

SAFETY DATA SHEET



CAUSTIC POTASH LIQUID (ALL GRADES)

North America EN
SDS No.: M31866

Rev. Date: 08-Dec-2025
Rev. Num. 15

SECTION 1. CHEMICAL PRODUCT / COMPANY IDENTIFICATION

Company Identification: Occidental Chemical Corporation
14555 Dallas Parkway, Suite 400
Dallas, Texas 75254-4300

Manufacturing Address: Occidental Chemical Corporation
266 Highway 3142
Taft, LA 70057-2608

24-Hour Emergency Telephone Number: 1-800-733-3665 (USA); CANUTEC (Canada): 1-613-996-6666; CHEMTREC (within USA and Canada): 1-800-424-9300; CHEMTREC (outside USA and Canada): +1 703-527-3887; CHEMTREC Contract No: CCN16186

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

Uses Advised Against: - This product meets ANSI/AWWA B511-10 and the test requirements specified in

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

the Food Chemicals Codex (FCC); however, all prospective uses of this product in a food or food related application must be carefully assessed by the user against appropriate regulations. The product user should not make the assumption that products meeting FCC test requirements are satisfactory for all uses without such assessment. In addition, there may be other applicable requirements for a particular food product application that may need to be considered in this assessment, for example, such as those defined by the United States Food and Drug Administration (US FDA) for production in a facility following all cGMP (current Good Manufacturing Practices). It is the user's responsibility to ensure compliance of this product for their particular food use application

Other Global Restrictions on Use: Other restrictions on use based on local, regional, or national regulations may exist and must be determined on a case-by-case basis.

Chemical Family: Alkali Metal Hydroxide

Note: Caustic potash (potassium hydroxide or KOH) is manufactured by Occidental Chemical Corporation using membrane electrolytic cell technology.

SECTION 2. HAZARDS IDENTIFICATION

OSHA REGULATORY STATUS: Health hazard classifications were performed using OSHA Hazard Communication 2024 (1910.1200) Appendix A and/or UN GHS Rev. 8 (2019). This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

HEALTH CANADA HPR REGULATORY STATUS: This material is considered hazardous by the Health Canada Hazardous Products Act's Hazardous Products Regulations (HPR) (SOR/2015-17).

EMERGENCY OVERVIEW:

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

Signal Word: **DANGER**

MAJOR HEALTH HAZARDS: CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. CAUSES SERIOUS EYE DAMAGE. HARMFUL IF SWALLOWED. MAY CAUSE RESPIRATORY IRRITATION.

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

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

lines, as aluminum will quickly corrode and flammable hydrogen gas will be generated. Accelerated corrosion can occur in areas where equipment is subjected to extremely high temperatures.

PRECAUTIONARY STATEMENTS: Keep only in original container or container compatible with product (see Section 7 - Safe Storage Conditions). Do not breathe dusts or mists. Wash hands and exposed skin thoroughly after handling. Do not touch eyes. Do not eat, drink, or smoke when using this product. Wear protective gloves, protective clothing, eye, and face protection. Use only outdoors or in a well-ventilated area. Absorb / collect spillage to prevent material damage.

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:

GHS: PHYSICAL HAZARDS:	- Corrosive to Metals - Category 1: May be corrosive to metals
GHS: CONTACT HAZARD - SKIN:	Category 1A - 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
SPECIFIC TARGET ORGAN TOXICITY (STOT) - SINGLE EXPOSURE (SE):	Category 3 - May cause respiratory tract irritation

UNKNOWN ACUTE TOXICITY:**Unknown Acute Oral Toxicity:**

100% of this product consists of ingredient(s) of known acute oral toxicity.

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)

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

- Harmful if swallowed
- Causes severe skin burns and eye damage
- May cause respiratory irritation

GHS - Precautionary Statement(s) - Prevention

- Keep only in original container or container compatible with product (see Section 7 - Safe Storage Conditions)
- Do not breathe dust, fumes, gas, mist, vapors, or spray
- Wash hands and exposed skin thoroughly after handling. Do not touch eyes
- Do not eat, drink, or smoke when using this product
- Use only outdoors or in a well-ventilated area
- Wear protective gloves, protective clothing, eye, and face protection

GHS - Precautionary Statement(s) - Response

- IF SWALLOWED: Get medical help
- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
- IF INHALED: Get medical help if you feel unwell
- IF INHALED: Remove person to fresh air and keep comfortable for breathing
- IF ON SKIN: Take off immediately all contaminated clothing. Immediately rinse with water for several minutes
- Wash contaminated clothing before reuse
- IF ON SKIN: Get emergency medical help immediately
- IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- IF IN EYES: Get medical help
- Specific treatment for skin or eye contact (see "Notes to Physician" in Section 4 of the SDS)
- Absorb spillage to prevent material damage

GHS - Precautionary Statement(s) - Storage

- Store in a well-ventilated place. Keep container tightly closed
- Store locked up
- Store in corrosive resistant container with a resistant inner liner (NOTE: flammable hydrogen gas may be generated if aluminum container and/or aluminum fittings are used with dissolved material)

GHS - Precautionary Statement(s) - Disposal

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

Physical Hazards Not Mentioned in GHS Classification

- Mixing with water or other low pH material may cause splattering and/or an exothermic reaction
- May be corrosive to metals when wet (material will absorb moisture from atmosphere)
- 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

Persistent, Bioaccumulative, and Toxic (PBT) and Very Persistent and Very Bioaccumulative (vPvB) Assessment:

This product does not fulfill the criteria for persistence, bioaccumulation, and toxicity. Therefore, this substance is not considered a PBT or a vPvB substance.

