

MATERIAL SAFETY DATA SHEET

MSDS NUMBER: M4784

DATE: 05-15-86

THE ROOTO CORPORATION
HOWELL, MICHIGAN 48843



PRODUCT NAME: 45% CAUSTIC POTASH-COMMERCIAL GRADE

24 HOUR EMERGENCY PHONE: (214) 922-2700

I. PRODUCT IDENTIFICATION

3 HEALTH HAZARD, 0 FIRE HAZARD, & 1 REACTIVITY rating based on NIOSH "Identification System for Occupationally Hazardous Materials" (1974)

MANUFACTURER'S NAME AND ADDRESS: Diamond Shamrock Chemicals Company,
Chlor-Alkali Division, 351 Phelps Court, P.O. Box 152300,
Irving, Texas 75015-2300

CHEMICAL NAME: Potassium Hydroxide

CAS NUMBER: 1310-58-3

SYNONYMS/COMMON NAMES: Potassium Hydroxide; KOH

*Acetic
Drain Opener*

CHEMICAL FORMULA: KOH

DOT PROPER SHIPPING NAME: Caustic Potash, Liquid

DOT HAZARD CLASS: Corrosive Material

DOT I.D. NUMBER: UN1814

HAZARDOUS SUBSTANCE: RQ1000

II. HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	HAZARD DATA	CAS NUMBER	%
Potassium Hydroxide	PEL = None Established	1310-58-3	45
Water	TLV = 2 mg/m ³ Ceiling Value		55

(See Section V)
The materials in this product are listed in the TSCA Inventory.
Not listed as carcinogenic by IARC, NTP, OSHA, ACGIH

III. PHYSICAL DATA

BOILING POINT @ 760 mm Hg: 133°C
VAPOR DENSITY (Air=1): NA
% VOLATILES BY VOL.: Not Volatile
FREEZING POINT: -29°C (-20°F)
VAPOR PRESSURE: NA
EVAPORATION RATE (BuAc=1): NA
SPECIFIC GRAVITY (H₂O=1): 1.45 @ 15.6°C
SOLUBILITY IN H₂O % BY WT: Completely Soluble
VISCOSITY: 3.7 Centipoises -(45%)
APPEARANCE AND ODOR: Clear with no odor
pH: 0.01 moles/liter has pH 12.0

CAS = Chemical Abstract Service Number
PEL = OSHA Permissible Exposure Limit
TLV = TLV, ACGIH Threshold Limit Value, Current

N/A = No relevant information found or not available
NA = Not applicable

Diamond Shamrock Chemicals Company - A subsidiary of Diamond Shamrock Corporation

This Material Safety Data Sheet was prepared in accordance with 29 CFR 1910.1200. All information, recommendations and suggestions appearing herein concerning our product are based upon tests and data believed to be reliable, however, it is the user's responsibility to determine the safety, toxicity and suitability for his own use of the product described herein. Since the actual use by others is beyond our control, no guarantee expressed or implied is made by Diamond Shamrock as to the effects of such use the results to be obtained or the safety and toxicity of the product nor does Diamond Shamrock assume any liability arising out of use by others of the product referred to herein. Nor is the information herein to be construed as absolutely complete since additional information may be necessary or desirable when particular or exceptional conditions or circumstances exist or because of applicable laws or government regulations.

IV. FIRE AND EXPLOSION DATA

FLASH POINT: None AUTOIGNITION TEMPERATURE: Nonflammable
FLAMMABLE LIMITS IN AIR, % BY VOLUME- UPPER: Nonflammable
LOWER: Nonflammable
EXTINGUISHING MEDIA: This product is not combustible.
SPECIAL FIRE FIGHTING PROCEDURES: Avoid direct contact of this product with water.
UNUSUAL FIRE AND EXPLOSION HAZARD: None. See Reactivity (Section VI).

