



Occidental Chemical Corporation

A subsidiary of Occidental Petroleum Corporation



SAFETY DATA SHEET CAUSTIC POTASH LIQUID (ALL GRADES)

MSDS No.: M31866

Rev. Date: 06-September-2011

Rev. Num. 05

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Company Identification:

Occidental Chemical Corporation
5005 LBJ Freeway
P.O. Box 809050
Dallas, TX
75380-9050

Supplier:

Occidental Chemical Belgium bvba
A.Z. De Vunt 13/9
3220 Holsbeck, Belgium
Phone: (32) 16-47-98-90

24 Hour Emergency Telephone Number: 1-800-733-3665 or 1-972-404-3228 (U.S.); 32.3.575.55.55 (Europe); 1800-033-111 (Australia)

To Request an SDS: MSDS@oxy.com or 1-972-404-3245

Customer Service: 1-800-752-5151 or 1-972-404-3700

Email of competent person responsible for SDS: SDS_Tech@oxy.com

Trade Name: Caustic Potash Membrane Dilute Solution 45%, 48%, 50%, Caustic Potash Liquid (10-40% Solution)

Synonyms: KOH, liquid potash, Potassium Hydroxide

Application Conditions:

- PC9 Coatings and paints, fillers, putties, thinners
- PC12 Fertilizers
- PC19 Intermediate
- PC20 pH-regulators, flocculants, precipitants, neutralization agents
- PC35 Washing and cleaning products
- PC37 Water treatment chemicals
- PC40 Extraction agents

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Generic Use Conditions:

- PROC 1 Use in closed process, no likelihood of exposure
- PROC 2 Use in closed, continuous process with occasional controlled exposure
- PROC 3 Use in closed batch process (synthesis or formulation)
- PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
- PROC 5 Mixing or blending in batch process for formulation of preparations and articles (multistage and/or significant contact)
- PROC 7 Industrial spraying
- PROC 8a/b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at either dedicated and/or non-dedicated facilities
- PROC 9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
- PROC 10 Roller application or brushing
- PROC 11 Non industrial spraying
- PROC 13 Treatment of articles by dipping and pouring
- PROC 14 Production of preparations or articles by tableting, compression, extrusion, pelettisation
- PROC 15 Use a laboratory reagent
- PROC 19 Hand-mixing with intimate contact and only PPE available
- PROC 23 Open processing and transfer operations with minerals/metals at elevated temperature
- PROC 24 High (mechanical) energy work-up of substances bound in materials and/or articles
- PROC 26 Handling of solid inorganic substances at ambient temperature

Product Use: Glass Production, Cleaner, Process cleaner, Petroleum Industry

2. HAZARDS IDENTIFICATION

The substance/preparation is classified as dangerous in accordance with Directive(s) 67/548/EEC with amendments and/or 1999/45/EC with amendments.

EC CLASSIFICATION:

C: Corrosive

Xn: Harmful



R-phrases(s)

R22 - Harmful if swallowed.

R35 - Causes severe burns.

S-phrases(s)

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

Safety Combination Phrases:

S1/2 - Keep locked up and out of the reach of children.

S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

GHS CLASSIFICATION:

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

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GHS: ACUTE TOXICITY - ORAL: Category 4 - Harmful if swallowed

GHS SYMBOL:



GHS SIGNAL WORD: DANGER

GHS - Health Hazard Statement(s)

H302 - Harmful if swallowed

H314 - Causes severe skin burns and eye damage

GHS - Physical Hazard Statement(s)

H290 - May be corrosive to metals

GHS Precautionary Statement(s) - Prevention

P234 - Keep only in original container

P260 - Do not breathe mist, vapours, or spray

P264 - Wash skin and contaminated clothing thoroughly after handling

P270 - Do not eat, drink or smoke when using this product

P280 - Wear protective gloves/protective clothing/eye protection/face protection

GHS Precautionary Statement(s) - Response

P390 - Absorb spillage to prevent material damage

P301 + P312 - IF SWALLOWED, Call a POISON CENTER or doctor/physician if you feel unwell

P330 - Rinse mouth if ingested

P305 + P351 + P338 - IF IN EYES - Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P303 + P361 + P353 - IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water

P363 - Wash contaminated clothing before reuse

P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

P310 - Immediately call a POISON CENTER or physician

P321 - Specific treatment (see First Aid information on product label and/or Section 4 of the SDS)

GHS Precautionary Statement(s) - Storage

P405 - Store in a secure manner

P406 - 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)

GHS Precautionary Statement(s) - Disposal

P501 - Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

POTENTIAL HEALTH EFFECTS:

Inhalation: May cause severe irritation of the respiratory tract with coughing, choking, pain and possibly burns of the mucous membranes.

