




SAFETY DATA SHEET

1. Identification

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|---|---|
| Product identifier | Spent Sulfidic Caustic |
| Other means of identification | |
| SDS number | 615 - GHS |
| Synonyms | Spent sulfidic caustic See section 16 for complete information. |
| Recommended use | This product is intended for use as a refinery feedstock, fuel or for use in engineered processes. Use in other applications may result in higher exposures and require additional controls, such as local exhaust ventilation and personal protective equipment. |
| Recommended restrictions | None known. |
| Manufacturer/Importer/Supplier/Distributor information | |
| Manufacturer/Supplier | Valero Marketing & Supply Company and Affiliates One Valero Way San Antonio, TX 78269-6000 210-345-4593 |
| General Assistance | 210-345-4593 |
| E-Mail | CorpHSE@valero.com |
| Contact Person | Industrial Hygienist |
| Emergency Telephone | 24 Hour Emergency 866-565-5220 1-800-424-9300 (CHEMTREC USA) |

2. Hazard(s) identification

| | | |
|-----------------------------|---|-------------|
| Physical hazards | Not classified. | |
| Health hazards | Acute toxicity, oral | Category 4 |
| | Acute toxicity, dermal | Category 4 |
| | Skin corrosion/irritation | Category 1A |
| | Serious eye damage/eye irritation | Category 1 |
| OSHA defined hazards | Not classified. | |
| Label elements |  | |

| | |
|--|--|
| Signal word | Danger |
| Hazard statement | Harmful if swallowed. Harmful in contact with skin. Causes severe skin burns and eye damage. |
| Precautionary statement | |
| Prevention | Do not breathe mist or vapor. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. |
| Response | If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center/doctor. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| Storage | Store locked up. |
| Disposal | Dispose of contents/container in accordance with local/regional/national/international regulations. |
| Hazard(s) not otherwise classified (HNOC) | None known. |

3. Composition/information on ingredients

Mixtures

| Chemical name | CAS number | % |
|------------------|------------|-----------|
| Disodium sulfide | 1313-82-2 | 1 - 15 |
| Sodium hydroxide | 1310-73-2 | 0 - 15 |
| Hydrogen sulfide | 7783-06-4 | 0.1 - 0.2 |

Composition comments Small amount of hydrogen sulfide, a highly toxic gas, may be present, especially in the headspace of containers.

4. First-aid measures

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| Inhalation | Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician or poison control center immediately. |
| Skin contact | Wash off immediately with soap and plenty of water. Remove contaminated clothing and shoes. Call a physician or poison control center immediately. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes. |
| Eye contact | Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately. |
| Ingestion | Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Do not give mouth-to-mouth resuscitation. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Never give anything by mouth to a victim who is unconscious or is having convulsions. Call a physician or poison control center. |
| Most important symptoms/effects, acute and delayed | Contact with this material will cause burns to the skin, eyes and mucous membranes. Persons with pre-existing respiratory tract, skin and lung (such as asthma) disorders may be aggravated by exposure to this product. Hydrogen sulfide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere. |
| Indication of immediate medical attention and special treatment needed | In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. |
| General information | If exposed or concerned: get medical attention/advice. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use. |

5. Fire-fighting measures

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| Suitable extinguishing media | Water spray. Water fog. Dry chemical powder. Carbon dioxide (CO ₂). |
| Unsuitable extinguishing media | Do not use a solid water stream as it may scatter and spread fire. |
| Specific hazards arising from the chemical | No unusual fire or explosion hazards noted. |
| Special protective equipment and precautions for firefighters | Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. |
| Fire-fighting equipment/instructions | Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray. |

6. Accidental release measures

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| Personal precautions, protective equipment and emergency procedures | Keep unnecessary personnel away. Local authorities should be advised if significant spills cannot be contained. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the SDS for Personal Protective Equipment. |
| Methods and materials for containment and cleaning up | Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas. Small Spills: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. This material and its container must be disposed of as hazardous waste. Large Spills: Prevent product from entering drains. Do not allow material to contaminate ground water system. Should not be released into the environment. Clean up in accordance with all applicable regulations. |

Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Review Firefighting Measures section before proceeding with clean up. Stop leak if it can be done without risk. Use water spray to disperse vapors. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 800-424-8802. For highway or railway spills, contact Chemtrec at 800-424-9300.

