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(This SDS follows the GHS format)

POTASSIUM HYDROXIDE

(All Grades)

SDS NUMBER: KCC – KOH - 001

SDS DATE: January 22, 2019

24 HOUR EMERGENCY PHONE NUMBER: **(973) 589-0700**
Alt. (551) 200-2751
CHEMTREC – (800) 424-9300

SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Potassium Hydroxide Liquid (All Grades)

Chemical Name: Potassium Hydroxide

CAS Number: 1310-58-3

Common Names: KOH, Potash, Caustic Potash

Chemical Formula: KOH

Company: Kuehne Chemical Company, Inc.
86 North Hackensack Avenue
South Kearny, New Jersey 07032-4673
(973) 589-0700 Fax: (973) 589-4866

Manufacturer: In addition to Kuehne Chemical Company manufactured product, Kuehne Chemical Company also utilizes various suppliers for this product. For specific information concerning the manufacturer of this product please call the company phone number listed above.



SECTION 2 – HAZARD(S) IDENTIFICATION

Category 1

Symbol:



Signal Word: Danger

Hazard Statements: May be corrosive to metals
Causes severe skin burns and eye damage
Causes severe eye damage

HMIS HAZARD RATINGS

| | |
|---------------------|---|
| HEALTH | 3 |
| FLAMMABILITY | 0 |
| PHYSICAL HAZARD | 2 |
| PERSONAL PROTECTION | |

Based on Nat'l Paint & Coatings Association HMIS system

NFPA HAZARD RATINGS



Chemical not listed. Ratings based on NFPA guidelines

Effects of Exposure

Acute: Inhalation – Exposure to vapor, mist or liquid can produce burns of the respiratory tract. Severe exposures could result in chemical pneumonia.

Eyes – Contact can cause severe damage including burns and blindness. The severity of the effects depends on concentration and how soon after exposure the eyes are washed.

Skin – Corrosive, contact may cause burns and tissue destruction.

Ingestion – Severe burns and complete tissue perforation of the mucous membranes of mouth, throat, and stomach.

Chronic: No known effects.

Note: Irritation may follow an initial latency (delay between the time that the exposure occurs and when the sense of irritation starts). The latent period can vary as much as hours for a dilute solution (0.04%) to minutes with more concentrated solutions (25-50%). Prolonged or repeated contact, even to dilute concentrations, can cause a high degree of tissue destruction.

Appearance: Clear liquid

Routes of Entry: Inhalation, Eye Contact, Skin, Ingestion

Target Organs: Eyes, Skin, Respiratory Tract, and Gastrointestinal Tract.

Cancer Information: None known

Medical Conditions Aggravated by Exposure: None known

Other Information: There are no known sensitizing capabilities, reproductive effects, or synergistic materials.

SECTION 3 – COMPOSITION AND INFORMATION ON INGREDIENTS

| <u>CAS Number</u> | <u>Name</u> | <u>Common Names</u> |
|-------------------|-------------------|------------------------|
| 7732-18-5 | Water | Water |
| | <u>Percentage</u> | <u>Exposure Limits</u> |
| | VOL: ND | PEL: Not Established |
| | WT: 48.50 - 91 | TLV: Not Established |
| | | STEL: Not Established |
| | | IDLH: Not Established |

| <u>CAS Number</u> | <u>Name</u> | <u>Common Names</u> |
|-------------------|---------------------------|------------------------|
| 1310-58-3 | Potassium Hydroxide (KOH) | Potash, Caustic Potash |
| | <u>Percentage</u> | <u>Exposure Limits</u> |
| | VOL: ND | PEL: 2 ppm ceiling |
| | WT: 9 - 51.50 | TLV: 2 ppm ceiling |

Listed on:

- The TSCA Inventory, or in compliance with the inventory.
- PA Requirement - 3% or greater.
- NJ Requirement - 1% or greater

SECTION 4 – FIRST AID MEASURES

- Inhalation:** Remove to fresh air. If breathing is difficult, have trained person administer oxygen. If respiration stops, give mouth-to-mouth resuscitation. **SEEK MEDICAL ATTENTION IMMEDIATELY.**
- Eyes:** IMMEDIATELY flush eyes with a directed stream of water for at least 15 minutes while forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissue. Washing eyes within several seconds is essential to achieve maximum effectiveness. **SEEK MEDICAL ATTENTION IMMEDIATELY.**
- Skin:** Flush thoroughly with cool water under shower while removing contaminated clothing and shoes. Discard non-rubber shoes. Wash clothing before reuse. Continue to flush until medical attention arrives. **SEEK MEDICAL ATTENTION IMMEDIATELY.**
- Ingestion:** NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. (If available, give several glasses of milk.) If vomiting occurs spontaneously, keep airway clear and give more water. **SEEK MEDICAL ATTENTION IMMEDIATELY.**

Note to Physician

No specialized procedures. Treat for clinical symptoms.

