

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS NUMBER : M31867 **ISSUE DATE :** 10-19-98

PRODUCT NAME : CAUSTIC POTASH-ANHYDROUS (ALL GRADES)

Manufacturer's Name and Address : Occidental Chemical Corporation, Occidental Tower
5005 LBJ Freeway, P.O. Box 809050
Dallas, TX 75380 (972) 404-3800

24 HOUR EMERGENCY TELEPHONE : 1-800-733-3665 OR 972-404-3228

TO REQUEST AN MSDS : 1-800-699-4970

CUSTOMER SERVICE : 1-800-752-5151

PRODUCT USE : Glass Manufacture, Industrial Cleaners, Chemical Processes, Petroleum Industry

CHEMICAL NAME : Potassium Hydroxide

CHEMICAL FORMULA : KOH

SYNONYMS/Common Names : KOH Dry
Potassium Hydroxide

2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS NUMBER / NAME
1310-58-3 Potassium hydroxide (KOH)

EXPOSURE LIMITS	PERCENTAGE
PEL: 2 mg/m ³ , Ceiling	VOL ND
TLV: 2 mg/m ³ , Ceiling	WT 84.50-90.50

COMMON NAMES:
CAUSTIC POTASH
KOH

Listed On(List Legend Below):
00 13 18 21 22 50 51

2. COMPOSITION/INFORMATION ON INGREDIENTS (Continued)

7732-18-5 Water

EXPOSURE LIMITS	PERCENTAGE	
PEL:Not Established	VOL	ND
TLV:Not Established	WT	9.50-15.50

COMMON NAMES:

Listed On(List Legend Below):
00 19 22 23 50 51

LIST LEGEND

00 TSCA INVENTORY	13 PA ENVIROMENTAL HAZ SUBSTANCE
18 NY HAZARDOUS SUBSTANCES	19 PA REQUIREMENT- 3% OR GREATER
21 NJ SPECIAL HEALTH HAZ SUB	22 CANADIAN DOMESTIC SUB LIST
23 NJ REQUIREMENT- 1% OR GREATER	50 PHILIPPINES INVENTORY (PICCS)
51 EINECS	

3. HAZARDS IDENTIFICATION

***** EMERGENCY OVERVIEW *****
*
* MAY CAUSE BURNS TO THE EYES, SKIN, AND MUCOUS MEMBRANES. MAY *
* CAUSE PERMANENT EYE DAMAGE. INHALATION OF DUST, MIST, OR SPRAY *
* CAN CAUSE SEVERE LUNG DAMAGE. CAN REACT VIOLENTLY WITH WATER, *
* ACIDS AND OTHER SUBSTANCES. *
*
* White solid with no distinct odor *

POTENTIAL HEALTH EFFECTS

ROUTES OF ENTRY:

Inhalation, Ingestion.

TARGET ORGANS:

Eyes, Skin, Respiratory Tract, Gastrointestinal Tract.

IRRITANCY:

Liquid, vapors or mist may be irritating to eyes, skin and respiratory tract.

SENSITIZING CAPABILITY:

None known.

REPRODUCTIVE EFFECTS:

None known.

CANCER INFORMATION:

None known.

3. HAZARDS IDENTIFICATION (Continued)

SHORT-TERM EXPOSURE (ACUTE)

INHALATION:

Exposure to vapor, mist or liquid can produce burns of the respiratory tract.

Severe exposures could result in chemical pneumonia.

EYES:

Contact can cause severe damage including burns and blindness.

The severity of the effects depend on concentration and how soon after exposure the eyes are washed.

SKIN:

Corrosive.

Contact may cause burns and tissue destruction.

Note that irritation may follow an initial latency (delay between the time that the exposure occurs and when the sense of irritation starts). The latent period can vary as much as hours for a dilute solution (0.04%) to minutes with more concentrated solutions (25-50%).

Prolonged or repeated contact, even to dilute concentrations, can cause a high degree of tissue destruction.

INGESTION:

Corrosive.

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

REPEATED EXPOSURE (CHRONIC)

No known chronic effects.

SYNERGISTIC MATERIALS:

None known.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

None known.

4. FIRST AID MEASURES

EYES:

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 tissue. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.

4. FIRST AID MEASURES (Continued)

SKIN:

Flush thoroughly with cool water under shower while removing contaminated clothing and shoes. Discard non-rubber shoes. Wash clothing before reuse. GET MEDICAL ATTENTION AS SOON AS POSSIBLE.

INHALATION:

Remove to fresh air. If breathing is difficult, have trained person administer oxygen. If respiration stops, have a trained person administer artificial respiration. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:

NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. (If available, give several glasses of milk.) If vomiting occurs spontaneously, keep airway clear and give more water. GET MEDICAL ATTENTION IMMEDIATELY.

NOTES TO PHYSICIAN:

No specialized procedures. Treat for clinical symptoms.