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

Component	U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing	EU - PBT / vPvB Status
Potassium hydroxide	Not listed	PBT/PvBT assessment does not apply Considered not to be an EU PBT

Endocrine Disruptor Assessment:

This product nor any of its ingredients which may be present at a concentration equal to or greater than 0.1 wt.% by weight are included in the lists established in accordance with Article 59(1) of Regulation (EU) 2020/878 [as having endocrine disrupting properties]; therefore, this substance shall not be identified as having endocrine disrupting properties.

Component	Endocrine Screening List	EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation
Potassium hydroxide	Not listed	Not Listed as SVHC

See Section 11: TOXICOLOGICAL INFORMATION

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Systematic Chemical Name	Common name	CAS Number	Percent [%]
Water 7732-18-5	Dihydrogen monoxide (H ₂ O)	Water	7732-18-5	49-90
Potassium hydroxide 1310-58-3	Potassium Hydroxide	Caustic potash	1310-58-3	10-51

SECTION 4. FIRST AID MEASURES

General Advice: 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.

EYE CONTACT: IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF IN EYES: Get medical help. Specific treatment for eye contact (see "Notes to Physician" in Section 4 of the SDS).

SKIN CONTACT: IF ON SKIN: Take off immediately all contaminated clothing. Immediately rinse with water for several minutes. IF ON SKIN: Get emergency medical help immediately. Wash contaminated clothing before reuse.

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

See specific treatment for skin contact below in this Section Under "Notes to Physicians".

INHALATION: IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF INHALED: Get medical help if you feel unwell.

INGESTION: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF SWALLOWED, get medical help.

MOST IMPORTANT SYMPTOMS/EFFECTS (ACUTE AND CHRONIC [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:

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

Skin: Skin Corrosion: When skin is exposed to solid product with moisture, may cause redness, itching, irritation, swelling, burns (first, second, or third degree), liquefaction of skin, and damage to underlying tissues (deep and painful wounds).

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.

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.

Chronic (Delayed) Symptoms/Effects: Repeated or prolonged exposures to skin that cause irritation may cause chronic dermatitis.

Protection of First-Aid Responders: Protect yourself by avoiding contact with this material. Use personal protective equipment (PPE). Refer to Section 8 for specific PPE recommendations. Avoid contact with skin and eyes. Do not ingest. Do not breathe dust. 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.

Interaction with Other Chemicals Which Enhance Toxicity: May increase the hyperkalemic activity of certain drugs, such as some blood pressure medications and anti-inflammatories, which could be a significant health risk.

Medical Conditions Aggravated by Exposure: Corrosive. May aggravate pre-existing eye, skin, and respiratory

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

conditions (including asthma and other breathing disorders).

SECTION 5. FIRE FIGHTING MEASURES

Fire Hazard: Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. May react with chemically reactive metals such as aluminum, zinc, magnesium, copper, etc. to release hydrogen gas which can form explosive mixtures in air.

Explosive properties: In water solution caustic potash can react with amphoteric metals (such as aluminum) generating hydrogen which is flammable and/or explosive when ignited.

Extinguishing Media: Use extinguishing agents appropriate for surrounding fire. Use water spray to keep containers cool. Avoid direct contact of this product with water as this can cause an exothermic reaction. Use guidelines for firefighting found in ERG Guide 154 [Substances - Toxic and/or Corrosive (Non-Combustible)].

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.

Specific Hazards: Hydrolysis generates enough heat to ignite adjacent combustible material. Dissolves in water with liberation of heat, may steam and spatter. Solution is basic (alkaline).

Unusual Hazards: No hazards to be especially mentioned.

Fire Fighting: Move container from the fire area if it can be done without risk. Cool containers with water. Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Avoid contact with skin and eyes. Avoid inhalation of material or combustion by-products.

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 the 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 flammable

Upper Flammability Level (air): Not flammable

Flash point: Not flammable

Auto-ignition Temperature: Not applicable

GHS: PHYSICAL HAZARDS:

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

- Corrosive to Metals - Category 1: May be corrosive to metals

Physical Hazards Not Mentioned in GHS Classification

- Mixing with water or other low pH material may cause splattering and/or an exothermic reaction
- May be corrosive to metals when wet (material will absorb moisture from atmosphere)
- 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 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Avoid contact with skin, eyes and clothing. Do not breathe dust, fumes, gas, mist, vapors, or spray. Wash hands and exposed skin thoroughly after handling. Do not touch eyes. Do not eat, drink, or smoke when using this product. Use only outdoors or in a well-ventilated area. 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.

Personal Protective Equipment: Wear protective gloves, protective clothing, eye, and face protection.

Emergency Procedures: All transfer facilities should have a documented spill prevention and containment program for all hazardous materials. Consideration must be given to the containment of caustic spills and leaks to comply with applicable federal, state, and local regulations.

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 Containment, Confinement, and/or Abatement: Wet material is slippery under foot. Ventilate and contain spill to prevent spread. Completely contain spilled materials with dikes, sandbags, etc. After containment, collect the spilled material and transfer to a chemical waste area. Take any precaution to avoid mixing with combustibles or incompatible materials.

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. 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: Shovel dry material into suitable container. Recycle or dispose according to regulations.

