

SAFETY DATA SHEET

M31866 - ANSI - EN



CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Rev. Num. 08

Rev. Date: 10-Dec-2019

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Company Identification:	Occidental Chemical Corporation 14555 Dallas Parkway, Suite 400, Dallas, Texas 75254-4300 P.O. Box 809050, Dallas, Texas 75380-9050
Manufacturing Address:	Occidental Chemical Corporation 266 Highway 3142 Taft, LA 70057-2608
24 Hour Emergency Telephone Number:	1-800-733-3665 or 1-972-404-3228 (U.S.) CHEMTREC (U.S.): 1-800-424-9300 International CHEMTREC (outside U.S.): +1 703-527-3887
To Request an SDS:	MSDS@oxy.com or 1-972-404-3245
Customer Service:	1-800-752-5151 or 1-972-404-3700
Product Identifier:	CAUSTIC POTASH LIQUID (ALL GRADES)
Trade Name:	Caustic Potash Membrane Dilute Solution 45%, 48%, 50%; Caustic Potash (10-51% solutions); Caustic Potash Liquid; Caustic Potash Membrane Food Grade 45 - 50%
Synonyms:	KOH; Liquid Potash; Potassium Hydroxide
Product Use:	Intermediate in industrial manufacturing processes, such as manufacture of potassium fertilizers, potassium carbonate or other potassium salts and other organic chemicals; Food processing; Alkaline batteries; Detergents / soaps; Dyeing, bleaching, and mercerizing cotton; Paint and varnish removers; Electroplating, photoengraving, and lithography; Analytical chemistry and in

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organic synthesis; Pharmaceutic aid (alkalizer); Chemical peeling of fruits and vegetables; Absorption of CO₂, SO₃, and NO₃ in gas streams; pH adjustment

Note: Produced in a non-mercury cell process. Meets ANSI/AWWA B511-10 and Food Chemical Codex (FCC) test requirements. Liquid Caustic Potash is produced in a cGMP facility.

SECTION 2. HAZARDS IDENTIFICATION

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

EMERGENCY OVERVIEW:

Color: Colorless
Physical State: Liquid
Appearance: Clear liquid
Odor: Odorless

Signal Word: **DANGER**

MAJOR HEALTH HAZARDS: CORROSIVE. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. HARMFUL IF SWALLOWED.

PHYSICAL HAZARDS: MAY BE CORROSIVE TO METALS. Mixing with water, acid or incompatible materials may cause splattering and release of heat. Do not store in aluminum container, use aluminum fittings, or aluminum transfer lines, as aluminum will quickly corrode and flammable hydrogen gas will be generated. Absorb spillage to prevent material damage.

AQUATIC TOXICITY: HARMFUL TO AQUATIC LIFE.

PRECAUTIONARY STATEMENTS: Do not breathe dusts or mists. Wash skin and contaminated clothing thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves, protective clothing, eye, and face protection. Keep only in original container or container compatible with product (see Section 7 - Safe Storage Conditions). Avoid release to the environment.

ADDITIONAL HAZARD INFORMATION: Toxicity may be delayed, and may not be readily visible. Significant exposures must be referred for medical attention immediately. There is no specific antidote.

HAZARD CLASSIFICATION:

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GHS: PHYSICAL HAZARDS:	• Category 1 - Corrosive to metals
GHS: CONTACT HAZARD - SKIN:	Category 1B - Causes severe skin burns and eye damage
GHS: CONTACT HAZARD - EYE:	Category 1 - Causes serious eye damage
GHS: ACUTE TOXICITY - ORAL:	Category 4 - Harmful if swallowed
HAZARDS NOT OTHERWISE CLASSIFIED (HNOC):	• HARMFUL TO AQUATIC LIFE

Unknown Acute Dermal Toxicity:

There is no acute dermal toxicity data available for this material. Potassium hydroxide is a corrosive substance at concentrations of about 2% and higher. For this reason, there is no need for further acute toxicity testing.

Unknown Acute Inhalation Toxicity:

There is no acute inhalation toxicity data available for this material. Potassium hydroxide is a corrosive substance at concentrations of about 2% and higher. For this reason, there is no need for further acute toxicity testing.