Skin contact: Causes skin burns.

Eye contact: Causes serious eye damage.

Ingestion: Causes burns.

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Chronic Effects: None known.

See Section 11: TOXICOLOGICAL INFORMATION

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	EC-No.	REACH Reg. No.	CAS Number	%	EU Classification	PBT/PvB
Potassium hydroxide	EEC No. 215-181-3	01-2119487136-33-0017	1310-58-3	10 - 51	Xn;R22 C;R35	-----
Water	EEC No. 231-791-2	-----	7732-18-5	49 - 90	-----	-----

For the full text of the R phrases mentioned in this Section, see Section 2

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. If respiration or pulse has stopped, have a trained person administer basic life support (Cardio-Pulmonary Resuscitation and/or Automatic External Defibrillator) and CALL FOR EMERGENCY SERVICES IMMEDIATELY.

SKIN CONTACT: Immediately flush contaminated areas with water. Remove contaminated clothing, jewelry and shoes. Wash contaminated areas with soap and water. Thoroughly clean and dry contaminated clothing before reuse. Discard contaminated leather goods. GET MEDICAL ATTENTION IMMEDIATELY.

EYE CONTACT: Immediately flush eyes with a directed stream of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION: Never give anything by mouth to an unconscious or convulsive person. If swallowed, do not induce vomiting. Give large amounts of water. If vomiting occurs spontaneously, keep airway clear. Give more water when vomiting stops. GET MEDICAL ATTENTION IMMEDIATELY.

Notes to Physician: The absence of visible signs or symptoms of burns does NOT reliably exclude the presence of actual tissue damage. Probable mucosal damage may contraindicate the use of gastric lavage.

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.

Extinguishing Media: Use extinguishing agents appropriate for surrounding fire.

Fire Fighting: Move container from 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.

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Sensitivity to Mechanical Impact: Not sensitive.

Sensitivity to Static Discharge: Not sensitive.

Flash point: Not flammable

6. ACCIDENTAL RELEASE MEASURES

Occupational Release:

Wear appropriate personal protective equipment recommended in Section 8 of the SDS. Completely contain spilled material with dikes, sandbags, etc. Keep out of water supplies and sewers. Liquid material may be removed with a vacuum truck. Flush spill area with water, if appropriate. 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.

7. HANDLING AND STORAGE

Storage Conditions: Store and handle in accordance with all current regulations and standards. Keep container tightly closed and properly labeled. Do not store in aluminum container or use aluminum fittings or transfer lines, as flammable hydrogen gas may be generated. Keep separated from incompatible substances (see Section 10 of SDS).

Handling Procedures: Avoid breathing vapor or mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. When mixing, slowly add to water to minimize heat generation and spattering.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Regulatory Exposure limit(s):

Component	European Union	Austria	Belgium	Bulgaria	Czech Republic
Potassium hydroxide 1310-58-3	-----	MAK = 2 mg/m ³	-----	TWA = 2.0 mg/m ³	TWA = 1 mg/m ³ Ceiling = 2 mg/m ³

Component	Denmark	Finland	France	Germany	Greece
Potassium hydroxide 1310-58-3	Ceiling = 2 mg/m ³	Ceiling = 2 mg/m ³	VLCT = 2 mg/m ³	-----	STEL = 2 mg/m ³ TWA = 2 mg/m ³

Component	Ireland	The Netherlands	Poland	Portugal	Spain
Potassium hydroxide 1310-58-3	STEL = 2 mg/m ³	-----	NDSch = 1 mg/m ³ NDS = 0.5 mg/m ³	Ceiling = 2 mg/m ³	VLA-EC = 2 mg/m ³

Component	Turkey OELs	The United Kingdom	Italy	Switzerland	Norway
Potassium hydroxide 1310-58-3	-----	STEL = 2 mg/m ³	-----	MAK = 2 mg/m ³	Ceiling = 2 mg/m ³

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Derived No Effects Level (DNEL): Workers

Acute Exposures: Systemic Effects -
systemically available in the body under normal handling and use conditions. Therefore a DNEL for systemic effects is not applicable.

KOH is not expected to become

Acute Exposures: Dermal -

According to the CLP Regulation No 1272/2008

Annex VI Table 3.1, the concentration limit for corrosivity of KOH is considered to be 2%

Acute Exposures: Inhalation -

High peak exposure does not occur during the

manufacturing or use. Therefore a DNEL for inhalation exposures is not applicable.