SECTION 5 – FIRE-FIGHTING MEASURES

| | |
|---|---------------|
| Flash Point: | Non-Flammable |
| Auto-ignition Temperature: | Non-Flammable |
| Flammable Limits in Air - % by Volume - Upper: | Non-Flammable |
| Lower: | Non-Flammable |
| Sensitivity to Mechanical Impact: | Not sensitive |
| Sensitivity to Static Discharge: | Not sensitive |

Extinguishing Media

Non-Flammable/Non-Combustible

Fire Fighting Procedures

Wear NIOSH/MSHA approved positive-pressure self-contained breathing apparatus and full protective clothing. Use water to cool containers but avoid getting water into containers.

Fire and Explosion Hazard

Direct contact with water can cause a violent exothermic reaction.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Steps to be Taken if Material is Released or Spilled

Evacuate unnecessary personnel. Follow protective measures provided under Personal Protection in Section 8.

Ventilation Requirements

No special ventilation required under normal use.



NOTE: Where carbon monoxide may be generated, special ventilation may be required. Where engineering controls are not feasible use adequate local exhaust ventilation wherever mist, spray or vapor may be generated.

Methods for Cleaning Up

Dry material can be shoveled up. Liquid material can be removed with a vacuum truck. Neutralize remaining traces with any dilute inorganic acid (hydrochloric, sulfuric or acetic acid). Flush spill area with water followed by a liberal covering of potassium carbonate. All clean-up material should be removed for proper treatment or disposal. Spills on other than pavement (e.g. dirt or sand) may be handled by removing the affected soil and placing in approved containers.

SECTION 7 – HANDLING AND STORAGE

Handling Precautions

Avoid breathing mist or vapors in misty atmospheres, use an approved mist respirator. If respiratory irritation is experienced, use an approved air-purifying respirator. Hazardous carbon monoxide gas can form upon contact with food and beverage products in enclosed spaces and can cause death. Follow appropriate tank entry procedures (ANSI 2117.1). Containers, even those that have been emptied, will retain product residue and vapor and should be handled as if they were full. Do not get in eyes, on skin or clothing. Do not take internally. Keep away from acids, to avoid possible violent reaction. Wash contaminated clothing before reuse. Wash thoroughly after handling, exposure can cause burns that are not immediately painful or visible.

Wear personal protective equipment as described in Exposure Controls & Personal Protection (Section 8) of the SDS.

If product is added too rapidly, or without stirring, and becomes concentrated at bottom of mixing vessel, excessive heat may be generated, resulting in dangerous boiling and spattering, and a possible immediate and violent eruption of highly caustic solution.

Mixing Precautions: Considerable heat is generated when product is mixed with water. Therefore, when making solutions always carefully follow these steps:



ALWAYS wear the protective clothing described above. NEVER add water to product. ALWAYS add product, with constant stirring, slowly to surface of lukewarm (80-100°F) water to assure product is being completely dissolved as it is added.

Product can react EXPLOSIVELY with acids, aldehydes, and many other organic chemicals, add product VERY gradually, while stirring constantly. If product is added too rapidly, or without stirring, and becomes concentrated at bottom of mixing vessel, excessive heat may be generated, resulting in dangerous boiling and spattering, and a possible immediate and violent eruption of highly caustic solution.

Before adding product, ALWAYS empty and clean containers of all residues to avoid possible EXPLOSIVE reaction between product and unknown residues.

Storage

Keep container tightly closed and properly labeled. Dike volume for storage containers should be able to contain 110% of the largest tank volume. Under normal conditions, this product can be stored satisfactorily in mild steel without an interior lining. Aluminum is not recommended for storage and handling.

Returnable containers should be shipped in accordance with supplier's recommendations. Return shipments should comply with all federal, state, and DOT regulations. All residues should be removed from containers prior to disposal. Avoid contact with aluminum, tin, zinc, and alloys containing these metals. Avoid contact with leather, wool, acids, organic halogen compounds and organic nitro compounds.

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

Specific Personal Protective Equipment

Respiratory: Respiratory protection is not required under normal use. Wear a NIOSH/MSHA approved respirator following manufacturer's recommendations, where airborne contaminants may occur.