5. FIRE FIGHTING MEASURES

Flash Point: Non-flammable

Method: Not applicable

Autoignition Temperature: Non-flammable

FLAMMABLE LIMITS IN AIR, BY % VOLUME

Upper: Non-flammable
Lower: Non-flammable

EXTINGUISHING MEDIA:

Non-flammable / Non-combustible.

Use water spray to keep fire-exposed containers cool.

FIRE FIGHTING PROCEDURES:

FAND EXPLOSTENTHAZARDURES:

5. FIRE FIGHTING MEASURES (Continued)

SENSITIVITY TO STATIC DISCHARGE:

Not sensitive.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:

Evacuate unnecessary personnel.

Follow protective measures provided under Personal Protection in Section 8.

ENVIRONMENTAL PRECAUTIONS:

Contain material and prevent accumulation of dust.

CAUTION: This product may react strongly with acids and water.

NEVER FLUSH TO SEWER.

According to 40 CFR 302 Table 302.4 (CERCLA), environmental releases that exceed the RQ must be reported to the National Response Center by calling 800-424-8802 (202-426-2675) and the State Emergency Response Commission and the Local Emergency Planning Committee (40 CFR 355.40) as appropriate.

METHODS FOR CLEANING UP:

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

7. HANDLING AND STORAGE

HANDLING:

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

Avoid breathing dust.

Hazardous carbon monoxide gas can form upon contact with food and beverage products in enclosed spaces and can cause death. Follow appropriate tank entry procedures (ANSI Z117.1).

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

Do not get in eyes, on skin or clothing.

7. HANDLING AND STORAGE (Continued)

Do not take internally

Keep away from acids, to avoid possible violent reaction.

Wash contaminated clothing before reuse.

If product is added too rapidly, or without stirring, and becomes concentrated at bottom of mixing vessel, excessive heat may be generated, resulting in DANGEROUS boiling and spattering, and a possible IMMEDIATE AND VIOLENT ERUPTION of highly caustic solution.

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

Wash thoroughly after handling; exposure can cause burns which are not immediately painful or visible.

SPECIAL MIXING AND HANDLING INSTRUCTIONS:

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

~~1. Add product to water slowly, stirring continuously. NEVER add water to product.~~

7. HANDLING AND STORAGE (Continued)

Hazardous carbon monoxide gas can form upon contact with reducing sugars and food and beverage products in enclosed spaces and can cause death. Follow appropriate tank entry procedures (ANSI Z117.1).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

No special ventilation required under normal use.

NOTE: Where carbon monoxide may be generated, special ventilation may be required.

Where engineering controls are not feasible use adequate local exhaust ventilation wherever mist, spray or vapor may be generated.

PERSONAL PROTECTION

RESPIRATORY:

Respiratory protection is not required under normal use.

Wear a NIOSH/MSHA approved respirator following manufacturer's recommendations, where airborne contaminants may occur.

EYE/FACE:

Wear chemical safety goggles. (ANSI Z87.1)

SKIN:

Wear chemical resistant gloves such as rubber, neoprene or vinyl.

Wash contaminated clothing and dry before reuse.

Wear protective clothing to minimize skin contact.

OTHER:

Standard work clothing closed at the neck and wrists.

Discard shoes that cannot be decontaminated.

Emergency shower and eyewash facility should be in close proximity (ANSI Z358.1).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: White solid with no distinct odor

Odor Threshold: Not applicable

Specific Gravity (Water=1): 2.044 @ 20°C

9. PHYSICAL AND CHEMICAL PROPERTIES (Continued)

Vapor Pressure: 60mm Hg @ 1013°C

Vapor Density (Air=1): Not Applicable

Density: Not available

Evaporation Rate: Not applicable

% Volatiles by Wt: 0

Boiling Point: 1320°C @ 760 mm Hg

Freezing Point: 400°C (742°F)

Melting Point: Not available

Solubility in Water (% by wt.): Completely soluble

pH: 0.01 moles/liter has pH 12.0

Octanol/Water Partition Coefficient: Not available

Thermal Decomposition Temperature: Not available

Other: COEFFICIENT WATER/OIL DISTRIBUTION: Not Available

VOC (g/l. by wt.): 0

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY:

STABLE UNSTABLE

REACTS WITH:

<input checked="" type="checkbox"/> AIR	<input type="checkbox"/> OXIDIZERS	<input checked="" type="checkbox"/> METALS
<input checked="" type="checkbox"/> WATER	<input checked="" type="checkbox"/> ACIDS	<input checked="" type="checkbox"/> OTHER
<input type="checkbox"/> HEAT	<input type="checkbox"/> ALKALIS	<input type="checkbox"/> NONE

HAZARDOUS POLYMERIZATION:

OCCURS WILL NOT OCCUR

COMMENTS:

Avoid direct contact with water.

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

See Handling and Storage (Section 7).

10. STABILITY AND REACTIVITY (Continued)

HAZARDOUS DECOMPOSITION PRODUCTS:

None.