V. HEALTH HAZARD INFORMATION

HEALTH HAZARD DATA:

Potassium Hydroxide: Acute Oral LD₅₀ = 365 mg/kg (rat)

ROUTES OF EXPOSURE

INHALATION: Airborne concentrations of dust, mists, or spray may cause damage to the upper-respiratory tract and even to the lung tissue proper which could produce chemical pneumonia, depending upon severity of exposure.
SKIN CONTACT: This product is destructive to tissues contacted and produces severe burns.
SKIN ABSORPTION: See Skin Contact above.
EYE CONTACT: This product is destructive to eye tissues on contact. Will cause severe burns that result in damage to the eyes and even blindness.
INGESTION: This product, if swallowed, can cause severe burns and complete tissue perforation of mucous membranes of the mouth, throat, esophagus and stomach.

EFFECTS OF OVEREXPOSURE

ACUTE: Corrosive to all body-tissues with which it comes in contact.
CHRONIC: The chronic local effect may consist of multiple areas of superficial destruction of the skin or of primary irritant dermatitis. Similarly, inhalation of dust, spray, or mist may result in varying degrees of irritation or damage to the respiratory tract tissues and an increased susceptibility to respiratory illness.

EMERGENCY AND FIRST AID PROCEDURES

EYES: OBJECT IS TO FLUSH MATERIAL OUT IMMEDIATELY THEN SEEK MEDICAL ATTENTION. IMMEDIATELY flush eyes with large amounts of water for at least 15 minutes, holding lids apart to ensure flushing of the entire surface. Washing eyes within several seconds is essential to achieve maximum effectiveness. Seek medical attention immediately.
SKIN: Wash contaminated areas with plenty of water for 15 minutes. Remove contaminated clothing and footwear and wash clothing before reuse. Discard footwear which cannot be decontaminated. Seek medical attention immediately.
INHALATION: Get person out of contaminated area to fresh air. If breathing has stopped, resuscitate and administer oxygen if readily available. Seek medical attention immediately.
INGESTION: NEVER give anything by mouth to an unconscious person. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. If available, give several glasses of milk. If vomiting occurs spontaneously, keep airway clear. Seek medical attention immediately.

NOTES TO PHYSICIAN: None.

VI. REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY: Under normal conditions, the material is stable.
INCOMPATIBILITY: See Special Mixing and Handling (Section IX). Avoid direct contact with water. This product may be added slowly to water or acids with dilution and agitation to avoid a violent reaction. When handling this product, avoid contact with aluminum, iron, zinc, and alloys containing these metals. Do not mix with strong acids without dilution and agitation to prevent violent or explosive reaction. Avoid contact with leather or wool.
HAZARDOUS DECOMPOSITION PRODUCTS: None.
CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION: Material is not known to polymerize.

VII. ENVIRONMENTAL PROCEDURES

SPIILLS OR RELEASES: If a material is spilled or released to the atmosphere, steps should be taken to contain liquids and prevent discharges to streams or sewer systems and control or stop the loss of volatile materials to the atmosphere. Spills or release should be reported, if required, to the appropriate local, state and federal regulatory agencies.

DISPOSAL OR STORAGE: Clean-up action should be carefully planned and executed. Shipment, storage, and/or disposal of waste materials are regulated and action to handle spilled or released materials must meet the applicable rules. If any question exists, the appropriate agencies should be contacted to assure proper action being taken.

VIII. INDUSTRIAL HYGIENE CONTROL MEASURES

VENTILATION REQUIREMENTS:

Use adequate local exhaust ventilation.

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

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY: Respiratory protection is not required under normal use. Use NIOSH/MSHA approved respirators where dust or mist may be generated.

EYE: Face shield and goggles or chemical goggles should be worn.

GLOVES: Rubber gloves should be worn. Gloves may be decontaminated by washing with mild soap and water.

OTHER CLOTHING AND EQUIPMENT: Protective clothing to minimize skin contact should be worn. Chemically-resistant safety shoes. Wash contaminated clothing with soap and water and dry before reuse. Safety showers and eyewash facilities should be provided in all areas in which this product is handled.