Eye: Wear chemical safety goggles plus full face shield to protect against splashing when appropriate (ANSI 287.1)

Gloves: Wear chemical resistant gloves such as rubber, neoprene or vinyl. Wash contaminated clothing and dry before reuse. Whenever there is a possibility of splash or contact, wear a chemical resistant full body suit and boots.



Other: Standard work clothing closed at the neck and wrists. Discard shoes that cannot be decontaminated. Emergency shower and eyewash facility should be in close proximity (ANSI 2358.1)

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Colorless, Clear liquid

Odor: Odorless, No distinct odor

Physical State: Liquid

pH: 0.01 mole/liter has pH 12.0

| | Concentration – Weight % | | | | |
|---|--------------------------|----------|----------|----------|---------|
| | 10 | 20 | 30 | 45 | 50 |
| Boiling Point °F (*C): (@760 mmHg) | 0 (102) | 0 (104) | 0 (113) | 0 (133) | 0 (143) |
| Freezing/Melting Point: (°F (*C)) | 0 (- 8) | 0 (- 23) | 0 (- 89) | 0 (- 29) | 0 (4) |
| Vapor Pressure: (mm Hg @140 °F (60 °C)) | *****N/A***** | | | | |
| Specific Gravity: (@60 ° F (15.6 °C)) | 1.09 | 1.18 | 1.29 | 1.45 | 1.52 |
| Density: (lb/gal @60 ° F (15.6 °C)) | 9.09 | 9.84 | 10.75 | 12.09 | 12.67 |

Solubility in Water: Completely Soluble

Odor Threshold (ppm): Not Applicable

SECTION 10 – STABILITY AND REACTIVITY

Conditions Contributing to Instability

Stable.

Incompatibility

Product is corrosive to tin, aluminum, zinc and alloys containing these metals and will react with these metals in powder form. Avoid contact with leather, wool, acids, organic halogen compounds, or organic nitro compounds. Hazardous carbon monoxide gas can form upon contact with reducing sugars, food and beverage products in enclosed spaces and can cause death. Follow appropriate tank entry procedures.

Reacts With: Air, Water, Acids and Metals

Hazardous Decomposition Products: None

Hazardous Polymerization: Will not occur.

Comments: Considerable heat is generated when caustic is diluted with water. Proper handling procedures must be followed to prevent vigorous boiling, spattering or violent eruption of the diluted solution.

SECTION 11 – TOXICOLOGICAL INFORMATION

| <u>CAS Number</u> | <u>Name</u> | <u>Common Names</u> |
|-------------------|--|------------------------|
| 1310-58-3 | Potassium Hydroxide (KOH) | Potash, Caustic Potash |
| | Acute Oral LD₅₀: (rat) | 365 mg/kg |
| | Primary Skin Irritation: (rabbit, 24hr) | severe |
| | Primary Eye Irritation: (rabbit, 24hr) | severe |

SECTION 12 – ECOLOGICAL INFORMATION

Aquatic Ecotox Data

| | | |
|--|-----------------|---------|
| Fish: LC ₅₀ (96 hr.) | (Mosquito fish) | 80 mg/L |
|--|-----------------|---------|

Terrestrial Ecotox Data

| | | |
|-----------------------------------|--------------------|-----------|
| Wildlife: LD ₅₀ | (Rat as surrogate) | 273 mg/Kg |
|-----------------------------------|--------------------|-----------|



There is limited information available on the environmental fate and effects of potassium hydroxide (KOH). Laboratory toxicity data indicate that KOH is moderately toxic to aquatic and terrestrial organisms. The primary mode of action is due to the corrosive nature of this chemical and its tendency to increase pH in poorly buffered environments: Aquatic organisms become increasingly stressed as pH exceeds 9, with many aquatic species being intolerant of pH levels in excess of 10. Increased pH due to the introduction of KOH into aquatic environments may lead to the precipitation of essential micronutrients. Exposed terrestrial species would be subject to skin irritation and burns due to the corrosive nature of this material. Due caution should be exercised to prevent the accidental release of this material to aquatic or terrestrial environments.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste Disposal Method

Dispose of all waste and contaminated equipment in accordance with all applicable federal, state and local health and environmental regulations.

Ensure that all responsible federal, state, and local agencies receive proper notification of spill and disposal methods.

Shipments of waste materials may be subject to manifesting requirements per applicable regulations. Appropriate disposal will depend on the nature of each waste material and should be done by a competent and properly permitted contractor.

The materials resulting from clean-up operations may be hazardous wastes and, therefore, subject to specific regulations. Package, store, transport and dispose of all (clean-up) materials and any contaminated equipment in accordance with all applicable federal, state, and local regulations.

Product Disposal

Recovery and reuse, rather than disposal, should be the ultimate goal of handling efforts.