Additional Disaster Prevention Measures: Use caution when selecting spill absorbents. Liquids with this reactive group classification have been known to react with the absorbents such as cellulose-based absorbents and mineral-based and clay-based absorbents.

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

SECTION 7. HANDLING AND STORAGE

Handling:

Precautions for Safe Handling:

Keep containers tightly closed to prevent formation of liquid (deliquescence). Liquid caustic potash has a markedly corrosive action on all body tissue. Even dilute solutions may have a destructive effect on tissue after prolonged contact. Inhalation of mists can cause damage to the upper respiratory tract, while ingestion of liquid caustic potash can cause severe damage to the mucous membranes or other tissues where contact is made. It is important that those who handle caustic potash are aware of its corrosive properties and know what precautions to take. In case of accidental exposure, immediately flush the exposed area with large amounts of water and seek medical attention.

Technical measures/precautions: Caustic potash is corrosive and should be handled in either steel, nickel, nickel alloys or certain types of plastic equipment. The specific handling material will depend on the conditions under which the material is being used. Consideration must be given to handling temperatures, solution concentration, need to control iron contamination / corrosion, and equipment location along with safety / environmental risk potential.

Other precautions: The addition of caustic potash to liquid will cause a rise in temperature. If caustic potash becomes concentrated in one area, or is added too rapidly, or is added to hot or cold liquid, a rapid temperature increase can result in DANGEROUS mists or boiling or spattering which may cause immediate VIOLENT ERUPTION.

Prevention of contact: Do not breathe dust or spray mist. 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.

Storage:

Safe Storage Conditions: Caustic potash is a corrosive chemical, which is normally handled in either steel, nickel, nickel alloys or certain types of plastic equipment. The specific material will depend on the conditions under which the material is being used. Temperature, solution concentration, location and safety considerations are all important factors in equipment selection. Do not store in aluminum container, or use aluminum fittings or transfer lines, as flammable hydrogen gas may be generated. Store and handle in accordance with all current regulations and standards. Keep container tightly closed and properly labeled. Store in a cool, dry, well-ventilated area. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet).

Technical measures: When using plastic storage containers such as polyethylene, polypropylene, PVC or CPVC ensure their maximum temperature limitation is not exceeded. In addition, ensure glue joints do not contain silica fillers, which can easily be attacked by caustic potash. Consult with the manufacturer of all storage and processing equipment to determine the exact limitations of the specific plastic being considered.

Incompatible Materials: DANGER: Aluminum, copper, zinc, lead and their alloys (e.g., brass and bronze) are NOT suitable for handling or storing caustic potash. Caustic potash readily attacks these materials.

Packaging or Materials of Construction: The location, capacity, design, maintenance and operation of caustic storage installations may be subject to local, state or provincial regulations and to insurance company requirements. Installations shall fully comply with all applicable requirements. Carbon steel is the most commonly used material of construction for caustic potash at low to moderate temperatures. The ideal storage temperature for caustic potash in

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

carbon steel is 80 to 100°F. Temperatures above 120°F will cause accelerated corrosion of the carbon steel and subsequent iron contamination of the caustic potash (above 120°F, cracking can occur if concentrated caustic is processed in steel equipment that has not been stress relieved). Where iron contamination or corrosion is unacceptable, epoxy lined carbon steel, 316L and 304L stainless steels are recommended. 316L and 304L stainless is acceptable to 200°F. At temperatures above 200°F, nickel is typically used but Monel®, Inconel®, or Hastelloy® can also be used. Consult with the supplier about the working temperature range of a particular lining. Plastics, such as polyethylene, polypropylene, PVC, and CPVC, can be used. They do not contribute to iron contamination. They are chemically compatible with caustic potash so long as their maximum temperature limitation is not exceeded. When using PVC or CPVC as the material of construction, use a glue that does not contain silica as a filler. PVC and CPVC glues contain a filler (typically silica). Caustic potash will attack the silica filler causing leaks to develop at the glue joints. The manufacturer of the tank, drum, piping or equipment in question should be contacted to determine the exact limitations of the specific plastic.

Additional Information:

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. Aluminum, copper, zinc, lead and their alloys (brass and bronze) are NOT suitable for handling or storing caustic potash. Caustic potash readily attacks these materials.

GHS: PHYSICAL HAZARDS:

- Corrosive to Metals - Category 1: May be corrosive to metals

Physical Hazards Not Mentioned in GHS Classification

- Mixing with water or other low pH material may cause splattering and/or an exothermic reaction
- May be corrosive to metals when wet (material will absorb moisture from atmosphere)
- 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):

No United States Regulatory Exposure Levels; however, see Canadian Regulatory Exposure Level(s).

Component	Canada - TWAs	Canada - STELs	Canada - Ceilings
Potassium hydroxide 1310-58-3 (10-51 %)	-----	-----	Ontario - 2 mg/m ³ (Ceiling)

NON-REGULATORY EXPOSURE LIMIT(S):

Listed below for the product components that have non-regulatory occupational exposure limits (OELs).

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

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

1310-58-3 (10-51 %)									
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- 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 [29 CFR § 1910.1000(a)(1)]

ACGIH TLV Ceiling (C) limits are airborne concentrations that should not be exceeded in the workplace under any circumstances. Ceiling limits can supplement other limits or stand alone.

ENGINEERING CONTROLS: Use closed systems when possible. 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.

Other Protective Equipment: Provide an emergency eyewash fountain and quick drench shower in the immediate work area.