GHS SYMBOL: Corrosive, Exclamation mark



GHS SIGNAL WORD: **DANGER**

GHS HAZARD STATEMENTS:**GHS - Physical Hazard Statement(s)**

- May be corrosive to metals

GHS - Health Hazard Statement(s)

- Causes severe skin burns and eye damage
- Causes serious eye damage
- Harmful if swallowed

GHS - Precautionary Statement(s) - Prevention

- Do not breathe mist, vapors, or spray
- Wash skin and contaminated clothing thoroughly after handling
- Do not eat, drink or smoke when using this product
- Wear protective gloves/protective clothing/eye protection/face protection
- Keep only in original container
- Avoid release to the environment

GHS - Precautionary Statement(s) - Response

- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
- IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse skin with water/shower
- Wash contaminated clothing before reuse
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- IF EXPOSED (eyes): Immediately call a POISON CENTER OR LICENSED HEALTH CARE PROVIDER

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- IF INHALED: Remove person to fresh air and keep comfortable for breathing
- IF INHALED: Immediately call a POISON CENTER OR PHYSICIAN
- Specific treatment (see First Aid information on product label and/or Section 4 of the SDS)
- Absorb spillage to prevent material damage

GHS - Precautionary Statement(s) - Storage

- Store in corrosive resistant and NON-ALUMINUM container with a resistant inner liner (NOTE: flammable hydrogen gas may be generated if aluminum container and/or aluminum fittings are used)
- Store in a secure manner

GHS - Precautionary Statement(s) - Disposal

- Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

Physical Hazards Not Otherwise Classified

- Mixing with water or other low pH material may cause heat to be released
- Do not store in aluminum container or use aluminum fittings or transfer lines, as flammable hydrogen gas will be generated
- Accelerated corrosion can occur in areas where equipment is subjected to extremely high temperatures

See Section 11: TOXICOLOGICAL INFORMATION

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	Percent [%]
Water	7732-18-5	49-90
Potassium hydroxide	1310-58-3	10-51

SECTION 4. FIRST AID MEASURES

INHALATION: IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing. IF INHALED: Immediately call a POISON CENTER OR PHYSICIAN.

SKIN CONTACT: IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water/shower. SPECIFIC TREATMENT: Wash with lots of water. IF EXPOSED (skin): Immediately call a POISON CENTER OR LICENSED HEALTH CARE PROVIDER. Wash contaminated clothing before reuse. Discard contaminated leather goods.

EYE CONTACT: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. SPECIFIC TREATMENT: Wash with lots of water. IF EXPOSED (eyes): Immediately call a POISON CENTER OR LICENSED HEALTH CARE PROVIDER.

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INGESTION: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

Most Important Symptoms/Effects (Acute and Delayed):

Corrosive. This material may be corrosive to any tissue it comes in contact with. It can cause serious burns and extensive tissue destruction resulting in: liquefaction, necrosis, and/or perforation.

Acute Symptoms/Effects:

Inhalation (Breathing): Respiratory System Effects: Exposure to airborne material may cause irritation, redness of upper and lower airways, coughing, laryngeal spasm and edema, shortness of breath, bronchio-constriction, and possible pulmonary edema. Severe and permanent scarring may occur. Aspiration of this material may cause the same conditions.

Skin: Skin Corrosion. Exposure to skin may cause redness, itching, irritation, swelling, burns (first, second, or third degree), liquefaction of skin, and damage to underlying tissues (deep and painful wounds).

Eye: Serious Eye Damage. Eye exposures may cause eyelid burns, conjunctivitis, corneal edema, corneal burn, corneal perforation, damage to internal contents of the eye, permanent visual defects, and blindness and/or loss of the eye.

Ingestion (Swallowing): Gastrointestinal System Effects: Exposure by ingestion may cause irritation, swelling, and perforation of upper and lower gastrointestinal tissues. Permanent scarring may occur. Ingestion may result in corrosive injury to the upper gastrointestinal tract. Signs and symptoms include vomiting, blood in vomit, drooling, difficulty swallowing, pain with swallowing, and abdominal pain. Hoarseness, cough, difficulty breathing are indicators of serious complications. Esophageal injury may occur in absence of oral burns. Oral burns are significant and further investigation is indicated.

Delayed Symptoms/Effects:

Repeated or prolonged exposures to skin that cause irritation may cause a chronic dermatitis.

Protection of First-Aiders: Protect yourself by avoiding contact with this material. Use personal protective equipment. Refer to Section 8 for specific personal protective equipment recommendations. Avoid contact with skin and eyes. Do not ingest. Do not breathe vapors or spray mist. At minimum, treating personnel should utilize PPE sufficient for prevention of bloodborne pathogen transmission.

