

Material Safety Data Sheet

Material Name: Spent Caustic Solution

MSDS ID: KDS-81

*** Section 1 - Chemical Product and Company Identification ***

Identification Number: KDS-81

Chemical Name: Sodium Hydroxide Solution

Synonyms: None

Manufacturer Information

Kaiser Aluminum

27422 Portola Parkway

Suite 350

Foothill Ranch, CA 92610

Emergency # CHEMTREC 1-800-424-9300

*** Section 2 - Hazards Identification ***

Emergency Overview

Product is a brown, odorless liquid. May cause severe irritation or burns to the eyes, skin, gastrointestinal tract, and respiratory system. May react violently with acids and water at high concentrations to release heat.

Potential Health Effects: Eyes

This product is severely irritating to the eyes and may cause eye burns.

Potential Health Effects: Skin

This product is severely irritating to the skin and may cause burns.

Potential Health Effects: Ingestion

Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract.

Potential Health Effects: Inhalation

This product is severely irritating to the respiratory system and may cause burns to the respiratory tract and mucous membranes.

HMIS Ratings: Health: 3 Fire: 0 Reactivity: 1 Pers. Prot.: Goggles, Gloves

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

*** Section 3 - Composition / Information on Ingredients ***

| CAS # | Component | Percent ¹ |
|-----------|------------------|----------------------|
| 7732-18-5 | Water | 75-90 |
| 1310-73-2 | Sodium hydroxide | 7-13, 13-15 |
| 1344-28-1 | Aluminum oxide | 3-4 |

Small amounts, <1% of each, of sodium nitrate and sodium nitrite are present in the product. Small amounts of the aluminum and alloying elements may be present.

Component Information/Information on Non-Hazardous Components

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication) and the Canadian Controlled Product Regulations.

*** Section 4 - First Aid Measures ***

First Aid: Eyes

Flush immediately with water for at least 15 minutes. Do not rub eyes. Contact a physician immediately. Continue to flush eyes while awaiting medical attention.

First Aid: Skin

For skin contact flush with large amounts of water while removing contaminated clothing. Call a physician immediately. Wash contaminated clothing before reuse. Discard any shoes or clothing items that cannot be decontaminated.

¹ Where more than one range for a component is given in the "Percent" column, the range for the component includes all the individual ranges. Thus, if the column lists 0.1-1, 1-5, 5-10, the material is present in the product at a concentration between 0.1 and 10 percent.

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First Aid: Ingestion

Give two glasses of water to dilute. Do not induce vomiting. Call a physician immediately. Never give anything by mouth to an unconscious person.

First Aid: Inhalation

If inhaled, immediately remove the affected person to fresh air. Call a physician immediately. Do NOT perform mouth-to-mouth resuscitation without proper protection for the first aider.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

Product is an aqueous solution which will not burn.

Extinguishing Media

Product will not burn. Use extinguishing media that are appropriate to surrounding materials that may be involved in the fire.

Fire Fighting Equipment/Instructions

Fire fighters should wear full-face, self-contained breathing apparatus and impervious protective clothing. Fire fighters should avoid inhaling any combustion products. Do not allow run-off from fire fighting to enter sewers or waterways.

NFPA Ratings: Health: 3 Fire: 0 Reactivity: 1

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

* * * Section 6 - Accidental Release Measures * * *

Containment Procedures

Stop the flow of material, if this is without risk. Block any potential routes to water systems.

Clean-Up Procedures

Wear appropriate protective equipment and clothing during clean-up. Neutralize the spilled material before disposal. Absorb spill with sorbent inert material appropriate for caustic materials. Shovel material into appropriate container for disposal. Sweep up or gather material and place in appropriate container for disposal. Wash spill area thoroughly. Wear appropriate protective equipment during cleanup. Spill area should be neutralized following completion of clean-up.

Evacuation Procedures

Isolate area. Keep unnecessary personnel away.

Special Procedures

Wear appropriate personal protective equipment. Do not allow product to enter sewer or waterways. Releases may be reportable to local, state, federal, and/or provincial authorities. Follow all Local, State, Federal and Provincial regulations for disposal.

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Do not get this material in your eyes, on your skin, or on your clothing. Do not inhale vapors or mists of this product. Wash thoroughly after handling. Use this product with adequate ventilation. Do not reuse the empty containers. Keep container closed. Wear appropriate personal protective equipment.

Storage Procedures

Keep the container tightly closed and in a cool, well-ventilated place. Do not store this material in open or unlabeled containers. Do not store with or near incompatible materials cited in Section 10. Store in tightly closed containers out of contact with the elements.

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* * * Section 8 - Exposure Controls / Personal Protection * * *

A: Component Exposure Limits

Consult local authorities for acceptable exposure limits.