HYGIENE MEASURES: Do not breathe dust or spray mist. Do not get in eyes, on skin, or on clothing. Wear protective gloves, protective clothing, eye, and face protection. For environmental protection remove and wash all contaminated protective equipment before re-use. Use outdoors or in a well-ventilated area. Keep separated from incompatible substances.

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear liquid
Physical State:	Liquid
Color:	Colorless
Odor:	Odorless
Odor Threshold [ppm]:	Not applicable
Melting Point/Range:	Not applicable to liquids
Freezing Point/Range:	30.8% KOH, -85.4°F 44.3% KOH, -27.4°F 56.8% KOH, 90.5°F
Boiling point / boiling range	10% KOH ~ 102°C 20% KOH ~ 110°C 30% KOH ~ 120°C 40% KOH ~ 135°C 45% KOH ~ 140°C
Evaporation Rate (ether=1):	No data available
Flammability (solid, gas):	Not flammable
Lower Flammability Level (air):	Not flammable
Upper Flammability Level (air):	Not flammable
Explosion limits:	Not applicable
Flash point:	Not flammable
Auto-ignition Temperature:	Not applicable
Decomposition Temperature:	Onset of decomposition: >1,000°C (partial, K ₂ O formation)
pH:	13 - 14
Viscosity:	See Caustic Potash Technical Handbook page 36 (Graph 7: Viscosity of Aqueous KOH Solutions)
Dynamic Viscosity:	2 (10% KOH) – 9.3 (50% KOH) cPs @ 40°F
Kinematic Viscosity:	~ 3cSt for ~ 45% KOH @ 20°C
Water Solubility:	100%
Partition Coefficient (n-octanol/water):	Not applicable
Vapor Pressure:	4 mmHg @ 77°F (25°C) 50% solution 20 mmHg @ 77°F (25°C) 20% solution
Density:	9.09 - 12.67 lbs/gal (1.09 - 1.52 kg/L) @ 15.6 °C
Relative Density:	2.044 g/cm ³ at 20°C
Relative Density/Specific Gravity (water=1):	(@ 20°C) 10% KOH ~ 1.074 g/cm ³ (@ 20°C) 30% KOH ~ 1.259 g/cm ³ (@ 20°C) 50% KOH ~ 1.502 g/cm ³
Vapor Density (air=1):	No data available
Particle Size Distribution:	Not applicable to liquids
Other Information	
Molecular Formula:	KOH
Chemical Family:	Alkali Metal Hydroxide
Molecular Weight:	56.11
Explosive properties:	Not applicable
Oxidizing properties:	Not applicable
Bulk Density:	Not applicable
Crystallization Temperature:	Not applicable (see freezing point)

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

VOC Content (%):	0%
Volatility:	No data available
Surface Tension:	~ 67 dynes/cm @ 37°C
Hygroscopic:	Not applicable
Radioactivity:	KOH exhibits naturally occurring background radioactivity due to presence of the isotope potassium -40. Each gram of KOH contains ~ 583 picocuries (pCi) of isotope potassium -40, equivalent to ~ 21.6 Bq/g

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.

Possibility of Hazardous Reactions: Mixing with water, acid, or incompatible materials may cause splattering and release of large amounts of heat. When moist, reacts with some metals forming flammable hydrogen gas. Carbon monoxide gas may form upon contact with reducing sugars, food and beverage products in enclosed spaces. Potassium hydroxide (KOH) can form a potentially explosive reaction with bromoform + crown ethers, chlorine dioxide, nitrobenzene, nitromethane, nitrogen trichloride, peroxidized tetrahydrofuran, 2,4,6-trinitrotoluene. Reaction with ammonium hexachloroplatinate(2-) + heat forms a heat-sensitive explosive product. Violent reaction or ignition under the appropriate conditions with acids, alcohols, p-bis(1,3-dibromoethyl)benzene, cyclopentadiene, germanium, hyponitrous acid, maleic anhydride, nitroalkanes, 2-nitrophenol, potassium peroxodisulfate, sugars, 2,2,3,3-tetrafluoropropanol, thorium dicarbide, and molten ortho nitrophenol. 1,2-Dichloroethylene and potassium hydroxide reaction/ produces chloroacetylene, which is spontaneously flammable in air.

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

Incompatible Materials: DANGER: Aluminum, copper, zinc, lead and their alloys (e.g., brass and bronze) are NOT suitable for handling or storing caustic potash. Caustic potash readily attacks these materials.

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

Hazardous Polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS:

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

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: Potassium hydroxide is a corrosive substance at concentrations of about 2% and higher. Causes serious eye damage, which can result in severe irritation, pain and burns, and permanent damage including blindness.

Skin contact: Potassium hydroxide is a corrosive substance at concentrations of about 2% and higher. Causes severe skin burns.

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: Ingestion of alkali such as potassium hydroxide (KOH) causes liquefactive necrosis, which results in gastrointestinal burns. The severity of damage depends on concentration of KOH, but also on the quantity swallowed. Aspiration into the airway can result in life-threatening injuries to the larynx, the tracheobronchial passages, and the lungs.

CHRONIC TOXICITY:

Repeated and prolonged skin contact may result in dermatitis.

SIGNS AND SYMPTOMS OF EXPOSURE:

Signs and symptoms of exposure vary, and are dependent on the route of exposure, degree of exposure, and duration of exposure.

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: When skin is exposed to solid product with moisture, 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: Causes serious eye damage, which can result in severe irritation, pain and burns, and permanent damage including blindness.

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.