7. Handling and storage**Precautions for safe handling**

Wear personal protective equipment. Do not breathe mist or vapor. Do not get in eyes, on skin, on clothing. Do not taste or swallow. Avoid prolonged exposure. Use only with adequate ventilation. Wash thoroughly after handling. When using, do not eat, drink or smoke. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a cool, well-ventilated place. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

8. Exposure controls/personal protection**Occupational exposure limits****US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

| Components | Type | Value |
|----------------------------------|------|---------------------|
| Sodium hydroxide (CAS 1310-73-2) | PEL | 2 mg/m ³ |

US. OSHA Table Z-2 (29 CFR 1910.1000)

| Components | Type | Value |
|----------------------------------|---------|--------|
| Hydrogen sulfide (CAS 7783-06-4) | Ceiling | 20 ppm |

ACGIH

| Material | Type | Value | Form |
|--------------------------------------|------|-----------------------|--------------|
| Spent Sulfidic Caustic (CAS Mixture) | TWA | 0.5 mg/m ³ | (total dust) |

US. ACGIH Threshold Limit Values

| Components | Type | Value |
|----------------------------------|---------|---------------------|
| Hydrogen sulfide (CAS 7783-06-4) | STEL | 5 ppm |
| | TWA | 1 ppm |
| Sodium hydroxide (CAS 1310-73-2) | Ceiling | 2 mg/m ³ |

US. NIOSH: Pocket Guide to Chemical Hazards

| Components | Type | Value |
|----------------------------------|---------|----------------------|
| Hydrogen sulfide (CAS 7783-06-4) | Ceiling | 15 mg/m ³ |
| | | 10 ppm |
| Sodium hydroxide (CAS 1310-73-2) | Ceiling | 2 mg/m ³ |

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

No exposure standards allocated.

Appropriate engineering controls

Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use only appropriately classified electrical equipment and powered industrial trucks.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Safety glasses.

Skin protection**Hand protection**

Wear chemical-resistant, impervious gloves.

Other

Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended.

Respiratory protection Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.

Thermal hazards Not applicable.

General hygiene considerations Consult supervisor for special handling instructions. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance Dark orange, green or light brown liquid.

Physical state Liquid.

Form Liquid.

Color Dark orange, green or light brown.

Odor Sulfurous.

Odor threshold Not available.

pH > 11

Melting point/freezing point 32.9 °F (0.5 °C)

Initial boiling point and boiling range > 219.2 °F (> 104 °C)

Flash point Not available.

Evaporation rate Not available.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure Not available.

Vapor density Not available.

Relative density 1.13 - 1.18

Relative density temperature 140 °F (60 °C)

Solubility(ies)

Solubility (water) Soluble.

Partition coefficient (n-octanol/water) No data available.

Auto-ignition temperature Not available.

Decomposition temperature Not available.

Viscosity Not available.

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability Stable under normal temperature conditions and recommended use.

Possibility of hazardous reactions Hazardous polymerization does not occur.

Conditions to avoid None known.

Incompatible materials Strong oxidizing agents. Reducing agents. Organic material. Acids. Water.

Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

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|---------------------|---|
| Ingestion | Harmful if swallowed. Causes digestive tract burns. |
| Inhalation | May cause irritation to the respiratory system. |
| Skin contact | Harmful in contact with skin. Causes severe skin burns. |
| Eye contact | Causes serious eye damage. |

Symptoms related to the physical, chemical and toxicological characteristics

Contact with this material will cause burns to the skin, eyes and mucous membranes. Persons with pre-existing respiratory tract, skin and lung (such as asthma) disorders may be aggravated by exposure to this product. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness.

Information on toxicological effects

Acute toxicity Harmful if inhaled or swallowed.

| Components | Species | Test Results |
|----------------------------------|---------|--|
| Disodium sulfide (CAS 1313-82-2) | | |
| Acute | | |
| <i>Dermal</i> | | |
| LD50 | Rabbit | < 340 mg/kg |
| <i>Oral</i> | | |
| LD50 | Rat | 208 mg/kg |
| Hydrogen sulfide (CAS 7783-06-4) | | |
| Acute | | |
| <i>Inhalation</i> | | |
| LC50 | Mouse | 1.5 mg/l, 18 Minutes 0.38 mg/l, 410 Minutes 0.096 mg/l, 804 Minutes > 0.024 mg/l, 960 Minutes |
| | Rat | 1.5 mg/l, 14 Minutes > 0.38 mg/l, 960 Minutes |

Skin corrosion/irritation Causes severe skin burns.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Based on available data, the classification criteria are not met.

Skin sensitization Based on available data, the classification criteria are not met.

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Carcinogenicity This material is not classified as a carcinogen by IARC, ACGIH, NTP or OSHA.

Reproductive toxicity Based on available data, the classification criteria are not met.

Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met.

Specific target organ toxicity - repeated exposure Based on available data, the classification criteria are not met.

Aspiration hazard Based on available data, the classification criteria are not met.

