



POTASSIUM HYDROXIDE

PRODUCT INFORMATION

CHEMICAL NAME: Potassium hydroxide
SYNONYMS: Caustic potash, KOH Dry, lye, potassium hydrate
CHEMICAL FAMILY: Alkali hydroxide MOLECULAR FORMULA: KOH
SHIPPING NAME: Potassium hydroxide, solid
PIN - (UN/NA): UN 1813 Class 8(9.2) P.G. II WHMIS: D.1B E
PRODUCT USE: Glass manufacture, industrial cleaners, chemical processes,
petroleum industry.
MANUFACTURER: Quadra Chemicals
370, boul Joseph Carrier
Vaudreuil - Dorion QC J7V-5V5
SUPPLIER: Panther Industries Inc.
Box 628
Davidson, Sask. S0G 1A0
EMERGENCY TELEPHONE NUMBER: (306) 567-2814

HAZARDOUS INGREDIENTS

| INGREDIENTS: | WEIGHT % | C.A.S. REGISTRY# |
|---------------------|----------|------------------|
| Potassium hydroxide | 60 -100 | 1310-58-3 |

PHYSICAL DATA

PHYSICAL STATE: Solid
ODOUR AND APPEARANCE: White, odourless, flakes
ODOUR THRESHOLD: Odourless % VOLATILE BY VOLUME: Nil
VAPOUR PRESSURE: 60mm Hg @ 1013oC VAPOUR DENSITY: Not applicable
EVAPORATION RATE: Not applicable pH: 0.01 moles/litre has pH 12.0
FREEZING POINT: 400o C (742oF) BOILING POINT: 1320o C @ 760 mm Hg
SOLUBILITY IN WATER: Completely soluble
MOLECULAR WEIGHT: 56.10 BULK DENSITY: Not available
SPECIFIC GRAVITY: (water=1) 2.044 @ 20o C
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

FIRE AND EXPLOSION DATA

CONDITIONS OF FLAMMABILITY: Non-flammable
MEANS OF EXTINGUISHING: Use an extinguisher appropriate to the
material which is burning.
FLASH POINT: Non-combustible
AUTO IGNITION TEMPERATURE: Non-flammable
UPPER FLAMMABLE LIMIT: Non-flammable
LOWER FLAMMABLE LIMIT: Non-flammable
HAZARDOUS COMBUSTION PRODUCTS: Toxic Potassium oxide fumes
SPECIAL FIRE FIGHTING PROCEDURES: Use water to cool containers
but avoid getting water into containers. Wear NIOSH/MSHA approved
positive-pressure self-contained breathing apparatus and full protective
clothing. Potassium hydroxide and its solutions will not burn or support



POTASSIUM HYDROXIDE

combustion. However, reaction of potassium hydroxide with a number of commonly encountered (see Chemical Reactivity) can generate sufficient heat to ignite nearby combustible materials. Reaction of potassium hydroxide with certain metals can generate flammable and explosive hydrogen gas.

EXPLOSION HAZARDS: Direct contact with water can cause a violent exothermic reaction.

REACTIVITY DATA

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur

INCOMPATIBILITY: 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.

HAZARDOUS REACTIONS/DECOMPOSITIONS: Potassium Carbonate

CONDITIONS TO AVOID: See incompatibility section

HEALTH HAZARD DATA

INHALATION: Airborne concentrations of dust, mist, or spray may cause damage to the upper-respiratory tract and even to the lung tissue proper which could produce chemical pneumonia, depending on the severity of exposure.

SKIN CONTACT: Destructive to tissues contacted and produces severe burns.

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%)

EYE CONTACT: Destructive to eye tissues on contact. Will cause severe burns that result in damage to the eyes and including blindness.

INGESTION: Swallowing can cause severe burns and complete tissue perforation of mucous membranes of the mouth, throat, esophagus, and stomach.

CHRONIC EXPOSURE EFFECTS: There have been no documented effects due to long-term exposure to potassium hydroxide. Repeated skin contact may result in drying, cracking and inflammation.

EXPOSURE LIMITS:

Saskatchewan Workplace Contamination Limits

8 hour average contamination limit = 2 mg/m³

15 minute average contamination limit = 2 mg/m³

ACGIH and OSHA have ceiling limits of 2 mg/m³

Check Contamination limits for your province.

IRRITANCY: Severely irritant to all tissues.

MUTAGENICITY: Insufficient information

CARCINOGENICITY: Not listed as carcinogen (IARC, NTP, OSHA)

SENSITIZATION TO PRODUCT: There is no evidence this material has any sensitizing capabilities.



POTASSIUM HYDROXIDE

REPRODUCTIVE TOXICITY: Not available

TERATOGENICITY DATA: Not available

TOXICOLOGICALLY SYNERGISTIC MATERIALS: This material does not possess synergistic properties.