Notes to Physician: Medical observation and assessment is recommended for all ingestions, all eye exposures, and symptomatic inhalation and dermal exposures. If medical observation is required, monitor for a minimum of 4 hours for the onset or worsening of symptoms. For symptomatic ingestion, do not administer oral fluids and consider investigation by endoscopy, X-ray, or CT scan. Esophageal perforation, airway compromise, hypotension, and shock are possible. For prolonged exposures and significant exposures, consider delayed injury to exposed tissues. If burn is present, treat as any thermal burn, after decontamination. There is no antidote. Treatment is supportive care. Surgical intervention may be required.

Medical Conditions Aggravated by Exposure: Corrosive. May aggravate pre-existing eye, skin, and respiratory conditions (including asthma and other breathing disorders).

SECTION 5. FIRE-FIGHTING MEASURES

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Fire Hazard: Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. The heating of the closed container causes an increase of the internal pressure, which can cause its abrupt rupture. Product can react with chemically reactive metals such as aluminum, zinc, magnesium, copper, etc., releasing hydrogen gas, which is highly flammable and can form explosive mixtures with air.

Extinguishing Media: Use extinguishing agents appropriate for surrounding fire. Caution should be taken if using water as an extinguishing agent since adding water to potassium hydroxide can generate heat and cause spattering if applied directly to dry or concentrated potassium hydroxide.

Unsuitable Extinguishing Media: Do not use a solid water stream as it may scatter and spread fire by the heat that the fire generates in contact with the water.

Fire Fighting: Move container from fire area if it can be done without risk. Cool containers with water. Do not apply water directly on this product. Heat is generated when mixed with water. Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Avoid contact with skin. Use agents appropriate for surrounding fire.

Advice for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Avoid contact with skin and eyes. Move container from fire area if it can be done without risk. Do not apply water directly to a leak. Heat is generated when mixed with water.

Hazardous Combustion Products: May react with chemically reactive metals such as aluminum, zinc, magnesium, copper, etc. to release hydrogen gas which can form explosive mixtures in air

Sensitivity to Mechanical Impact: Not sensitive.

Sensitivity to Static Discharge: Not sensitive.

Lower Flammability Level (air): Not applicable

Upper Flammability Level (air): Not applicable

Flash point: Not flammable

Auto-ignition Temperature: Not determined

GHS: PHYSICAL HAZARDS:

- Category 1 - Corrosive to metals

Physical Hazards Not Otherwise Classified

- Mixing with water or other low pH material may cause heat to be released
 - Do not store in aluminum container or use aluminum fittings or transfer lines, as flammable hydrogen gas will be generated
 - Accelerated corrosion can occur in areas where equipment is subjected to extremely high temperatures
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SECTION 6. ACCIDENTAL RELEASE MEASURES

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Personal Precautions: Avoid contact with skin, eyes and clothing. Wear appropriate personal protective equipment recommended in Section 8, Exposure Controls / Personal Protection, of the SDS. Isolate area. Keep unnecessary and unprotected personnel from entering the area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to Section 7, Handling, for additional precautionary measures. Take any precaution to avoid mixing with combustibles or incompatible materials. Ensure adequate ventilation, especially in confined areas.

Environmental Precautions: Keep out of water supplies and sewers. This material is alkaline and may raise the pH of surface waters with low buffering capacity. Releases should be reported, if required, to appropriate agencies.

Methods and Materials for Clean-up :

Recovery: In case of spill or leak, stop the leak as soon as possible. Small and large spills: Contain spilled material if possible. Completely contain spilled material with dikes, sandbags, etc. After containment, collect the spilled material and transfer to a chemical waste area. Liquid material may be removed with a properly rated vacuum truck. The recovered product must be transferred to an appropriate and compatible container (stainless steel, PVC, Fiberglass or similar). Seal and label container.

Neutralization: Neutralize residue with dilute acid and follow with a liberal covering of sodium bicarbonate or other acceptable drying agent. See Section 13, Disposal considerations, for additional information.

Final Disposal: Recycle or dispose according to regulations.

Additional Disaster Prevention Measures: No information available.