Interaction with Other Chemicals Which Enhance Toxicity: May increase the hyperkalemic activity of certain drugs, such as some blood pressure medications and anti-inflammatories, which could be a significant health risk.

GHS HEALTH HAZARDS:

GHS: CONTACT HAZARD - SKIN: Category 1A - Causes severe skin burns and eye damage

GHS: CONTACT HAZARD - EYE: Category 1 - Causes serious eye damage

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

GHS: ACUTE TOXICITY - ORAL: Category 4 - Harmful if swallowed
SPECIFIC TARGET ORGAN TOXICITY (STOT) - SINGLE EXPOSURE (SE):
Category 3 - May cause respiratory tract irritation

TOXICITY DATA:

PRODUCT TOXICITY DATA: Data is from studies conducted internally.

LD50 Oral: 365 mg/kg oral-rat LD50	LD50 Dermal: No data available	LC50 Inhalation: No data available
----------------------------------------------	------------------------------------------	----------------------------------------------

COMPONENT TOXICITY DATA: The component toxicity data is populated by the LOLI database and may differ from the product toxicity data given

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

EYE IRRITATION/CORROSION: Potassium hydroxide (KOH) causes eye irritation that varies according to concentration and exposure duration. At 1% concentration, KOH is classified as an irritant to the eyes, with even short exposures (5 minutes) resulting in noticeable irritation. At higher concentrations, such as 5%, KOH is extremely irritating and corrosive to the eyes following brief exposure, as demonstrated in rabbit studies. Lower concentrations (0.5%) produce only marginal effects, while 0.1% is generally not irritating. In vitro testing also supports these findings, with cell viability assays correlating severe irritation to concentrations as low as 0.073%. Overall, KOH is considered a significant eye irritant and becomes corrosive at concentrations of 5% and above.

SKIN IRRITATION/CORROSION: Potassium hydroxide (KOH) demonstrates clear corrosive and irritant effects on the skin, with the degree of severity dependent on concentration. Both in vivo and in vitro studies consistently show that concentrations of 2% and above are corrosive, while concentrations between 0.5% and 2% act as irritants. Animal studies (principally in rabbits and guinea pigs) and various reconstructed human skin models reveal that exposure to KOH at 2% and higher results in irreversible tissue damage, classified as corrosive. For example, Draize tests and primary dermal irritation indices in rabbits confirm severe and non-reversible skin damage at these concentrations. At 5% and 10%, KOH is repeatedly identified as highly corrosive or severely irritating, causing significant necrosis and loss of cell viability. At lower concentrations (1%), KOH is generally not corrosive but may still cause mild to moderate irritation depending on the exposure conditions and skin integrity (intact versus abraded). The reliability of individual studies varies, but the overall weight of evidence strongly supports the corrosive classification at and above 2%. No relevant data on skin irritation in humans are available, but the findings from animal and in vitro models provide a robust basis for regulatory classification. This product is classified as causing severe skin burns and eye damage (Category 1A, H314), according to GHS classification criteria.

SKIN ABSORBENT/DERMAL ROUTE: NO.

Direct skin contact can cause severe burns if not quickly rinsed away with copious amounts of water, there is no indication that skin contact with potassium hydroxide can elicit systemic poisoning.

RESPIRATORY OR SKIN SENSITIZATION: Animal studies indicate that potassium hydroxide does not cause skin sensitization. In a key experimental study using guinea pigs, no animals exhibited sensitizing reactions following repeated intracutaneous injections and a subsequent challenge dose. The results were deemed reliable with restrictions, and the test material was potassium hydroxide. As adequate in vivo data are available, further in vitro studies were considered unnecessary. Additionally, there are no relevant human data or reported cases of skin sensitization. In addition, there is no relevant information available from either animal or human studies regarding

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

respiratory sensitization caused by potassium hydroxide. Overall Conclusion: Based on the available animal data and the absence of human cases, potassium hydroxide is not classified as a sensitizer for either skin or respiratory routes.

CARCINOGENICITY: Current evidence does not indicate potassium hydroxide (KOH) to be carcinogenic under exposure conditions relevant to humans. No valid animal carcinogenicity studies for KOH are available. The only long-term study, involving repeated painting of 3–6% KOH solutions on mouse skin, showed about 15% cancer occurrence at the application site; however, these findings are attributed to non-genotoxic mechanisms—specifically, chronic irritation and prolonged inflammation resulting in increased cell proliferation and indirect hyperplasia. Similar effects were observed with hydrochloric acid (HCl), suggesting that the outcome is due to repeated tissue damage rather than any intrinsic carcinogenic property of KOH. Such exposure scenarios are not representative of typical human contact. There is also a recognized association between lye-induced esophageal strictures and esophageal squamous cell carcinoma, but this develops only after decades and is linked to chronic injury rather than direct carcinogenicity of KOH itself. Data from sodium hydroxide, a chemically similar substance, show no evidence of mutagenicity or carcinogenicity in both in vitro and in vivo studies. Furthermore, KOH is not expected to become systemically available in the body under normal handling and use, diminishing any risk of systemic carcinogenic effects. No suitable studies exist to assess the risk of local carcinogenic effects, but the available evidence does not support classification of KOH as a carcinogen, nor does it justify further animal testing. In conclusion, there is no evidence supporting the carcinogenicity of potassium hydroxide in exposure situations relevant to humans.