ANIMAL TOXICITY DATA: LD50 (oral, rat): 365 mg/kg (6) LD50 (oral, male rat): 273 mg/kg (5) Eye irritation (rabbit): application of 0.1 mL of 5.0% potassium hydroxide solution for 5 minutes, before washing the eye with distilled water for 2 minutes, resulted in extreme irritation and corrosion. Application of 0.1 mL of a 1.0% solution for 5 minutes, or 24 hours before washing the eye resulted in irritation. A 0.1% solution applied for 24 hours before washing the eye caused no irritation. (6) Skin irritation: A 10% solution was corrosive to rabbits and guinea pigs when applied to intact or broken skin for 4 hours. (7) Application of 0.1 mL of a 5% solution to intact or broken skin of rabbits for 24 hours resulted in mild irritation to intact skin and extreme irritation of broken skin. (6) Skin sensitization (guinea pigs): 0.1 mL of a 0.1% solution was injected under the skin of male guinea pigs 3 times weekly for a total of 9 treatments. Following 2 weeks where no injections were made, a challenge dose of 0.1 mL was administered and the animals were observed at 24, 48, 72 hours. Potassium hydroxide did not cause skin sensitization in this study. (6)

FIRST AID MEASURES

INHALATION: Move victim to fresh air, don't allow the victim to move about unnecessarily. If breathing is difficult, have

trained person administer oxygen. If respiration stops, have a trained person administer artificial respiration. Seek immediate medical attention.

SKIN CONTACT: Flush thoroughly with cool water under shower for 60 minutes while removing contaminated clothing and shoes. Discard non-rubber shoes. Wash clothing before reuse or discard. Seek immediate medical attention.

EYE CONTACT: Immediately flush eyes for 60 minutes with a direct stream of water for at least 15 minutes, forcibly holding the eyelids apart to ensure complete irrigation of all eye and lid tissue. Washing eyes within several seconds is essential to achieve maximum effectiveness. Seek immediate medical attention.

INGESTION: Never give anything by mouth if victim is losing consciousness, or is unconscious or convulsing. Rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. If victim can swallow, give large quantities of water. (If available, give several glasses of milk.) If vomiting occurs spontaneously, keep airway clear and give more water. Seek immediate medical attention.

PREVENTATIVE MEASURES

RESPIRATORY PROTECTION: If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection.

SKIN PROTECTION: Impervious gloves, coveralls, aprons, overshoes, and/or other resistant clothing.

EYE/FACE PROTECTION: Dust or splash proof chemical safety goggles or face shields should be worn.

SPECIAL HANDLING PROCEDURES: Avoid generating mist or dust. Keep solid KOH away from water. When diluting or preparing solution, add caustic to water in small amounts to avoid boiling and splattering. Label containers and keep closed when not in use. Empty containers may contain residues which are



POTASSIUM HYDROXIDE

hazardous.

STORAGE REQUIREMENTS: Store in water tight containers in a cool dry place. Materials that react with potassium hydroxide and easily ignitable materials should not be stored in the same area. Keep containers closed when not in use and when empty. Inspect periodically for deficiencies such as damage or leaks.

ENGINEERING CONTROLS: Methods include mechanical ventilation, process or personnel enclosure, control of process conditions and process modification (eg. substitution of a less hazardous material). Administrative controls and personal protective equipment may also be required. Use a corrosion resistant ventilation system separate from other systems. Exhaust directly to the outside.

SPECIAL SHIPPING REQUIREMENTS: According to applicable legislation.

OTHER PRECAUTIONS: Eye wash fountains and safety showers should be located near any area where potassium hydroxide is handled. Do not smoke, eat or drink in work areas. Wash hands thoroughly after handling this material. Maintain good housekeeping.

ENVIRONMENTAL PROTECTION DATA

STEPS IN THE EVENT OF A LEAK OR SPILL: Ensure cleanup is conducted by trained personnel only. Wear adequate protective clothing and equipment. Make sure cleanup area is well ventilated. Contain spill or leak, do not allow to enter sewers or waterways. Shovel or sweep up dry potassium hydroxide for recycling or disposal. Neutralize final traces and flush area with water. Spilled solution should be diked with inert materials, such as sand or earth. Solutions can be recovered or carefully diluted with water and cautiously neutralized with acids such as acetic or hydrochloric acid.

ENVIRONMENTAL EFFECTS: Harmful to aquatic life in high concentrations.

DEACTIVATING CHEMICALS: Acetic acid, hydrochloric acid (any dilute inorganic acid)

WASTE DISPOSAL METHODS: The materials resulting from clean-up may be hazardous wastes and therefore subject to specific regulations. Appropriate disposal will depend on the nature of each waste material and should be performed by competent and properly permitted contractors. Ensure all responsible local, provincial/state, federal authorities receive proper notification.

PREPARATION INFORMATION

MSDS PREPARED BY: Technical Department Panther Industries Inc.

TELEPHONE NUMBER: (306) 567-2814

DATE PREPARED/REVISED: March 11, 2007

DATE PRINTED: March 11, 2007

REFERENCES: 1. Manufacturer's MSDS.

2. CHEMINFO-Canadian Centre for Occupational Health and Safety.

3. Saskatchewan "Occupational Health & Safety Regulations"