SECTION 7. HANDLING AND STORAGE

Handling:

Precautions for Safe Handling: Avoid breathing vapor or mist. Do not get in eyes, on skin or on clothing. Wash skin and contaminated clothing thoroughly after handling. Wear personal protective equipment as described in Exposure Controls/Personal Protection (Section 8) of the SDS.

Technical measures/precautions: Keep equipment clean by immediately washing off any spill or accumulation of caustic potash. When mixing always add the caustic potash solution slowly to the water surface with constant stirring. Never add the water to the caustic potash. Ensure adequate ventilation. To carry out product transfer, use appropriate transfer devices to prevent employee exposures, never perform mouth suction transfer. Avoid contact with incompatible materials.

Other precautions: When moving product in drums, utilize safety footwear and other appropriate drum handling equipment, tools, and methods. An emergency eye wash fountain and quick drench shower should be provided in the immediate work area. Equipment to respond to spills or leaks should be made available in the handling area. Have appropriate fire fighting equipment (e.g. portable fire extinguisher) available. Post "No Smoking" signs in handling and storage areas.

Prevention of contact: Avoid contact with incompatible materials. Avoid release to the environment.

Storage:

Safe Storage Conditions: Caustic potash is a corrosive chemical, which is normally handled in either steel, nickel,

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nickel alloys or certain types of plastic equipment. The specific material will depend on the conditions under which the material is being used. Do not store in aluminum container, use aluminum fittings, or aluminum transfer lines, as aluminum will quickly corrode and flammable hydrogen gas will be generated. Store and handle in accordance with all current regulations and standards. Keep container tightly closed and properly labeled. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet).

Technical measures: Use appropriate containment to avoid environmental contamination.

Incompatible Substances: Flammable liquids, Acids, Halogenated compounds, Water, Prolonged contact with aluminum, brass, bronze, copper, lead, tin, zinc or other alkali sensitive metals or alloys.

Packaging Material: Package in high density plastics, Glass fiber, glass bottles, porcelain, carbon steel, glazed stoneware, polyethylene, portable drums and / or containers made of carbon steel or polyethylene.

Additional Information:

Do not store in aluminum container or use aluminum fittings or transfer lines, as flammable hydrogen gas may be generated

GHS: PHYSICAL HAZARDS:

- Category 1 - Corrosive to metals

Physical Hazards Not Otherwise Classified

- Mixing with water or other low pH material may cause heat to be released
- Do not store in aluminum container or use aluminum fittings or transfer lines, as flammable hydrogen gas will be generated
- Accelerated corrosion can occur in areas where equipment is subjected to extremely high temperatures

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

REGULATORY EXPOSURE LIMIT(S):

This product does not contain any components that have regulatory occupational exposure limits (OELs) established.

NON-REGULATORY EXPOSURE LIMIT(S):

Listed below are the product components that have advisory (non-regulatory) occupational exposure limits (OEL's) established.

Component	ACGIH TWA	ACGIH STEL	ACGIH Ceiling	Skin Absorption - ACGIH	OSHA TWA (Vacated)	OSHA STEL (Vacated)	OSHA Ceiling (Vacated)
Potassium hydroxide	-----	-----	2 mg/m ³	-----	-----	-----	2 mg/m ³

- The Non-Regulatory United States Occupational Safety and Health Administration (OSHA) limits, if shown, are the Vacated 1989 PEL's (vacated by 58 FR 35338, June 30, 1993). OSHA Ceiling values indicate the exposure limit, which at no time shall be exceeded. Instantaneous monitoring is the preferred method to determine compliance with OSHA Ceiling values. If instantaneous monitoring is not feasible, then the ceiling shall be assessed as a 15-minute time weighted average exposure which shall not be exceeded at any time during the working day [29CFR1910.1000(a)(1)]

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- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents, and biological exposure indices.

ACGIH and/or Recommended Exposure Level (REL) Ceiling values indicate the exposure limit, which at no time shall be exceeded. Instantaneous monitoring is the preferred method to determine compliance with Ceiling values. If instantaneous monitoring is not feasible, then the ceiling shall be assessed as a 15-minute time weighted average exposure, which shall not be exceeded at any time during the working day.

Listed below are the product components that have advisory (non-regulatory) occupational exposure limits (OEL's) established

ENGINEERING CONTROLS: Provide local exhaust ventilation where dust or mist may be generated. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Wear chemical safety goggles with a face shield to protect against eye and skin contact when appropriate. Provide an emergency eyewash fountain and quick drench shower in the immediate work area.