12. Ecological information

Ecotoxicity The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

| Components | Species | Test Results |
|----------------------------------|-------------------------|--------------------|
| Disodium sulfide (CAS 1313-82-2) | | |
| Aquatic | | |
| Fish | LC50 Freshwater fish | 700 µg/l, 96 hours |

| Components | Species | Test Results |
|----------------------------------|---------|---|
| Hydrogen sulfide (CAS 7783-06-4) | | |
| Aquatic | | |
| Fish | LC50 | Bluegill (<i>Lepomis macrochirus</i>) 0.009 mg/l, 96 hours |
| Sodium hydroxide (CAS 1310-73-2) | | |
| Aquatic | | |
| Crustacea | EC50 | Water flea (<i>Ceriodaphnia dubia</i>) 34.59 - 47.13 mg/l, 48 hours |
| Fish | LC50 | Bluegill (<i>Lepomis macrochirus</i>) 99 mg/l, 48 hours |
| | | Western mosquitofish (<i>Gambusia affinis</i>) 125 mg/l, 96 hours |

Persistence and degradability No data available.

Bioaccumulative potential No data available.

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Dispose in accordance with all applicable regulations. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.

Hazardous waste code D002: Corrosive waste

US RCRA Hazardous Waste U List: Reference

Hydrogen sulfide (CAS 7783-06-4) U135

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Offer rinsed packaging material to local recycling facilities.

14. Transport information

DOT

UN number UN1760
UN proper shipping name Corrosive liquids, n.o.s. (Sodium hydroxide)
Transport hazard class(es)
Class 8
Subsidiary risk -
Packing group II
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Special provisions B2, IB2, T11, TP2, TP27
Packaging exceptions 154
Packaging non bulk 202
Packaging bulk 242

IATA

UN number UN1760
UN proper shipping name Corrosive liquid, n.o.s. (Sodium hydroxide)
Transport hazard class(es)
Class 8
Subsidiary risk -
Label(s) 8
Packing group II
Environmental hazards No
ERG Code 8L
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN1760
UN proper shipping name CORROSIVE LIQUID, N.O.S. (SODIUM HYDROXIDE)
Transport hazard class(es)
Class 8
Subsidiary risk -
Label(s) 8
Packing group II

Environmental hazards**Marine pollutant** No**EmS** F-A, S-B**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** This product is a liquid and when transported in bulk is covered under MARPOL 73/78 Annex II. This product is listed in the IBC Code.Ship type: 3
Pollution category: Y**15. Regulatory information****US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200 (OSHA) and 8 CCR § 5194 (Cal/OSHA). All components are on the U.S. EPA TSCA Inventory List.**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)Hydrogen sulfide (CAS 7783-06-4) LISTED
Sodium hydroxide (CAS 1310-73-2) LISTED**Superfund Amendments and Reauthorization Act of 1986 (SARA)****Hazard categories** Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No**SARA 302 Extremely hazardous substance**

| Chemical name | CAS number | Reportable quantity | Threshold planning quantity | Threshold planning quantity, lower value | Threshold planning quantity, upper value |
|------------------|------------|---------------------|-----------------------------|--|--|
| Hydrogen sulfide | 7783-06-4 | 100 | 500 lbs | | |

SARA 311/312 Hazardous chemical Yes**SARA 313 (TRI reporting)**
Not regulated.**Other federal regulations****Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Hydrogen sulfide (CAS 7783-06-4)

Safe Drinking Water Act (SDWA) Not regulated.**US state regulations****US. Massachusetts RTK - Substance List**Disodium sulfide (CAS 1313-82-2)
Hydrogen sulfide (CAS 7783-06-4)
Sodium hydroxide (CAS 1310-73-2)**US. New Jersey Worker and Community Right-to-Know Act**Disodium sulfide (CAS 1313-82-2)
Hydrogen sulfide (CAS 7783-06-4)
Sodium hydroxide (CAS 1310-73-2)**US. Pennsylvania Worker and Community Right-to-Know Law**Hydrogen sulfide (CAS 7783-06-4)
Sodium hydroxide (CAS 1310-73-2)**US. Rhode Island RTK**Hydrogen sulfide (CAS 7783-06-4)
Sodium hydroxide (CAS 1310-73-2)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

International Inventories

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|-----------------------------|--|------------------------|
| Australia | Australian Inventory of Chemical Substances (AICS) | Yes |
| Canada | Domestic Substances List (DSL) | Yes |
| Canada | Non-Domestic Substances List (NDSL) | No |
| China | Inventory of Existing Chemical Substances in China (IECSC) | Yes |
| Europe | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes |
| Europe | European List of Notified Chemical Substances (ELINCS) | No |
| Japan | Inventory of Existing and New Chemical Substances (ENCS) | Yes |
| Korea | Existing Chemicals List (ECL) | Yes |
| New Zealand | New Zealand Inventory | Yes |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | Yes |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes |

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 28-May-2014

Revision date -

Version # 01

NFPA Ratings



References

ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

Disclaimer

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