Spent Sulfidic Caustic

Section 1. Identification

Product name: Spent Sulfidic Caustic

Synonyms: Sulfide Spent Caustic, Olefin Caustic, Sodium Sulfide

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

Product use: By-Product

Manufacturer: HollyFrontier Refining & Marketing LLC
2828 North Harwood
Suite 1300
Dallas, Texas 75201
USA
Customer Service: (888) 286-8836

Emergency telephone number: CHEMTREC® (800) 424-9300
CCN 201319

Section 2. Hazards identification

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture:
- SKIN CORROSION - Category 1
- SERIOUS EYE DAMAGE - Category 1

GHS label elements

Hazard pictograms:

Signal word:
Danger

Hazard statements:
Causes severe skin burns and eye damage.

Precautionary statements

Prevention:
Wear protective gloves. Wear eye or face protection. Wear protective clothing. Wash hands thoroughly after handling.

Response:
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. 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 physician.

Storage:
Not applicable.

Disposal:
Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements:
Do not taste or swallow. Wash thoroughly after handling.

Hazards not otherwise classified:
Causes severe digestive tract burns. May release hydrogen sulfide a poisonous gas that can accumulate in confined spaces.

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Date of previous issue: No previous validation.
Version: 1
Section 3. Composition/information on ingredients

Substance/mixture : Mixture

CAS number/other identifiers

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>sodium hydroxide</td>
<td>0 - 20</td>
<td>1310-73-2</td>
</tr>
<tr>
<td>disodium sulphide</td>
<td>0 - 10</td>
<td>1313-82-2</td>
</tr>
<tr>
<td>hydrogen sulfide</td>
<td>0 - 0.2</td>
<td>7783-06-4</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Section 4. First aid measures

**Description of necessary first aid measures**

**Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Chemical burns must be treated promptly by a physician. Continue to rinse for at least 15 minutes.

**Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**Skin contact** : Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 15 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

**Ingestion** : Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**Most important symptoms/effects, acute and delayed**

**Potential acute health effects**

- **Eye contact** : Causes serious eye damage.
- **Inhalation** : May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system.
- **Skin contact** : Causes severe burns.
- **Ingestion** : Severely corrosive to the digestive tract. Causes severe burns. May cause burns to mouth, throat and stomach.

**Over-exposure signs/symptoms**

- **Eye contact** : pain; watering; redness; blindness
- **Inhalation** : respiratory tract irritation; coughing; pulmonary edema
- **Skin contact** : pain or irritation; redness; blistering may occur
Spent Sulfidic Caustic

HollyFrontier Refining & Marketing LLC

Protection of medical responders:
No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Notes to physician:
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments:
No specific treatment.

Indication of immediate medical attention and special treatment needed, if necessary

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media:
Suitable extinguishing media:
Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media:
Do not use water jet.

Specific hazards arising from the chemical:
In a fire or if heated, a pressure increase will occur and the container may burst. May release hydrogen sulfide a poisonous gas that can accumulate in confined spaces.

Hazardous thermal decomposition products:
Decomposition products may include the following materials:
sulfur oxides
metal oxide/oxides

Special protective actions for fire-fighters:
Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters:
Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:
No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. May release hydrogen sulfide a poisonous gas that can accumulate in confined spaces.

For emergency responders:
If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions:
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up:

Small spill:
Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Large spill

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, waterways, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from acids. Empty containers retain product residue and can be hazardous. Do not reuse container. May release hydrogen sulfide a poisonous gas that can accumulate in confined spaces.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Separate from acids. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
<th>OSHA PEL 1989 (United States, 3/1989)</th>
<th>CEIL: 2 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>sodium hydroxide</td>
<td></td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>hydrogen sulfide</td>
<td></td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Appropriate engineering controls

If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. May release hydrogen sulfide a poisonous gas that can accumulate in confined spaces.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

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Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

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.

Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Appearance</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Color</td>
<td>Dark brown/Black.</td>
</tr>
<tr>
<td>Odor</td>
<td>Sulfur</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not available.</td>
</tr>
<tr>
<td>pH</td>
<td>&gt;11</td>
</tr>
<tr>
<td>Melting point</td>
<td>Not available.</td>
</tr>
<tr>
<td>Boiling point</td>
<td>&gt;104°C (&gt;220°F)</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not available.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Lower and upper explosive</td>
<td>Not available.</td>
</tr>
<tr>
<td>(flammable) limits</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not available.</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.1</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in the following materials: cold water and hot water.</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not available.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>
Spent Sulfidic Caustic

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Section 10. Stability and reactivity

Reactivity

No specific test data related to reactivity available for this product or its ingredients.

Chemical stability

The product is stable.

Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid

No specific data.

Incompatible materials

Reactive or incompatible with the following materials: acids

Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>sodium hydroxide</td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>1350 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>disodium sulphide</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>208 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>sodium hydroxide</td>
<td>Eyes - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 50 Micrograms</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 Percent</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.5 minutes 1 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Name: Spent Sulfidic Caustic

Result: Not applicable.

Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects: Not available.

Potential delayed effects: Not available.

Long term exposure

Date of issue/Date of revision: 12/29/2014

Date of previous issue: No previous validation

Version: 1
Spent Sulfidic Caustic

No known significant effects or critical hazards.

General:

No known significant effects or critical hazards.

Carcinogenicity:

No known significant effects or critical hazards.

Mutagenicity:

No known significant effects or critical hazards.

Teratogenicity:

No known significant effects or critical hazards.

Developmental effects:

No known significant effects or critical hazards.

Fertility effects:

No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>4160 mg/kg</td>
</tr>
<tr>
<td>Dermal</td>
<td>4153.8 mg/kg</td>
</tr>
</tbody>
</table>

Section 12. Ecological information

Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>sodium hydroxide</td>
<td>Acute EC50 40.38 mg/l Fresh water</td>
<td>Crustaceans - Ceriodaphnia dubia - Neonate</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 125 ppm Fresh water</td>
<td>Fish - Gambusia affinis - Adult</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 75000 µg/l Fresh water</td>
<td>Algae - Chlorella pyrenoidosa</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 8.7 µg/l Marine water</td>
<td>Crustaceans - Metapenaeus monoceros - Zoea</td>
<td>48 hours</td>
</tr>
<tr>
<td>disodium sulphide</td>
<td>Acute LC50 550 µg/l Fresh water</td>
<td>Daphnia - Daphnia pulex</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 1640 µg/l Fresh water</td>
<td>Fish - Luxilus cornutus</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 62 µg/l Fresh water</td>
<td>Crustaceans - Gammarus pseudolimnaeus</td>
<td>2 days</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 2 µg/l Fresh water</td>
<td>Fish - Coregonus clupeaformis - Yolk-sac fry</td>
<td>96 hours</td>
</tr>
<tr>
<td>hydrogen sulfide</td>
<td>Acute LC50 2 µg/l Fresh water</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence and degradability

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>disodium sulphide</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
</tbody>
</table>

Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP_{ow}</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>disodium sulphide</td>
<td>-3.5</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

Mobility in soil

Soil/water partition coefficient (K_{oc}):

Not available.

Other adverse effects:

No known significant effects or critical hazards.
### Section 13. Disposal considerations

**Disposal methods:**

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

### Section 14. Transport information

<table>
<thead>
<tr>
<th>DOT Classification</th>
<th>TDG Classification</th>
<th>Mexico Classification</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN3266</td>
<td>UN3266</td>
<td>UN3266</td>
<td>UN3266</td>
<td>UN3266</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>Corrosive liquid, basic, inorganic, n.o.s. (sodium hydroxide) RQ (sodium hydroxide)</td>
<td>CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (sodium hydroxide)</td>
<td>LIQUIDO CORROSIVO, BASICO, INORGANICO, N.E.P. (sodium hydroxide)</td>
<td>CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (sodium hydroxide)</td>
<td>CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (sodium hydroxide). Marine pollutant (disodium sulphide)</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Packing group</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>Additional information</td>
<td>Reportable quantity 10000 lbs / 4540 kg [1090.3 gal / 4127.3 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation</td>
<td>Explosive Limit and Limited Quantity Index 0</td>
<td>Special provisions 274</td>
<td>The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.</td>
<td></td>
</tr>
<tr>
<td>Additional information</td>
<td>Reportable quantity 10000 lbs / 4540 kg [1090.3 gal / 4127.3 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation</td>
<td>Explosive Limit and Limited Quantity Index 0</td>
<td>Special provisions 274</td>
<td>The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.</td>
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</tr>
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<td>Explosive Limit and Limited Quantity Index 0</td>
<td>Special provisions 274</td>
<td>The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.</td>
<td></td>
</tr>
</tbody>
</table>
Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