SECTION 14 – TRANSPORT INFORMATION

| | |
|----------------------------------|-------------------------------|
| DOT Proper Shipping Name: | Potassium Hydroxide, Solution |
| DOT Hazard Class: | 8 |
| DOT ID Number: | UN1814 |



| | |
|---------------------------------|------------------------------------|
| DOT Packing Group: | II |
| DOT Hazardous Substance: | RQ 1,000 Lb. (Potassium Hydroxide) |
| DOT Marine Pollutant: | Not Applicable |
| Additional Description: | Not Applicable |

SECTION 15 – REGULATORY INFORMATION

U.S. Federal Regulations

OSHA: Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records.

To aid our customers in complying with regulatory requirements, SARA Title III Hazard Categories for this product are indicated below. If the word "YES" appears next to any category, this product may be reportable by you under the requirements of 40.CFR.370. Please consult those regulations for details.

TSCA (Toxic Substances Control Act): All components of this product that are required to be on the TSCA inventory are listed on the inventory.

CERCLA and SARA/Title III:

| | | |
|-------------------|-----------------------------|-----|
| Hazard Categories | Immediate (Acute) Health: | YES |
| | Reactive Hazard: | YES |
| | Delayed (Chronic) Health: | NO |
| | Fire Hazard: | NO |
| | Sudden Release of Pressure: | NO |

SECTION 16 – OTHER INFORMATION

Product Use: Glass Manufacturing, Industrial Cleaners, Chemical & Petroleum Processing

Prepared By: Kuehne Company's Environmental, Safety & Security Department
Revision D – January 22, 2019



For additional non-emergency health, safety or environmental information, telephone:
(973) 589 - 0700 or write to:

Kuehne Chemical Company, Inc.
86 N. Hackensack Avenue
South Kearny, New Jersey 07032-4673

SDS Legend:

| | |
|---------|---|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| CAS | Chemical Abstracts Service Registry Number |
| CEILING | Ceiling Limit (15 Minutes) |
| OSHA | Occupational Safety and Health Administration |
| PEL | Permissible Exposure Limit (OSHA) |
| STEL | Short Term Exposure Limit (15 Minutes) |
| TLV | Threshold Limit Value (ACGIH) |
| TWA | Time Weighted Average (8 Hours) |

IMPORTANT: The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations.

The information presented herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge.

NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE, OR OF ANY OTHER KIND, EXPRESS OR IMPLIED, IS MADE REGARDING PERFORMANCE, STABILITY OR OTHERWISE.

This information is not intended to be all-inclusive as to the manner and conditions of handling and storage. Other factors may involve other or use additional safety or performance considerations. While our technical personnel will be happy to respond to questions regarding safe handling and use procedures, safe handling and use remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as a recommendation to infringe any existing patents or violate any federal, state or local laws, rules, regulations or ordinances.

No warranty of any kind is given or implied and Kuehne Chemical Company, Inc. will not be liable for any damages, losses, injuries or consequential damages that may result from the use of or reliance on any information contained herein.

This Safety Data Sheet (SDS) covers the following materials:



Potassium Hydroxide - Liquid: All grades

REFERENCES:

- American National Standard, Z400.1-1993
- Pamphlet 94 Sodium Hydroxide Solution and Potassium Hydroxide Solution (Caustic) Storage Equipment and Piping Systems Edition 4 September 2012
- National Institute for Occupational Safety and Health, US Dept. of Health & Human Services, Cincinnati, 1994.
- Supplier's Safety Data Sheets
- Windholz, Martha, Ed, The Merck Index, 11th ed., Merck and Co, Inc., Rahway, New Jersey, 1989.



WARNING LABEL INFORMATION

| | |
|--|--------------------------|
| Active Ingredient: Potassium Hydroxide (KOH)..... | 09 - 51.50 % (by weight) |
| Other Ingredients..... | 48.50 - 91 % |
| Total..... | 100.0 % |

KEEP OUT OF REACH OF CHILDREN

DANGER

Category 1

Symbol:



Signal Word: Danger

Hazard Statements: May be corrosive to metals
Causes severe skin burns and eye damage
Causes severe eye damage

FIRST AID

IF INHALED: Move to fresh air. If breathing is difficult, have trained person administer oxygen. If person is not breathing, call 911 or an ambulance and give mouth-to-mouth resuscitation. **SEEK MEDICAL ATTENTION IMMEDIATELY.**

IF IN EYES: IMMEDIATELY FLUSH EYES WITH A GENTLE DIRECTED STREAM OF WATER for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissue. **SEEK MEDICAL ATTENTION IMMEDIATELY.**

IF ON SKIN OR CLOTHING: Flush thoroughly with cool water under shower for at least 15 minutes, while removing contaminated clothing and shoes. Discard non-rubber shoes. Wash clothing before reuse. **SEEK MEDICAL ATTENTION IMMEDIATELY.**

IF SWALLOWED: NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water, if able to swallow. If vomiting occurs spontaneously, keep airway clear and give more water. **SEEK MEDICAL ATTENTION IMMEDIATELY.**

NOTE TO PHYSICIAN: No specialized procedures. Treat for clinical symptoms.