Long-term exposures: Dermal -

No DNEL long-term exposure - local effect

for dermal could be derived as no reliable dose descriptors were available for that route of exposure.

Long-term exposures: Inhalation - DNEL for potassium hydroxide for long-term inhalation for workers is 1.0 mg/m³.

Derived No Effects Level (DNEL): Population

Acute Exposure: Systemic Effects -
available in the body under normal handling and use conditions. Therefore a DNEL for systemic effects is not applicable.

KOH is not expected to become systemically

Acute Exposure: Dermal -

According to the CLP Regulation No 1272/2008 Annex VI Table 3.1, the concentration limit for corrosivity of KOH is considered to be 2%.

Acute Exposure: Inhalation - Potassium hydroxide is not classified regarding acute inhalation toxicity.

Long-Term Exposure: Dermal - No DNEL long-term exposure, local effects, could be derived as no reliable dose descriptors were available for the dermal route of exposure.

Long-Term Exposure: Inhalation - DNEL for potassium hydroxide for long-term inhalation for population is 1.0 mg/m³.

Predicted No Effect Concentration (PNEC): Environment

PNEC: Aquatic -

- Based on the available data it is not considered useful to derive a PNEC for potassium hydroxide in fresh water because 1) the natural pH can vary significantly between several aquatic ecosystems and also the sensitivity to a change of the pH can vary significantly between aquatic ecosystems and 2) the change in pH due to an anthropogenic potassium hydroxide addition is influenced by the buffer capacity of the receiving water

PNEC: Soil -

- PNEC for potassium hydroxide in sediment is not considered useful because KOH is a strong alkaline substance that dissociates completely in water to K⁺ and OH⁻

OEL: Occupational Exposure Limit; OSHA: United States Occupational Safety and Health Administration; PEL: Permissible Exposure Limit; TWA: Time Weighted Average; STEL: Short Term Exposure Limit

Component	CAS Number	ACGIH TWA	ACGIH STEL	ACGIH Ceiling	OSHA TWA (Vacated)	OSHA STEL (Vacated)	OSHA Ceiling (Vacated)
Potassium hydroxide	1310-58-3			2 mg/m ³			2 mg/m ³

- 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.

RISK MANAGEMENT MEASURES (RMM):

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RMM: HEALTH

- This material is corrosive, the risk management measures for human health should focus on the prevention of direct contact with the substance utilizing automated and closed systems as feasible for manufacturing and industrial/ professional uses
- When automated, closed systems and local exhaust ventilation is not feasible, product related design measures preventing direct eye/skin contact with the material and preventing formation of aerosols and splashes should be implemented. Examples of product related design measures may include dispensers and pumps specifically designed to prevent splashes/spills/exposures
- PPE should be used where engineering and administrative controls are not feasible and/or not sufficient to reduce risk

RMM: ENVIRONMENT

- Avoid discharging solutions into municipal wastewater or to surface water
- Adequate control of the pH value during introduction into open waters is required
- Specific measures may be required by local authorities
- Fertilizers containing up to 20% of KOH in the end product require specific environmental risk measurements that include: 1) avoid direct releases into adjacent surface waters 2) minimize drift and 3) analyze agricultural soil prior to application to determine appropriate application rate

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 faceshield to protect against eye and skin contact when appropriate. Provide an emergency eye wash 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

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

Respiratory Protection: An approved respirator with high efficiency particulate air filters / cartridges may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure. A respiratory protection program that meets applicable regulatory requirements must be followed whenever workplace conditions warrant use of a respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance:	Clear
Color:	Colorless
Odor:	Odorless
Odor Threshold:	Not applicable
Molecular Weight:	56.11
Molecular Formula:	KOH
Boiling Point/Range:	216 to 289 F (102 to 143 C)
Freezing Point/Range:	-128 to 39 F (-89 to 4 C)

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9. PHYSICAL AND CHEMICAL PROPERTIES

Vapor Pressure:	Not applicable
Vapor Density (air=1):	Not applicable
Specific Gravity (water=1):	1.09 - 1.52 @ 15.6 C
Density:	9.09 - 12.67 lbs/gal @ 15.6 C
Water Solubility:	100%
pH:	12 - 14
Evaporation Rate (ether=1):	Not applicable
Partition Coefficient (n-octanol/water):	Not applicable
Flash point:	Not flammable

10. STABILITY AND REACTIVITY

Reactivity/ Stability: Stable at normal temperatures and pressures.