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure): Human evidence indicates that occupational exposure to potassium hydroxide (KOH) can cause irritation of the respiratory tract. Surveillance reports demonstrate a clear link between exposure and the onset of transient to moderately severe respiratory symptoms, which typically develop shortly after exposure begins. Based on available data, including a cross-sectional study of workers in alumina refineries, peak exposure to caustic mist (including KOH and NaOH) was associated with increased reports of work-related wheeze and rhinitis. However, these exposures did not result in measurable changes in lung function. The study categorized exposure levels as low (1.0 mg/m^3), with those in the highest exposure group showing a greater prevalence of respiratory symptoms but no significant difference in forced expiratory volume (FEV₁). The concentration of 1.0 mg/m^3 is considered a No Observed Adverse Effect Concentration (NOAEC) for local transient effects on the respiratory tract. Exposures up to this level have not been associated with adverse local respiratory effects in humans.

SPECIFIC TARGET ORGAN TOXICITY (Repeated or Prolonged Exposure): Repeated dose toxicity studies for potassium hydroxide (KOH) via oral, inhalation, and dermal routes have not been conducted due to exposure considerations and regulatory guidance. Specifically, in vivo testing is avoided for corrosive substances at concentrations that cause corrosivity, as outlined in the introductory sections of Annexes VII-X of the REACH Regulation. KOH is considered corrosive at concentrations of approximately 2% or higher.

Oral exposure: No short-term oral toxicity studies are required because relevant human exposure can be excluded, and systemic effects are not anticipated. KOH is hydrolyzed into potassium (K⁺) and hydroxide (OH⁻) ions; the latter is quickly buffered in the stomach, and the potassium ions are not expected to cause adverse effects at low exposure levels.

Inhalation and dermal exposure: Short-term repeated dose toxicity studies are also waived for inhalation and dermal routes, as human exposure in production or use is considered unlikely. Furthermore, KOH is not expected to be systemically available in the body under normal handling and use conditions, so no systemic effects are anticipated following repeated exposure.

No relevant information is available for repeated dose toxicity via other routes or for humans. Overall, potassium hydroxide is not expected to cause systemic toxicity after repeated exposure under typical conditions of use. While there are no available inhalation studies due to animal welfare concerns and while experience with this substance is mainly inflammation of upper respiratory tract, chronic exposures have been reported in the literature to cause ulcers in the nasal septum. However, there are no reports on investigation and research regarding what levels of airborne

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

concentrations and the duration of exposure occurrence causes these nasal septum ulcers.

INHALATION HAZARD: Occupational surveillance data confirm that inhalation exposure to potassium hydroxide is associated with irritation of the respiratory tract. Signs of transient to moderately severe respiratory tract irritation typically appear soon after exposure begins. The concentration of 1.0 mg/m³ is identified as a No Observed Adverse Effect Concentration (NOAEC) for transient local effects. A cross-sectional study of workers in alumina refineries (Fritschi et al., 2001) found that subjects in the highest current exposure group to caustic mist (including KOH) reported an increased prevalence of work-related wheeze and rhinitis, though no measurable changes in lung function (FEV1) were observed. Exposure concentrations up to 1 mg/m³ were not considered adverse for local respiratory effects. Thus, at or below this concentration, inhalation of KOH is not expected to cause adverse local effects to the respiratory tract. In summary, potassium hydroxide is irritating to the respiratory system upon inhalation, but a concentration of 1.0 mg/m³ is considered the threshold below which no adverse local respiratory effects are expected. There are 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. In addition, all human exposure cases were the result of unintentional ingestion or suicide attempts not applicable to the occupational setting; therefore, GHS classification for acute inhalation toxicity is not possible.

INGESTION HAZARD: Acute oral toxicity testing for potassium hydroxide (KOH) is generally not required if the substance is classified as corrosive to the skin, as per REACH regulations. Potassium hydroxide is recognized as corrosive at concentrations of approximately 2% and above, and as an irritant between 0.5% and 2%. KOH exhibits moderate acute oral toxicity, primarily attributed to its corrosive nature. Animal studies, such as those by Bruce (1987), report an LD50 of 273–333 mg/kg body weight in rats, with adverse effects observed. The systemic effects seen are considered secondary to the local corrosive action of the substance. Human data indicate that ingestion of KOH mainly results in gastrointestinal burns, with the mechanism of injury being liquefactive necrosis. Severe tissue damage can occur rapidly, potentially involving the esophagus, stomach, and adjacent organs. The severity of injury depends on both the concentration and the amount ingested. Aspiration of KOH can also cause life-threatening injuries to the respiratory tract.

GERM CELL/IN-VITRO MUTAGENICITY: A comprehensive assessment of potassium hydroxide (KOH) mutagenicity reveals no evidence of genotoxic or mutagenic potential. In vitro studies, including bacterial reverse mutation assays (Ames test) and chromosomal aberration tests in mammalian cells, generally indicated negative or ambiguous results, with any positive findings attributable to non-physiological pH conditions rather than intrinsic genotoxicity of KOH. The available data are hampered by methodological limitations and lack of standard, high-quality in vitro mammalian cell tests. Importantly, the dissociation products of KOH (potassium cation and hydroxide anion) are essential for normal human physiology and do not possess genotoxic potential. KOH is not expected to become systemically available in the body under typical handling and use conditions, further reducing any risk of systemic genotoxic effects. No in vivo genotoxicity studies have been conducted, as justified by regulatory guidelines: further in vivo testing is only necessary if positive in vitro results are observed, which is not the case for KOH. Additionally, technical constraints related to maintaining physiological pH in test systems make further in vitro or in vivo studies impractical and scientifically unnecessary. Overall, the available evidence does not support classification of potassium hydroxide as genotoxic or mutagenic, and there is no requirement for further testing under current regulatory frameworks.