HOT LINE NUMBER: 1-800-POISON-1



Have product container or label with you when calling a poison control center or doctor, or going for treatment.

PRECAUTIONARY STATEMENTS HAZARDOUS TO HUMANS AND DOMESTIC ANIMALS

DANGER: MAY CAUSE BURNS TO THE EYES, SKIN, AND MUCOUS MEMBRANES, MAY CAUSE PERMANENT EYE DAMAGE. INHALATION OF DUST, MIST, OR SPRAY CAN CAUSE SEVERE LUNG DAMAGE; CAN REACT VIOLENTLY WITH WATER, ACIDS AND OTHER SUBSTANCES.

Precautions: Avoid contact with eyes, skin and clothing. Avoid breathing dust, vapors or mist. Do not swallow. Use with adequate ventilation and wear respiratory protection when exposure to dust, mist or spray is possible. Wear safety glasses with side shields or chemical splash goggles, protective clothing and chemical resistant gloves. Wash thoroughly after handling; exposure can cause burns that are not immediately painful or visible. Keep container tightly closed and properly labeled.

Product can react violently with water, acids and other substances. See Handling and Storage (Section 7) of the SDS for instructions before using. Avoid contact with aluminum, tin, zinc, and alloys containing these metals. Avoid contact with leather, wool, acids, organic halogen compounds and organic nitro compounds. Hazardous carbon monoxide gas can form upon contact with food and beverage products in enclosed spaces and can cause death. Follow appropriate tank entry procedures (ANSI 2117.1).

CAUTION: This product may react strongly with acids and water. Scoop or sweep up all spilled product and other contaminated material and place in marked disposal containers. Neutralize residue with dilute acid and flush spill area with water followed by a liberal covering of sodium carbonate. Dispose of wash water and spill by-products according to federal, state and local regulations.

DIRECTION FOR USE

IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT IN A MANNER INCONSISTENT WITH ITS LABELING.

Considerable heat is generated when product is mixed with water. Therefore, when making solutions always carefully follow these steps:

Always wear protective clothing. Never add water to product. Always add product, with constant stirring, slowly to surface of lukewarm (80-100 °F) water, to assure product is being completely dissolved as it is added.

Product can react explosively with acids, aldehydes, and many other organic chemicals, add product very gradually, while stirring constantly. If product is added too rapidly, or without stirring, and becomes concentrated at bottom of mixing vessel, excessive heat may be generated, resulting in dangerous boiling and spattering, and a possible immediate and violent eruption of highly caustic solution. Always empty and clean containers of all residue before adding product, to avoid possible explosive reaction between product and unknown residue.

STORAGE AND DISPOSAL

A spill or release of this material may trigger the emergency release reporting requirements under SARA, Title III (40 CFR, Part 355) and/or CERCLA (40 CFR, Part 300). State or local reporting



requirements may differ from federal requirements. Consult counsel for further guidance on your responsibilities under these laws.

Material that cannot be reused or chemically reprocessed should be disposed of in a manner meeting government regulations.

Always package, store, transport and dispose of all waste and contaminated equipment in accordance with all applicable federal, state, and local, health and environmental regulations.

Returnable containers should be shipped in accordance with supplier's recommendations. Return shipments should comply with all federal, state, and DOT regulations. All residues should be removed from containers prior to disposal.

Containers that have been emptied will retain product residue and vapor and should be handled as if they were full.

IN CASE OF

FIRE: Material does not burn. Use extinguishing medium as appropriate for surrounding fire.

SPILL: Get protective equipment. Contain spill and pump into marked container for reclamation for disposal. Avoid discharges to sewers and streams. Spills of 1000 pounds or more must be reported to the National Response Center at the following number:

1-800-424-8802

State and local regulations may have additional reporting requirements, check with the proper state and local authorities. Wear neoprene or rubber gloves.

**IN CASE OF CHEMICAL EMERGENCIES CALL:
24 HOUR EMERGENCY PHONE (973) 589-0700
Alt. (551) 200-2751**

