

Common Name: **SODIUM HYDROSULFIDE**

Synonyms: Sodium Bisulfide; Sodium Hydrogen Sulfide; Sodium Mercaptan; Sodium Sulfide

CAS No: 16721-80-5

Molecular Formula: NaHS

RTK Substance No: 1705

Description: Colorless to lemon-colored, crystalline solid with a rotten egg odor

### HAZARD DATA

| Hazard Rating   | Firefighting   | Reactivity   |
|---|--|--|
| <p><b>3 - Health</b><br/><b>*2 - Fire</b><br/><b>1 - Reactivity</b></p> <p><b>DOT#:</b> UN 2318<br/>(less than 25% water of crystallization)</p> <p><b>ERG Guide #:</b> 135</p> <p><b>Hazard Class:</b> 4.2<br/>(Spontaneously Combustible)</p> | <p><b>Sodium Hydrosulfide</b>, when not solution, may be SPONTANEOUSLY COMBUSTIBLE.</p> <p>FLAMMABLE <i>Hydrogen Sulfide</i> gas may form with heating. Use dry chemical, CO<sub>2</sub>, water spray or foam as extinguishing agents. DO NOT apply directly on <b>Sodium Hydrosulfide</b> itself as splattering may occur.</p> <p>POISONOUS GASES ARE PRODUCED IN FIRE, including <i>Sulfur Oxides</i> and <i>Hydrogen Sulfide</i>.</p> <p>Use water spray to keep fire-exposed containers cool.</p> <p><b>Sodium Hydrosulfide</b> may form an ignitable vapor/air mixture in closed tanks or containers.</p> | <p><b>Sodium Hydrosulfide</b> reacts with STRONG ACIDS (such as HYDROCHLORIC, SULFURIC and NITRIC); MOIST AIR and MOISTURE to release flammable and toxic <i>Hydrogen Sulfide</i> gas.</p> <p><b>Sodium Hydrosulfide</b> is not compatible with OXIDIZING AGENTS (such as PERCHLORATES, PEROXIDES, PERMANGANATES, CHLORATES, NITRATES, CHLORINE, BROMINE and FLUORINE) and METALS (such as ZINC, ALUMINUM and COPPER, and their ALLOYS).</p> |

### SPILL/LEAKS

**Isolation Distance:**

Spill: 25 meters (75 feet)

Fire: 800 meters (1/2 mile)

Collect powdered material in the most convenient and safe manner and place into sealed containers for disposal.

For **Sodium Hydrosulfide** in solution, cover with dry sand or earth and place into sealed containers for disposal.

Keep **Sodium Hydrosulfide** out of confined spaces, such as sewers, because of the possibility of an explosion due to *Hydrogen Sulfide* gas formation.

DO NOT wash into sewer.

For water spills, add Sodium Carbonate (Na<sub>2</sub>CO<sub>3</sub>).

**Sodium Hydrosulfide** is very toxic to aquatic life.

### PHYSICAL PROPERTIES

|                          |                                    |
|--------------------------|------------------------------------|
| <b>Odor Threshold:</b>   | Rotten egg odor                    |
| <b>Flash Point:</b>      | 194°F (90°C) (Hydrate form)        |
| <b>LEL:</b>              | 4.3% (as <i>Hydrogen Sulfide</i> ) |
| <b>UEL:</b>              | 46% (as <i>Hydrogen Sulfide</i> )  |
| <b>Vapor Density:</b>    | 1.17 (air = 1)                     |
| <b>Specific Gravity:</b> | 1.79 (water = 1)                   |
| <b>Water Solubility:</b> | Soluble                            |
| <b>Boiling Point:</b>    | 212°F (100°C)                      |
| <b>Melting Point:</b>    | 662°F (350°C)                      |
| <b>Molecular Weight:</b> | 56.06                              |

### EXPOSURE LIMITS

**ACGIH:** 1 ppm, 8-hr TWA; 5 ppm STEL (as *Hydrogen Sulfide*)

**IDLH:** 100 ppm (as *Hydrogen Sulfide*)

The Protective Action Criteria values are:

PAC-1 = 0.51 ppm   PAC-2 = 27 ppm   PAC-3 = 50 ppm (as *Hydrogen Sulfide*)

### PROTECTIVE EQUIPMENT

|                    |  |
|--------------------|--|
| <b>Gloves:</b>     | Neoprene (>8-hr breakthrough)          |
| <b>Coveralls:</b>  | Tychem® Responder (>8-hr breakthrough) |
| <b>Respirator:</b> | SCBA                                   |

### HEALTH EFFECTS

|                    |  |
|--------------------|--|
| <b>Eyes:</b>       | Severe irritation, burns and possible eye damage   |
| <b>Skin:</b>       | Severe irritation and burns  |
| <b>Inhalation:</b> | Nose, throat and lung irritation, with coughing and severe shortness of breath (pulmonary edema) |
|                    | Headache, dizziness, disorientation, and passing out   |
|                    | Higher levels can cause seizures and death   |

### FIRST AID AND DECONTAMINATION

- Remove** the person from exposure.
- Flush** eyes with large amounts of water for at least 30 minutes. Remove contact lenses if worn. Seek medical attention immediately.
- Quickly** remove contaminated clothing and wash contaminated skin with large amounts of soap and water. Seek medical attention immediately.
- Begin** artificial respiration if breathing has stopped and CPR if necessary.
- Transfer** promptly to a medical facility.
- Medical** observation is recommended as symptoms may be delayed.