REPRODUCTIVE TOXICITY: Current evidence indicates that potassium hydroxide (KOH) poses no significant risk for reproductive or developmental toxicity. Animal and human data are lacking, but a waiver for further studies is justified on several grounds: KOH demonstrates low toxicological activity, with no evidence of toxicity in available tests; toxicokinetic data show no systemic absorption under relevant exposure conditions; and there is no or negligible human exposure during normal handling and use. Consequently, KOH is not expected to reach the fetus or the reproductive organs in toxic concentrations, making further animal testing or specific studies unnecessary. Extended one-generation reproductive toxicity studies are also deemed scientifically unnecessary, as the same rationale

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

applies: absence of systemic exposure, low inherent toxicity, and lack of significant human exposure. There is no relevant information available regarding reproductive or developmental toxicity in humans. Key regulatory assessments (e.g., OECD SIDS, 2002) support the conclusion that potassium hydroxide should not be classified for reproductive or developmental toxicity. In summary, potassium hydroxide is not classified as a reproductive or developmental toxicant, as it is not systemically available in the body under normal handling and use conditions, and therefore cannot reach the fetus or reproductive organs in effective toxic concentrations.

ASPIRATION HAZARD: Not applicable for solid forms of potassium hydroxide. There are human case reports in the literature of unintentional ingestion of liquid KOH describing aspiration hazards of the alkali into the airways causing fatal damage to the larynx, trachea, bronchus, and lungs.

TOXICOKINETICS: As potassium hydroxide is dissociated in the body fluids, its systemic toxicity must be discussed for its constituting potassium (K⁺) and hydroxyl ions (OH⁻) separately. Regulation of K⁺ concentration in blood is assured principally by renal excretion and reabsorption. Uptake of the OH⁻ ion is not expected to change the pH in the blood under normal handling and use conditions.

METABOLISM: Not Available.

BIOLOGICAL DISTRIBUTION: See Toxicokinetics above.

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: Potassium hydroxide is highly corrosive but not neurotoxic. Any neurological symptoms during poisoning cases are secondary to severe systemic damage (e.g., shock, hypoxia), not direct nerve toxicity.

IMMUNOTOXICITY: No relevant information available.

SECTION 12. ECOLOGICAL INFORMATION**ECOTOXICITY (EC, IC, and LC):**

Component:	Freshwater Fish:	Invertebrate Toxicity:	Algae Toxicity:	Other Toxicity:
Potassium hydroxide 1310-58-3 (10-51 %)	LC50 (Gambusia affinis): 80 mg/L 96h static	EC50 (Daphnia magna): 60 mg/L/48 hour (static bioassay @ 20.3-20.7 °C)	No data available	No data available

Aquatic Toxicity:

Potassium hydroxide is a strong alkaline substance that dissociates completely in water to K⁺ and OH⁻. Therefore, the only possible effect would result from the pH effect. There are no available chronic aquatic data for KOH. The acute effects are mostly linked to pH; it is not expected to have long-term effect on the environment.

Fish Toxicity:

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

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

Algae Toxicity:

ErC50 Green algae: 61 mg/kg (96 hour).

Invertebrate Toxicity:

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

FATE AND TRANSPORT:

PERSISTENCE: Potassium hydroxide (KOH) is an inorganic, highly water-soluble compound that dissociates completely into potassium (K^+) and hydroxide (OH^-) ions upon entering aquatic environments. Due to its inorganic nature, it does not undergo biodegradation or hydrolysis in the traditional sense, and regulatory guidance confirms that testing for such degradation processes is unnecessary and technically not feasible. KOH does not adsorb onto particulate matter or surfaces, nor does it accumulate in living organisms. Atmospheric releases are rapidly neutralized by carbon dioxide and subsequently removed by rainfall. Consequently, potassium hydroxide is not persistent in the environment—it is rapidly transformed into naturally occurring ions and does not bioaccumulate or pose a risk of secondary poisoning. Overall, its environmental fate is dominated by immediate dissociation and neutralization, resulting in minimal environmental persistence.

BIODEGRADATION: Biodegradation studies for potassium hydroxide are waived as the substance is inorganic. Screening and simulation tests for biodegradation in water, sediment, and soil are considered scientifically unnecessary and technically not feasible, in line with REACH Annex IX and relevant guidance. Ready biodegradability testing is not required for inorganic substances, and guidance documents confirm that such studies are unnecessary for potassium hydroxide. Potassium hydroxide is highly soluble in water and dissociates completely into potassium and hydroxide ions. Its physicochemical properties indicate it will predominantly remain in the aquatic environment, with negligible adsorption onto surfaces or accumulation in living organisms. Atmospheric releases are rapidly neutralized by carbon dioxide and removed by rainfall. Overall, based on regulatory requirements and scientific understanding, biodegradation testing for potassium hydroxide is not required or relevant due to its inorganic nature and environmental behavior.

BIOCONCENTRATION: This material is not expected to bioconcentrate in organisms.

BIOACCUMULATIVE POTENTIAL: Potassium hydroxide exhibits a low potential for bioaccumulation in both aquatic and terrestrial environments. Due to its high solubility in water and complete dissociation into potassium (K^+) and hydroxide (OH^-) ions, it is not expected to bioconcentrate in organisms. Consequently, studies on bioaccumulation are scientifically unnecessary according to REACH Regulation adaptations, and the use of Log Pow is not applicable for this inorganic, dissociating compound.