Sodium hydroxide (1310-73-2)

| | |
|-------------------|-----------------|
| ACGIH: | 2 mg/m3 Ceiling |
| OSHA: | 2 mg/m3 |
| NIOSH: | 2 mg/m3 Ceiling |
| Alberta: | 2 mg/m3 Ceiling |
| British Columbia: | 2 mg/m3 Ceiling |
| Manitoba: | 2 mg/m3 Ceiling |
| New Brunswick: | 2 mg/m3 Ceiling |
| NW Territories: | 2 mg/m3 Ceiling |
| Nova Scotia: | 2 mg/m3 Ceiling |
| Nunavut: | 2 mg/m3 Ceiling |
| Ontario: | 2 mg/m3 CEV |
| Quebec: | 2 mg/m3 Ceiling |
| Saskatchewan: | 2 mg/m3 Ceiling |
| Yukon: | 2 mg/m3 Ceiling |

Aluminum oxide (1344-28-1)

| | |
|-------------------|--|
| ACGIH: | 10 mg/m3 TWA (particulate matter containing no asbestos and <1% crystalline silica) ² |
| OSHA: | 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) |
| Alberta: | 10 mg/m3 TWA |
| British Columbia: | 10 mg/m3 TWA (total particulate matter containing no asbestos and less than 1% crystalline silica); 3 mg/m3 TWA (respirable particulate matter containing no asbestos and less than 1% crystalline silica) |
| Manitoba: | 10 mg/m3 TWA (as Al, total dust containing no asbestos and <1% crystalline silica) |
| New Brunswick: | 10 mg/m3 TWA (particulate matter containing no asbestos and < 1% crystalline silica) |
| NW Territories: | 10 mg/m3 TWA; 5 mg/m3 TWA (respirable mass); 10 mg/m3 TWA (total mass) 20 mg/m3 STEL |
| Nova Scotia: | 10 mg/m3 TWA (particulate matter containing no asbestos and <1% crystalline silica) |
| Nunavut: | 10 mg/m3 TWA; 5 mg/m3 TWA (respirable mass); 10 mg/m3 TWA (total mass) 20 mg/m3 STEL |
| Ontario: | 10 mg/m3 TWAEV (total dust) |
| Quebec: | 10 mg/m3 TWAEV (total dust, containing no asbestos and less than 1% crystalline silica, as Al) |
| Saskatchewan: | 10 mg/m3 TWA (as Al) 20 mg/m3 STEL (as Al) |
| Yukon: | 30 mppcf TWA; 10 mg/m3 TWA 20 mg/m3 STEL |

Engineering Controls

Ventilation should effectively remove and prevent buildup of any vapor or mist generated from the handling of this product.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear chemical goggles; face shield (if splashing is possible).

Personal Protective Equipment: Skin

Use impervious gloves. Use of an impervious apron is recommended. Do not use polyvinylalcohol (PVA) gloves. Butyl, natural, neoprene, nitrile rubbers, and polyethylene, are acceptable.

² The ACGIH has proposed withdrawing the TLV of 10 mg/m3 for aluminum oxide and replacing it with a newly proposed 1 mg/m3 as respirable particulate matter for "Aluminum, Insoluble Compounds".

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Personal Protective Equipment: Respiratory

If ventilation is not sufficient to effectively control exposures, appropriate NIOSH approved respirators should be used. Respirators should be selected and used under the direction of trained health and safety professionals in accordance with all applicable health, safety, and environmental regulations.

Personal Protective Equipment: General

Use good industrial hygiene practices in handling this material. Eyewash fountains and emergency showers are required.

*** Section 9 - Physical & Chemical Properties ***

| | | | |
|--------------------------|--------------------------------|--------------------------|---------------|
| Appearance: | Brownish Liquid | Odor: | None |
| Physical State: | Liquid | pH: | 13-14 |
| Vapor Pressure: | 17 mm Hg @ 70°F (21°C) (Water) | Vapor Density: | Not available |
| Boiling Point: | 225°F (107°C) | Melting Point: | Not available |
| Solubility (H2O): | Not available | Specific Gravity: | 1.17 g/cc |
| Evaporation Rate: | <1 (Compared to Butyl Acetate) | VOC: | 75-90% |

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

This is a stable material. May react violently with acids or water at high concentrations to release heat

Chemical Stability: Conditions to Avoid

Keep away from incompatible materials.

Incompatibility

Do not store with or near strong acids, may react to liberate large amounts of heat. Spattering may also occur. May react with water at high concentration to release heat. May react with active metals to generate flammable hydrogen gas. May dissolve some rubber and plastic materials.

Possibility of Hazardous Reactions

Will not occur.