Skin and Body Protection: Wear protective clothing to minimize skin contact. When potential for contact with wet material exists, wear Tychem® or similar chemical protective suit. When potential for contact with dry material exists, wear disposable coveralls suitable for dust exposure, such as Tyvek®. Always place pants legs over boots. Thoroughly clean and dry contaminated clothing before reuse. Discard contaminated leather goods.

Hand Protection: Wear appropriate chemical resistant gloves. If contact with forearms is likely, wear gauntlet style gloves. Consult a glove supplier for assistance in selecting an appropriate chemical resistant glove.

Protective Material Types: Butyl rubber, Natural rubber, Nitrile, Polyvinyl chloride (PVC), Tychem®, Tyvek®

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate, use a NIOSH approved full-facepiece respirator with an N100, R100, or P100 filter. For an emergency or planned entry into unknown concentrations or IDLH conditions, use any self-contained breathing apparatus (SCBA) that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode OR any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus (e.g. airline with auxiliary escape pack). A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance:	Clear liquid
Color:	Colorless

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Odor:	Odorless
Molecular Weight:	56.11
Molecular Formula:	KOH
pH:	13 - 14
Freezing Point/Range:	-85 to 39 °F (-65 to 4 °C)
Boiling point / boiling range	216 a 289 °F (102 a 143 °C)
Flash point:	Not flammable
Vapor Pressure:	4 mmHg @ 77°F (25°C) 50% solution 20 mmHg @ 77°F (25°C) 20% solution
Vapor Density (air=1):	No data available
Relative Density/Specific Gravity (water=1):	1.09 - 1.52 @ 15.6 °C
Density:	9.09 - 12.67 lbs/gal (1.09 - 1.52 kg/L) @ 15.6 °C
Water Solubility:	100%
Partition Coefficient (n-octanol/water):	Not applicable
Auto-ignition Temperature:	Not determined
Odor Threshold [ppm]:	Not applicable
Evaporation Rate (ether=1):	No data available
VOC Content (%):	0%
Volatility:	No data available
Flammability (solid, gas):	Not flammable
Lower Flammability Level (air):	Not applicable
Upper Flammability Level (air):	Not applicable
Viscosity:	See Caustic Potash Technical Handbook page 36 (Graph 7: Viscosity of Aqueous KOH Solutions)

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable at normal temperatures and pressures.

Reactivity: Soluble in water, releasing heat sufficient to ignite combustibles. Reacts with acids, giving off heat. Mixing with water, acid or incompatible materials may cause splattering and release of heat. Will react with some metals forming flammable hydrogen gas. Carbon monoxide gas may form upon contact with reducing sugars, food and beverage products in enclosed spaces.

Conditions to Avoid (e.g., static discharge, shock, or vibration): No information available.

Incompatible Substances: Flammable liquids; Acids; Halogenated compounds; Water; Prolonged contact with aluminum, brass, bronze, copper, lead, tin, zinc or other alkali sensitive metals or alloys

Hazardous Decomposition Products: Thermal decomposition can lead to release of toxic/corrosive fumes of potassium oxide.

Hazardous Polymerization: Polymerization will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

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POTENTIAL HEALTH EFFECTS:

ACUTE TOXICITY:

When in solution, this material will affect all tissues with which it comes in contact. The severity of the tissue damage is a function of its concentration, the length of tissue contact time, and local tissue conditions. After exposure, there may be a time delay before irritation and other effects occur. This material is a strong irritant and is corrosive to the skin, eyes, and mucous membranes. This material may cause severe burns and permanent damage to any tissue with which it comes into contact.

Eye contact: Corrosive. Causes serious eye damage, which can result in severe irritation, pain and burns, and permanent damage including blindness.

Skin contact: Corrosive. Causes severe skin burns. Prolonged or repeat skin exposures can result in dermatitis.

Inhalation: May cause severe irritation of the respiratory tract with coughing, choking, pain and possibly burns of the mucous membranes. This material can be extremely destructive to the tissue of the mucus membranes and respiratory system.

Ingestion: Toxic if swallowed. Corrosive. May cause severe mucus membrane burns and gastrointestinal burns. Ingestion may cause burns and perforation of the GI tract. If swallowed, may pose a lung aspiration hazard during vomiting. Lung aspiration may result in chemical pneumonitis, pulmonary edema, and damage to lung tissue or death.