MOBILITY IN SOIL: Potassium hydroxide exhibits no tendency to bind to soil particles and does not sorb to solid material. Upon entering the soil, it rapidly dissociates into potassium (K^+) and hydroxide (OH^-) ions, both of which are directed towards the pore water. As a result, exposure via the solid phase is considered highly unlikely, and potassium hydroxide demonstrates high mobility within the soil environment. This pronounced mobility means terrestrial toxicity testing is complicated by pH changes rather than by accumulation in the soil matrix, further supporting the conclusion that potassium hydroxide is not retained in soils and is readily transported with soil water.

High water solubility and low vapor pressure indicate that potassium hydroxide will be found predominantly in aqueous environments. The substance characteristics imply KOH will not adsorb on particulate matter or surfaces and will not accumulate in living substances. Small terrestrial emissions will be neutralized by the buffer capacity of the soil.

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

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.

Persistent, Bioaccumulative, and Toxic (PBT) and Very Persistent and Very Bioaccumulative (vPvB) Assessment:

This product does not fulfill the criteria for persistence, bioaccumulation, and toxicity. Therefore, this substance is not considered a PBT or a vPvB substance.

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 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.

Contaminated Material:

Contaminated packaging should be disposed of as unused product.

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: B2, IB2, T7, TP2.

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

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

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

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)

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:**

Health hazard classifications were performed using OSHA Hazard Communication 2024 (1910.1200) Appendix A and/or UN GHS Rev. 8 (2019). 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 (TPQ)
Potassium hydroxide 1310-58-3 (10-51 %)	1000 lbs(RQ) lbs. (RQ)	1000 lbs. (RQ)	Not listed	Not Listed

SARA EHS Chemical (40 CFR 355.30)

Not regulated.

SARA HAZARD CATEGORIES ALIGNED WITH GHS (2018):

Physical Hazard - Corrosive to Metal
Health Hazard - Acute Toxin (any route of exposure)
Health Hazard - Skin Corrosion or Irritation
Health Hazard - Serious eye damage or eye irritation
Health Hazard - Specific Target Organ Toxicity (STOT) Single Exposure (SE)

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

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

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 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.

EPA'S CLEAN WATER AND CLEAN AIR ACTS:

Component(s) not listed on impacted regulatory lists.

OTHER REGULATIONS OF NOTE:

The U.S. Department of Transportation (DOT), Occupational Safety and Health Administration (OSHA), and Transport Canada (TC) have requirements applicable to handling hazardous materials and the emergency response to clean up spills and releases. In particular, OSHA has regulations contained in 29 CFR 1910.120 covering areas including cleanup operations, use of personal protective equipment and emergency response training. Shippers, carriers and marine terminal operators should familiarize themselves with these specific requirements and other OSHA/WHMIS emergency response requirements

NATIONAL INVENTORY STATUS**U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA):**

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 (10 - 51 %)	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**California Proposition 65:**

This product is not listed on the California Governor's current list of Carcinogens, Reproductive Toxicants, and/or Candidate Carcinogens (Proposition 65), but it may contain trace amounts of impurities that are listed. For additional information, contact Occidental Chemical Corporation Customer Service (1-800-752-5151 or 1-972-404-3700).

Component	U.S. - California - Proposition 65 - Carcinogens List	CA. Prop. 65 Teratogen	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 1310-58-3 (10 - 51 %)	Not listed	Not listed	Not Listed	Not Listed	Listed	Listed

Component	New Jersey Right	New Jersey	New Jersey -	Pennsylvania	Pennsylvania	Pennsylvania

CAUSTIC POTASH LIQUID (ALL GRADES)

SDS No.: M31866
Supersedes Date: 2021-16-December

Rev. Date: 08-Dec-2025
Rev. Num. 15

	to Know Hazardous Substance List	Special Health Hazards Substance List	Environmental Hazardous Substance List	Right to Know Hazardous Substance List	Right to Know Special Hazardous Substances	Right to Know Environmental Hazard List
Potassium hydroxide	1571	Listed - Corrosive	Not Listed	Listed	Not Listed	Listed

CANADIAN REGULATIONS

This product has been classified in accordance with the hazard criteria of the Workplace Hazardous Materials Information System (WHMIS 2015) which includes the amended Hazardous Products Act (HPA) and the Hazardous Product Regulations (HPR).

Component	Canada - CEPA - Schedule I - List of Toxic Substances	Canada - NPRI	Canada - CEPA - 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 on inventory	Not Listed

SECTION 16. OTHER INFORMATION

Prepared by: OxyChem Corporate HESS - Product Stewardship

Rev. Date: 08-Dec-2025

Reason for Revision:

- Scheduled review
- A component has been added to the formulation. SEE SECTION 3
- SDS format adopts revisions to the Hazardous Products Regulations (HPR) to include revisions to "Section 9: Physical and chemical properties" and ensures classification with at a minimum the seventh revised edition of GHS and certain elements from the eighth revised edition (Revision 8)
- SDS format adopts revisions to the OSHA's 2024 Hazard Communication Rule 29CFR 1910.1200 and ensures classification with at a minimum the seventh revised edition of GHS and certain elements from the eighth revised edition (Revision 8)

IMPORTANT:

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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

CAUSTIC POTASH LIQUID (ALL GRADES)

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available to your employees.

End of Safety Data Sheet