### Section 15. Regulatory information

**U.S. Federal regulations**

- Commerce control list precursor: disodium sulphide
- United States inventory (TSCA 8b): All components are listed or exempted.
- Clean Water Act (CWA) 311: sodium hydroxide; hydrogen sulfide

#### SARA 302/304

**Composition/information on ingredients**

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>EHS</th>
<th>SARA 302 TPQ</th>
<th>SARA 304 RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(lbs)</td>
<td>(gallons)</td>
</tr>
<tr>
<td>hydrogen sulfide</td>
<td>0 - 0.2</td>
<td>Yes.</td>
<td>500</td>
<td>-</td>
</tr>
<tr>
<td>SARA 304 RQ</td>
<td></td>
<td></td>
<td>100000 lbs / 45400 kg [10903.1 gal / 41272.7 L]</td>
<td></td>
</tr>
</tbody>
</table>

**SARA 311/312**

**Classification**: Immediate (acute) health hazard

**Composition/information on ingredients**

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>Fire hazard</th>
<th>Sudden release of pressure</th>
<th>Reactive</th>
<th>Immediate health hazard</th>
<th>Delayed health hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>sodium hydroxide</td>
<td>0 - 20</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>Yes.</td>
<td>No.</td>
</tr>
<tr>
<td>disodium sulphide</td>
<td>0 - 10</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>Yes.</td>
<td>No.</td>
</tr>
<tr>
<td>hydrogen sulfide</td>
<td>0 - 0.2</td>
<td>Yes.</td>
<td>Yes.</td>
<td>Yes.</td>
<td>Yes.</td>
<td>No.</td>
</tr>
</tbody>
</table>

**State regulations**

- **Massachusetts**: The following components are listed: SODIUM HYDROXIDE; SODIUM SULFIDE
- **New York**: The following components are listed: Sodium hydroxide
- **New Jersey**: The following components are listed: SODIUM HYDROXIDE; CAUSTIC SODA; SODIUM SULFIDE
- **Pennsylvania**: The following components are listed: SODIUM HYDROXIDE (NA(OH))

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**California Prop. 65**

None of the components are listed.

**Canada inventory**

: All components are listed or exempted.

**International regulations**

**International lists**

: Australia inventory (AICS): All components are listed or exempted.

: China inventory (IECSC): All components are listed or exempted.

: Japan inventory: All components are listed or exempted.

: Korea inventory: All components are listed or exempted.

: Malaysia Inventory (EHS Register): Not determined.

: New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.

: Philippines inventory (PICCS): All components are listed or exempted.

: Taiwan inventory (CSNN): All components are listed or exempted.

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**Section 16. Other information**

**National Fire Protection Association (U.S.A.)**

<table>
<thead>
<tr>
<th>Flammability</th>
<th>Health</th>
<th>Instability/Reactivity</th>
<th>Special</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

**Date of issue/Date of revision**


**Date of previous issue**

: No previous validation.

**Version**

: 1

**Key to abbreviations**

: ATE = Acute Toxicity Estimate

: BCF = Bioconcentration Factor

: GHS = Globally Harmonized System of Classification and Labelling of Chemicals

: IATA = International Air Transport Association

: IMDG = International Maritime Dangerous Goods

: LogPow = logarithm of the octanol/water partition coefficient

: UN = United Nations

Indices information that has changed from previously issued version.

**Notice to reader**

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