CHRONIC TOXICITY:

Repeated and prolonged skin contact may result in dermatitis.

SIGNS AND SYMPTOMS OF EXPOSURE:

This material may cause severe burns and permanent damage to any tissue with which it comes into contact. Signs and symptoms of exposure vary, and are dependent on the route of exposure, degree of exposure, and duration of exposure. Aspirating this material may cause signs and symptoms that are similar to those experienced as a result of breathing or inhaling this material.

Inhalation (Breathing): Respiratory System Effects: Exposure to airborne material may cause irritation, redness of upper and lower airways, coughing, laryngeal spasm and edema, shortness of breath, bronchio-constriction, and possible pulmonary edema. Severe and permanent scarring may occur. Aspiration of this material may cause the same conditions.

Skin: Skin Corrosion. Exposure to skin may cause redness, itching, irritation, swelling, burns (first, second, or third degree), liquefaction of skin, and damage to underlying tissues (deep and painful wounds).

Eye: Serious Eye Damage. Eye exposures may cause eyelid burns, conjunctivitis, corneal edema, corneal burn, corneal perforation, damage to internal contents of the eye, permanent visual defects, and blindness and/or loss of the eye.

Ingestion (Swallowing): Gastrointestinal System Effects: Exposure by ingestion may cause irritation, swelling, and perforation of upper and lower gastrointestinal tissues. Permanent scarring may occur. Ingestion may result in corrosive injury to the upper gastrointestinal tract. Signs and symptoms include vomiting, blood in vomit, drooling, difficulty swallowing, pain with swallowing, and abdominal pain. Hoarseness, cough, difficulty breathing are indicators of serious complications. Esophageal injury may occur in absence of oral burns. Oral burns are significant and further investigation is indicated.

GHS HEALTH HAZARDS:

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GHS: CONTACT HAZARD - SKIN: Category 1B - Causes severe skin burns and eye damage
GHS: CONTACT HAZARD - EYE: Category 1 - Causes serious eye damage
GHS: ACUTE TOXICITY - ORAL: Category 4 - Harmful if swallowed

TOXICITY DATA:

PRODUCT TOXICITY DATA: Data is from studies conducted internally

LD50 Oral: 365 mg/kg (Rat)	LD50 Dermal: No data available	LC50 Inhalation: No data available
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COMPONENT TOXICITY DATA: The component toxicity data is populated by the LOLI database and may differ from the product toxicity data given.

Component	LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
Potassium hydroxide 1310-58-3	284 mg/kg (Rat)	No information available	No information available

Eye Irritation/Corrosion: Corrosive to the eyes and may cause severe damage including blindness. The product is classified as causing serious eye injury (Category 1, H318), according to criteria of the GHS.

Skin Irritation/Corrosion: This product is classified as causing severe skin burns (Category 1, H314), according to GHS classification criteria.

Skin Absorbent / Dermal Route: NO.

RESPIRATORY OR SKIN SENSITIZATION: Not classified as a skin or respiratory sensitizer per GHS criteria.

CARCINOGENICITY: Valid carcinogenicity studies with animals are not available for potassium hydroxide. Systemic carcinogenicity is not expected to occur because potassium hydroxide is not expected to be systemically available in the body under normal handling and use conditions. This product is not classified as a carcinogen by NTP, IARC or OSHA.

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure): This substance is not classified as a specific target organ toxin after a single exposure.

SPECIFIC TARGET ORGAN TOXICITY (Repeated or Prolonged Exposure): This substance is not classified as a specific target organ toxin after repeated exposures.

INHALATION HAZARD: Inhalation may cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath, bronchospasm, and pulmonary edema.

IN-VITRO / IN-VIVO GENOTOXICITY: No evidence of mutagenic activity in bacteria reverse mutation assay (e.g. Ames test). In addition, both the in vitro and the in vivo genetic toxicity tests with the structurally related sodium hydroxide indicate no evidence of mutagenic activity. Furthermore, KOH is not expected to be systemically available in the body under normal handling and use conditions and for this reason additional testing is considered unnecessary.

REPRODUCTIVE TOXICITY: Potassium hydroxide is not expected to be systemically available in the body under normal handling and use conditions and for this reason it can be stated that the substance will not reach the fetus nor male and female reproductive organs.

TOXICOKINETICS: Not available.

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METABOLISM: Not available.

BIOLOGICAL DISTRIBUTION: No information available.