Conditions to Avoid: Mixing with water, acid, or incompatible materials may cause splattering and release of large amounts 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.

Incompatibilities/ Materials to Avoid: Acids, Flammable liquids, Halogenated compounds, Prolonged contact with aluminum, brass, bronze, copper, lead, tin, zinc or other alkali sensitive metals or alloys

Hazardous Decomposition Products: None known

11. TOXICOLOGICAL INFORMATION

LD50 Oral:	214 mg/kg oral-rat LD50
LC50 Inhalation:	Not listed
LD50 Dermal:	Not listed

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.

CARCINOGENICITY: This product is not classified as a carcinogen by NTP, IARC or OSHA.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

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12. ECOLOGICAL INFORMATION

- **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.
- **Freshwater Fish Toxicity:**
LC50 (Mosquito fish): 80 mg/L/96 hr (static bioassay in fresh water at 18-19 C)
LC50 (Fathead Minnow): 179 mg/L/96 hr (static at 22.3-24.7 C)
- **Invertebrate Toxicity:**
EC50 (Daphnia magna): 60 mg/L/48 hr (static bioassay at 20.3-20.7 C)

FATE AND TRANSPORT:

BIODEGRADATION: This material will disassociate into ionic form in the aquatic environment. Natural carbon dioxide will slowly neutralize this material.

BIOCONCENTRATION: This material will not bioconcentrate.

ADDITIONAL ECOLOGICAL INFORMATION:

This material has exhibited slight toxicity to terrestrial organisms.

ECOLOGICAL HAZARDS: This material has exhibited moderate toxicity to aquatic organisms.

13. DISPOSAL CONSIDERATIONS

Waste from material: Reuse or reprocess, if possible. Dispose in accordance with all applicable regulations.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:

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

MARITIME TRANSPORT IMO / IMDG:

PROPER SHIPPING NAME:	Potassium hydroxide, solution
UN NUMBER:	UN1814
HAZARD CLASS/ DIVISION:	8
Packing group:	II

LAND TRANSPORT RID:

Hazard Class:	8
UN Number:	UN1814
Packing group:	II

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LAND TRANSPORT ADR:

ADR - Hazards Class

8

UN Number:

UN1814

ADR - Tunnel Restriction Codes

E

15. REGULATORY INFORMATION**15.1 NATIONAL REGULATORY STATUS:****Germany, Water Endangering Classes (VwVwS):**

Component	German - Water Hazard Classes	German - Water Hazard Class Annex 1	German - Water Hazard Class Annex 3
Potassium hydroxide	ID Number 345, hazard class 1 - low hazard to waters	Not Listed	Not Listed

International Inventory Status:**Australian Chemical Inventory:**

Component	AICS
Potassium hydroxide	Listed

Canadian Chemical Inventory:

Component	DSL	NDSL
Potassium hydroxide	Listed	Not Listed

China Chemical Inventory:

Component	IECS
Potassium hydroxide	Listed

European Union Inventory: EINECS

Component	EU - NLPL	ELINCS	European Union Inventory: EINECS
Potassium hydroxide	Not Listed	Not Listed	215-181-3

Japan Chemical Inventory:

Component	ENCS
Potassium hydroxide	1-369

Korean Chemical Inventory:

Component	KECL
Potassium hydroxide	KE-29139

New Zealand Chemical Inventory:

Component	NZIOC
Potassium hydroxide	Listed

Philippines - Priority Chemical List:

Component	PICCS
Potassium hydroxide	Listed

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

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Component	TSCA	TSCA 12(b)	TSCA-Section 5
Potassium hydroxide	Listed	Not Listed	Not Listed

15.2 CHEMICAL SAFETY ASSESSMENT (CSA):

A Chemical Safety Report (CFR) has been carried out as required under Title VII. There are no known current restrictions under Title VIII.

16. OTHER INFORMATION

Prepared by: OxyChem Corporate HESS - Health Risk Management

Email of competent person responsible for SDS: SDS_Tech@oxy.com

Text of R Phrases mentioned in Sections 2 & 3:

R22 - Harmful if swallowed

R35 - Causes severe burns

Text of Safety Phrases mentioned in Section 2:

S1/2 - Keep locked up and out of the reach of children

S25 - Avoid contact with eyes

S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection

S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

Reason for Revision:

- Compliance with REACH and new CLP regulations

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, EXPRESS 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 OxyChem 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.

End of Safety Data Sheet
