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 respirator with multi-purpose combination (US) or type AXBEK (EN 14387) 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).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance
Form: Liquefied gas
Colour: Colourless

b) Odour
Stench.

c) Odour Threshold
no data available

d) pH
no data available

e) Melting point/freezing point
Melting point/range: -85 °C - lit.

f) Initial boiling point and boiling range
-60 °C - lit.

g) Flash point
not applicable

h) Evaporation rate
no data available

i) Flammability (solid, gas)
no data available

j) Upper/lower flammability or
Upper explosion limit: 46%(V)
Lower explosion limit: 4%(V)
explosive limits

k) Vapour pressure 17.369,8 hPa at 21 °C
l) Vapour density 1,17 - (Air = 1.0)

m) Relative density no data available
n) Water solubility no data available
o) Partition coefficient: n-octanol/water no data available
p) Autoignition temperature no data available
q) Decomposition temperature no data available
r) Viscosity no data available
s) Explosive properties no data available
t) Oxidizing properties no data available

9.2 Other safety information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
no data available

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Strong oxidizing agents, Strong bases

10.6 Hazardous decomposition products
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
no data available
Inhalation: no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity
Reproductive toxicity - rat - Inhalation
Effects on Newborn: Physical.

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation May be fatal if inhaled. May cause respiratory tract irritation.
Ingestion: May be harmful if swallowed.
Skin: May be harmful if absorbed through skin. May cause skin irritation.
Eyes: May cause eye irritation.

**Signs and Symptoms of Exposure**

Hydrogen sulfide is strongly bound to methemoglobin in a manner similar to cyanide. Toxicologically, its reaction with enzymes in the blood stream inhibits cell respiration resulting in pulmonary paralysis, sudden collapse, and death. It is recognized by its characteristic odor of "rotten eggs". The detectable, minimum perceptible odor occurs at 0.13ppm, rapid olfactory fatigue can occur at high concentrations (>100 ppm). At concentrations of 20ppm hydrogen sulfide begins acting as an irritant on the mucus membranes of the eyes and respiratory tract and increases with concentration and exposure time. Eye irritation is characterized by irritation of the conjunctiva with photophobia to keratoconjunctivitis and vesiculation of the cornea epithelium. Prolonged exposure to moderate concentrations (250ppm) may cause pulmonary edema. At concentrations over 500ppm, drowsiness, dizziness, excitement, headache, unstable gait, and other systemic symptoms occur within a few minutes. Sudden loss of consciousness without premonition, anxiety, or sense of struggle are characteristic of acute exposure at concentrations above 700ppm. At concentrations of 1000-2000ppm hydrogen sulfide is rapidly absorbed through the lung into the blood. In this range a single inhalation may cause coma and may be rapidly fatal. Initially hyperpnea occurs, followed by rapid collapse and respiratory inhibition. At higher concentrations, hydrogen sulfide exerts an immediate paralyzing effect on the respiratory centers. When concentration reaches 5000ppm, imminent death almost always results. Exposure to and/or consumption of alcohol may increase toxic effects.

**Additional Information**

RTECS: MX1225000

**12. ECOLOGICAL INFORMATION**

**12.1 Toxicity**

Toxicity to fish: LC50 - Pimephales promelas (fathead minnow) - 0,016 mg/l - 96,0 h

**12.2 Persistence and degradability**

No data available

**12.3 Bioaccumulative potential**

No data available

**12.4 Mobility in soil**

No data available

**12.5 Results of PBT and vPvB assessment**

No data available

**12.6 Other adverse effects**

Very toxic to aquatic life. No data available

**13. DISPOSAL CONSIDERATIONS**

**13.1 Waste treatment methods**

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

**14. TRANSPORT INFORMATION**

**14.1 UN number**

ADR/RID: 1053  
IMDG: 1053  
IATA: 1053

**14.2 UN proper shipping name**

ADR/RID: HYDROGEN SULPHIDE  
IMDG: HYDROGEN SULPHIDE  
IATA: Hydrogen sulphide

Passenger Aircraft: Not permitted for transport  
Cargo Aircraft: Not permitted for transport

**14.3 Transport hazard class(es)**

ADR/RID: 2.3 (2.1)  
IMDG: 2.3 (2.1)  
IATA: 2.3 (2.1)

**14.4 Packaging group**

ADR/RID: -  
IMDG: -  
IATA: -

**14.5 Environmental hazards**

ADR/RID: Yes  
IMDG Marine pollutant: Yes  
IATA: No

**14.6 Special precautions for user**

No data available

**15. REGULATORY INFORMATION**
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
   no data available

15.2 Chemical Safety Assessment
   no data available

16. OTHER INFORMATION

   Further information
   The above information is believed to be correct but does not purport to be all inclusive and
   shall be used only as a guide. The information this document is based on the resent state
   of our knowledge and is applicable to the product with regard to appropriate safety precautions.
   It does not represent any guarantee of the properties of the product. guidechem shall not be
   held liable for any damage resulting from handling or from contact with the above product.
   See reverse side of invoice or packing slip for additional terms and conditions of sale.