*** Section 11 - Toxicological Information ***

Acute Dose Effects

A: General Product Information

A corrosive base can cause severe irritation and burns to the eyes, skin and respiratory system. Ingestion of a corrosive liquid may result in moderately severe burns to the mouth and esophagus, with more severe burns and damage to the stomach.

B: Component Analysis - LD50/LC50

Water (7732-18-5)

Oral LD50 Rat: >90 mL/kg

Sodium hydroxide (1310-73-2)

Dermal LD50 Rabbit: 1350 mg/kg

Aluminum oxide (1344-28-1)

Oral LD50 Rat: >5000 mg/kg

Carcinogenicity

A: General Product Information

No information available for the product.

B: Component Carcinogenicity

Aluminum oxide (1344-28-1)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

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*** Section 12 - Ecological Information ***

Ecotoxicity

A: General Product Information

Because of the high pH of this product, it may produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Sodium hydroxide (1310-73-2)

Test & Species

96 Hr LC50 Oncorhynchus mykiss

45.4 mg/L

Conditions

static

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

If discarded, this product is considered a RCRA corrosive waste, D002. You must test your waste using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

All wastes must be handled in accordance with local, state and federal regulations.

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

*** Section 14 - Transportation Information ***

US DOT Information

Shipping Name: Sodium hydroxide solution

UN/NA #: UN1824 **Hazard Class:** 8 **Packing Group:** II

Required Label(s): CORROSIVE

TDG Information

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UN/NA #: UN1824 **Hazard Class:** 8 **Packing Group:** II

Required Label(s): CORROSIVE

*** Section 15 - Regulatory Information ***

US Federal Regulations

A: General Product Information

Components of this product have been checked against the non-confidential TSCA inventory by CAS Registry Number.

Components not identified on this non-confidential inventory are either exempt from listing (i.e. polymers, hydrates) or are listed on the confidential inventory as declared by the supplier.

B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Sodium hydroxide (1310-73-2)

CERCLA: 1000 lb final RQ; 454 kg final RQ

Aluminum oxide (1344-28-1)

SARA 313: 1.0 % de minimis concentration (fibrous forms)

Acute Health: Yes **Chronic Health:** No **Fire:** No **Pressure:** No **Reactive:** No

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State Regulations

A: General Product Information

Other state regulations may apply. Check individual state requirements.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

| Component | CAS | CA | MA | MN | NJ | PA | RI |
|------------------|-----------|-----|-----|-----|-----|-----|-----|
| Sodium hydroxide | 1310-73-2 | Yes | Yes | Yes | Yes | Yes | Yes |
| Aluminum oxide | 1344-28-1 | No | Yes | Yes | Yes | Yes | Yes |

Canadian WHMIS Information

A: General Product Information

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all information required by CPR.

B: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

| Component | CAS # | Minimum Concentration |
|------------------|-----------|-----------------------|
| Sodium hydroxide | 1310-73-2 | 1 % |
| Aluminum oxide | 1344-28-1 | 1 % |

WHMIS Classification: Class E- Corrosive

Additional Regulatory Information

A: General Product Information

No additional information available.

B: Component Analysis - Inventory

| Component | CAS # | TSCA | CAN | EEC |
|------------------|-----------|------|-----|--------|
| Water | 7732-18-5 | Yes | DSL | EINECS |
| Sodium hydroxide | 1310-73-2 | Yes | DSL | EINECS |
| Aluminum oxide | 1344-28-1 | Yes | DSL | EINECS |

*** Section 16 - Other Information ***

Other Information

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists. AICS = Australian Inventory of Chemical Substances. CAS = Chemical Abstract Service. CERCLA = Comprehensive Environmental Response, Compensation and Liability Act. CFR = Code of Federal Regulations. CHEMTREC = Chemical Transportation Emergency Center. DSL = Canadian Domestic Substance List. EINECS = European Inventory of New and Existing Chemical Substances. ELINCS = European List of Notified Chemical Substances. EPA = Environmental Protection Agency. HEPA = High Efficiency Particulate Air. HMIS = Hazardous Material Information System. IARC = International Agency for Research on Cancer. IDLH = Immediately Dangerous to Life and Health. MITI = Japanese Ministry of International Trade and Industry. NDSL = Canadian Non-Domestic Substance List. NFPA = National Fire Protection Association. NIOSH = National Institute of Occupational Safety and Health. NJTSR = New Jersey Trade Secret Registry. NTP = National Toxicology Program. OSHA = Occupational Safety and Health Administration. NA = Not available or Not Applicable. SARA = Superfund Amendments and Reauthorization Act. TDG = Transportation of Dangerous Goods. TLV = Threshold Limit Value. TSCA = Toxic Substances Control Act. WHMIS = Workplace Hazardous Materials Information System.

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End of Sheet KDS-81