PATHOGENICITY AND ACUTE INFECTIOUSNESS (ORAL, DERMAL, AND INHALATION): Studies suggest that exposure may increase the prevalence of wheezing and rhinitis; however, no measurable changes in lung function were identified.

ENDOCRINE DISRUPTOR: This product does not contain any known or suspected endocrine disruptors.

NEUROTOXICITY: Not Available.

IMMUNOTOXICITY: Not available.

SECTION 12. ECOLOGICAL INFORMATION

ECOTOXICITY (EC, IC, AN LC):

Aquatic Toxicity:

This material is alkaline and may raise the pH of surface waters with low buffering capacity. This material has exhibited moderate toxicity to aquatic organisms.

Fish Toxicity:

LC50 (Gambusia affinis): 80 mg/L 96h static

Invertebrate Toxicity:

EC50 (Daphnia magna): 60 mg/L/48 hr (static bioassay at 20.3-20.7 C)

FATE AND TRANSPORT:

PERSISTENCE: This material is alkaline and may raise the pH of surface waters with low buffering capacity. This material is believed to exist in the disassociated state in the environment.

BIODEGRADATION: This material is inorganic and not subject to biodegradation.

BIOCONCENTRATION: Considering its high water solubility, potassium hydroxide is not expected to bioconcentrate in organisms.

BIOACCUMULATIVE POTENTIAL: Potassium hydroxide is a strong alkaline substance that dissociates completely in water to K⁺ and OH⁻. Considering its high water solubility, potassium hydroxide is not expected to bioconcentrate in organisms. Log Pow is not applicable for an inorganic compound that dissociates.

MOBILITY IN SOIL: Potassium hydroxide is not expected to be absorbed in soil due to its dissociation properties and high water solubility.

ADDITIONAL ECOLOGICAL INFORMATION: This material has exhibited slight toxicity to terrestrial organisms. The risk that potassium hydroxide poses for the environment is essentially restricted to pH increase.

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SECTION 13. DISPOSAL CONSIDERATIONS

Waste from material:

Reuse or reprocess, if possible. Keep out of water supplies and sewers. May be subject to disposal regulations. Dispose of in accordance with all applicable regulations.

Container Management:

Dispose of container in accordance with applicable local, regional, national, and/or international regulations. Container rinsate must be disposed of in compliance with applicable regulations.

SECTION 14. TRANSPORT INFORMATION

LAND TRANSPORT

U.S. DOT 49 CFR 172.101:

UN NUMBER: UN1814
PROPER SHIPPING NAME: Potassium hydroxide, solution
HAZARD CLASS/ DIVISION: 8
PACKING GROUP: II
LABELING REQUIREMENTS: 8
RQ (lbs.): RQ 1,000 Lbs. (Potassium hydroxide)

Special provisions for transport: Not applicable.

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

UN NUMBER: UN1814
SHIPPING NAME: Potassium hydroxide, solution
CLASS OR DIVISION: 8
PACKING/RISK GROUP: II
LABELING REQUIREMENTS: 8

MARITIME TRANSPORT (IMO / IMDG)

UN NUMBER: 1814
PROPER SHIPPING NAME: Potassium hydroxide, solution
HAZARD CLASS / DIVISION: 8
Packing Group: II
LABELING REQUIREMENTS: 8

AIR TRANSPORT (ICAO / IATA)

UN Number: 1814
Proper shipping name: Potassium hydroxide, solution

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Hazard Class: 8
Packing group: II
Special Instructions CAO: IATA Certificate for shipping personnel is required

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code The substance poses risks from the point of view of safety (S) and contamination (P). Classified as "Y", presents a danger to marine resources or human health.

SECTION 15. REGULATORY INFORMATION**U.S. REGULATIONS****OSHA REGULATORY STATUS:**

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

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):

If a release is reportable under CERCLA section 103, notify the state emergency response commission and local emergency planning committee. In addition, notify the National Response Center at (800) 424-8802 or (202) 426-2675.

Component	U.S. DOT Hazardous Substances/ RQs	CERCLA Hazardous Substances / RQs	CERCLA Section 302 EHS EPCRA RQs	Section 302 Threshold Planning Quantity (TPQs)
Potassium hydroxide 1310-58-3 (10 - 51)	1000 lbs(RQ)	1000 lb(final RQ)	Not listed	Not Listed

SARA EHS Chemical (40 CFR 355.30)

Not regulated.

EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.10):

Acute Health Hazard

SARA HAZARD CATEGORIES ALIGNED WITH GHS (2018):

Physical Hazard - Corrosive to Metal
 Physical Hazard - Water Reactive
 Health Hazard - Acute Toxin (any route of exposure)
 Health Hazard - Skin Corrosion or Irritation
 Health Hazard - Serious eye damage or eye irritation

EPCRA SECTION 313 (40 CFR 372.65):

Not regulated.

DEPARTMENT OF HOMELAND SECURITY (DHS)- Chemical Facility Anti-Terrorism Standards (6 CFR 27):

No components in this material are regulated under DHS

OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119):

Not regulated.

FDA: This material has Generally Recognized as Safe (GRAS) status under specific FDA regulations. Additional information is available from the Code of Federal Regulations which is accessible on the FDA's website. Only the

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Food Grade product is guaranteed to be produced under all current Good Manufacturing Practices (cGMP) requirements as defined by the Food and Drug Administration (FDA). Food grade product is produced in a facility that is accredited as a Safe Quality Food (SQF) Facility, certified under the Global Food Safety Initiative (GFSI), and meets the Food Chemical Codex (FCC) requirements.

NATIONAL INVENTORY STATUS

U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA): All components are listed or exempt.

Component	TSCA Inventory	TSCA ACTIVE LIST	TSCA 12(b)	TSCA - Section 4	TSCA - Section 5	TSCA - Section 6	TSCA - Section 8
Potassium hydroxide 1310-58-3	Listed	ACTIVE	Not Listed	Not listed	Not Listed	Not listed	Not listed

CANADIAN CHEMICAL INVENTORY: All components of this product are listed on either the DSL or the NDSL.

Component	DSL	NDSL
Potassium hydroxide 1310-58-3 (10 - 51)	Listed	Not Listed

STATE REGULATIONS

Component	California Proposition 65 Cancer WARNING:	California Proposition 65 CRT List - Male reproductive toxin:	California Proposition 65 CRT List - Female reproductive toxin:	Massachusetts Right to Know Hazardous Substance List	Rhode Island Right to Know Hazardous Substance List
Potassium hydroxide	Not Listed	Not Listed	Not Listed	Listed	Listed

Component	New Jersey Right to Know Hazardous Substance List	New Jersey Special Health Hazards Substance List	New Jersey - Environmental Hazardous Substance List	Pennsylvania Right to Know Hazardous Substance List	Pennsylvania Right to Know Special Hazardous Substances	Pennsylvania Right to Know Special Hazardous Substances	Pennsylvania Right to Know Environmental Hazard List
Potassium hydroxide	1571	Listed-corrosive	Not Listed	Listed	Not Listed	Not Listed	Present

CANADIAN REGULATIONS

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

Component	Canada - CEPA - Schedule I - List of Toxic Substances	Canada - NPRI	Canada - CEPA - 2010 Greenhouse Gases (GHG) Subject to Mandatory Reporting	CANADIAN CHEMICAL INVENTORY:	NDSL:
Potassium hydroxide 1310-58-3 (10 - 51)	Not listed	Not Listed	Not Listed	Listed	Not Listed

SECTION 16. OTHER INFORMATION

Prepared by: OxyChem Corporate HESS - Product Stewardship

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Reason for Revision:

- Modified Fire Fighting Measure Recommendations: SEE SECTION 5
- Revised Handling and Storage Recommendations: SEE SECTION 7
- Updated Physical and Chemical Properties. SEE SECTION 9
- TOXICOLOGICAL INFORMATION (SECTION 11)
- Updated Transportation Information: SEE SECTION 14
- Added air transport certificate requirements for shipping personnel: SEE SECTION 14
- Added NFPA 704 Symbol: SEE SECTION 16

IMPORTANT:

The information presented herein, while not guaranteed, was prepared by technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESSED OR IMPLIED, IS MADE REGARDING PERFORMANCE, SAFETY, SUITABILITY, STABILITY OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of use, handling, storage, disposal and other factors that may involve other or additional legal, environmental, safety or performance considerations, and Occidental Chemical Corporation assumes no liability whatsoever for the use of or reliance upon this information. While our technical personnel will be happy to respond to questions, safe handling and use of the product 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 to violate any federal, state, local or foreign laws.

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. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet available to your employees.

End of Safety Data Sheet