11. TOXICOLOGICAL INFORMATION

1310-58-3 Potassium hydroxide (KOH)

ACUTE ORAL LD50 : (rat) 365 mg/kg
PRIMARY SKIN IRRITATION : (rabbit, 24hr) severe
PRIMARY EYE IRRITATION : (rabbit, 24hr) severe

Human Dermal Exposure: Regardless of concentration, the severity of damage and extent of its irreversibility increases with length of contact time. Prolonged contact with even dilute potassium hydroxide solution (>2.0%) can cause a high degree of tissue destruction. The latent period, following skin contact during which no sensation of irritation occurs also varies with concentration.

Revised

12. ECOLOGICAL INFORMATION

1310-58-3 Potassium hydroxide (KOH)

AQUATIC ECOTOX DATA

Fish:

LC50 (96 hr.) (Fathead minnow) 179 mg/L*

Invertebrate:

EC50 (48 hr.) (Water flea) 60 mg/L*

Plant:

EC50 (96 hr.) (Green algae) 61 mg/L*

* data represents 45.25 % KOH in aqueous solution

TERRESTRIAL ECOTOX DATA

No data available

ENVIRONMENTAL FATE DATA

Biotic:

Biodeg. Inorganic, not subject to biodegradation

This material has produced slight toxicity in laboratory tests with aquatic organisms. This material is strongly alkaline. If released to surface water, this compound will cause the pH to rise dependent on the buffering capacity of the waterbody. Aquatic organisms become increasingly stressed as pH exceeds 9, with many aquatic species being intolerant of pH in excess of 10. This compound does not bioaccumulate in organisms. Due caution should be exercised to prevent the accidental release of this material to the environment.

OCCIDENTAL CHEMICAL CORPORATION
MSDS NUMBER : M31867
PRODUCT NAME : CAUSTIC POTASH-ANHYDROUS (ALL GRADES)

PAGE 10 OF 15
10-19-98

15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS:

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, material 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 Material Safety Data Sheet available to your employees. fetyogSd0 allid youcustomerson i (cplyi

nsulest osees rulatatis infidetavaees.fe /X5PT10 50 Tf 94 TLTSCANS:
cponeneens on thin pduceet thatreo0 requidle tn bonng thTSCAed

___ (___) (___5) Tj-51 5072DTLHEALTH HAZARD: 3 F

nsulest ees rulatatis s on thimportinincountryes.fe /X5PT10 50 Tf 94 TLCANADA

16. OTHER INFORMATION (Continued)

MSDS LEGEND:

ACGIH = American Conference of Governmental Industrial Hygienists

CAS = Chemical Abstracts Service Registry Number

CEILING = Ceiling Limit (15 Minutes)

CEL = Corporate Exposure Limit

OSHA = Occupational Safety and Health Administration

PEL = Permissible Exposure Limit (OSHA)

STEL = Short Term Exposure Limit (15 Minutes)

TDG = Transportation of Dangerous Goods (Canada)

TLV = Threshold Limit Value (ACGIH)

TWA = Time Weighted Average (8 Hours)

WHMIS = Worker Hazardous Materials Information System (Canada)

* = See Section 3 Hazards Identification - Repeated Exposure(Chronic) Information

IMPORTANT: The information presented herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE, OR OF ANY OTHER KIND, EXPRESS OR IMPLIED, IS MADE REGARDING PERFORMANCE, STABILITY OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of use, handling and storage. Other factors may involve other or additional safety or performance considerations. While our technical personnel will be happy to respond to questions regarding safe handling and use procedures, safe handling and use remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as a recommendation to infringe any existing patents or violate any federal, state or local laws, rules, regulations or ordinances.

This Material Safety Data Sheet (MSDS) covers the following materials:

- CAUSTIC POTASH-ANHYDROUS (ALL GRADES)
- BRIQUETTES 90%
- CRYSTAL
- FLAKE 90%
- LOW CHLORIDE 90%
- KOH BRIQUETTE 90%
- KOH FLK 90% LOW CHL
- KOH FLAKE 90%
- KOH CRYSTAL
- CAUSTIC POTASH-CRYSTAL
- CAUSTIC POTASH-BRIQUETTES
- CAUSTIC POTASH-FLAKE LOW CHLORIDE
- CAUSTIC POTASH STANDARD FLAKE
- CAUSTIC POTASH STANDARD CRYSTAL

OCCIDENTAL CHEMICAL CORPORATION
MSDS NUMBER : M31867
PRODUCT NAME : CAUSTIC POTASH-ANHYDROUS (ALL GRADES)
_NHYDROUS (ALL GRADES)

PAGE 14 OF 15
10-19-98

17. WARNING LABEL INFORMATION (Continued)

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

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

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

DISPOSAL:

A spill or release of this material may trigger the emergency release reporting requirements under SARA, Title III (40 CFR, Part 355) and/or CERCLA (40 CFR, Part 300). State or local reporting requirements may differ from federal requirements. Consult counsel for further guidance on your responsibilities under these laws.

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

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

Appropriate disposal will depend on the nature of each waste material