IX. SPECIAL PRECAUTIONS

SIGNAL WORD: DANGER!

STATEMENT OF HAZARDS:

CAUSES SEVERE BURNS TO SKIN AND EYES

CONTACT WITH EYES CAN CAUSE PERMANENT EYE DAMAGE

INHALATION OF DUST, MIST OR SPRAY CAN CAUSE SEVERE LUNG DAMAGE

CAN REACT VIOLENTLY WITH WATER, ACIDS AND OTHER SUBSTANCES.

PRECAUTIONARY STATEMENTS:

Do not get into eyes, on skin, on clothing.

Avoid breathing dust, mist, or spray.

Do not take internally.

Use with adequate ventilation and employ respiratory protection when exposure to dust, mist or spray is possible.

When handling, wear chemical splash goggles, face shield, rubber gloves and protective clothing.

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

Keep container closed.

Product can react violently with water, acids, and other substances - read Special Mixing and Handling Instructions below carefully before using.

Product is corrosive to tin, aluminum, zinc and alloys containing these metals, and will react violently with these metals in powder form.

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 Z117.1-1977).

IX. SPECIAL PRECAUTIONS

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FIRST AID:

IN CASE OF CONTACT:

For eyes: Immediately flush with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of the entire eye surface. Washing eyes within several seconds is essential to achieve maximum effectiveness. Seek medical attention immediately.

For skin: Immediately wash with plenty of water for 15 minutes. Remove contaminated clothing and footwear. Wash clothing before reuse and discard footwear which cannot be decontaminated. Seek medical attention immediately.

IF INHALED: Remove person out of contaminated area to fresh air. If breathing has stopped, artificial respiration should be started. Oxygen may be administered, if available. Seek medical attention immediately.

IF SWALLOWED: Do not induce vomiting. Give large quantities of water. If available, give several glasses of milk. Never give anything by mouth to an unconscious person. Seek medical attention immediately.

IN CASE OF SPILL OR LEAK: Leaks should be stopped. Spills, after containment, should be shoveled up or removed by vacuum truck (if liquid) to chemical waste area. Neutralize residue with dilute acid, flush spill area with water followed by liberal covering of sodium bicarbonate. Dispose of wash water and spill by-products according to federal, state, and local regulations.

SPECIAL MIXING AND HANDLING INSTRUCTIONS:

Considerable heat is generated when product is mixed with water. Therefore, when making solutions always carefully follow these steps: ALWAYS wear ALL protective clothing described above. Never add water to product. ALWAYS add product - with constant stirring - slowly to surface of lukewarm (80-100°F) water, to assure product is being completely dissolved as it is added.

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.

Note: 50 pounds of product dissolved in 30 gallons of 90°F water will raise temperature of resulting solution to approximately 180°F. Never add more product than can be absorbed by solution while maintaining temperature below 200°F (@ sea level) to prevent boiling and spattering.

Product can react EXPLOSIVELY with acids, aldehydes, and many other organic chemicals - when mixing product with solutions containing such chemicals, follow all of above mixing instructions, and add product very gradually, while stirring constantly.

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 residual caustic potash should be removed from containers prior to disposal.

More information on the hazards and handling of caustic potash appear in Diamond Shamrock Corporation's Material Safety Data Sheet and Caustic Potash Handbook CA-CP-5F.

DISPOSAL:

The materials resulting from clean-up operations may be hazardous wastes and, therefore, subject to specific regulations. Package, store, transport, and dispose of all clean-up materials and any contaminated equipment in accordance with all applicable federal, state, and local health environmental regulations. Shipments of waste materials may be subject to manifesting requirements per applicable regulations. Appropriate disposal will depend on the nature of each waste material and should be performed by competent and properly permitted contractors. Ensure that all responsible federal, state, and local agencies receive proper notification of disposal.

FOR INDUSTRIAL USE ONLY

LABEL 051586M4784