

Product: Potassium Hydroxide 40-45% solution      Applicable Product Numbers: 11-03-103-0; 11-03-104-0; 71226; (battery number)-28; 005794; LD 298599; 19849; 19852; 19853; 20432; 20449; 21024; 21092; EN-1023157;

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## SAFETY DATA SHEET

### Potassium Hydroxide 40-45% Solution

#### SECTION 1 - IDENTIFICATION

**Product Identifier/Name:** Potassium Hydroxide, 40-45% solution  
**Other Means of Identification:** None  
**Manufacturer Name:** EaglePicher Technologies, 1215 W. C St., Joplin, MO 64802  
**Telephone for information:** 1-417-623-8000  
**Emergency Telephone:** CHEMTREC: 1-800-424-9300  
**Recommended use:** Battery electrolyte and all other proper and legal purposes  
**Uses advised against:** No additional information available  
**Recommended Restrictions:** None known  
**Emergency Telephone Number:** For chemical emergency call CHEMTREC day or night  
Within USA and Canada: 1-800-424-9300; Mexico: 1-800-681-9531  
Outside USA and Canada: 1-703-527-3887 (collect calls accepted)

#### SECTION 2 - HAZARD IDENTIFICATION

**Physical hazards:** Corrosive to metals Category 1  
**Health hazards:** Acute toxicity, oral Category 4  
Skin corrosion/irritation Category 1A  
Serious eye damage/eye irritation Category 1  
Specific target organ toxicity (single exposure) Category 3  
Target organs – Respiratory system  
**Environmental hazards:** Not classified  
**OSHA defined hazards:** Not classified

**Label elements:**



**Signal word:** Danger

**Hazard statement:** H290 May be corrosive to metals.  
H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H335 May cause respiratory irritation

**Precautionary Statements:** P234 Keep only in original packaging.  
P260 Do not breathe mist or vapor.  
P264 Wash face, hands and any exposed skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.

**Response:** If swallowed: Immediately call a poison center/doctor. Rinse mouth. Do NOT induce vomiting.  
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
If inhaled: Remove person to fresh air and keep comfortable for breathing.  
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor.  
Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.

**Storage:** Store locked up. Store in corrosive-resistant container with a resistant inner liner.

**Disposal:** Dispose of contents/container in accordance with local/regional/national/international regulation

**Hazards Not Otherwise Classified:** None known

**Supplemental Information:** 40-45% of the mixture consists of component(s) of unknown acute dermal toxicity. 55-60% of the mixture consists of component(s) of unknown acute inhalation toxicity.

**SECTION 3 - COMPOSITION, INFORMATION ON INGREDIENTS**

| Chemical Name                            | C.A.S. Number | Percentage | Classification  |
|--|---------------|------------|---|
| Potassium hydroxide (K(OH))              | 1310-58-3     | 40-45      | Corrosive to metals Category 1<br>Acute toxicity, oral Category 4<br>Skin Corrosion/Irritation Category 1A<br>Serious eye Damage/Eye Irritation Category 1<br>Specific target organ toxicity (single exposure) Category 3<br>Target organs – Respiratory system |
| Other components below reportable levels | NA            | 55-60      | NA  |

**SECTION 4 - FIRST AID MEASURES**

**Inhalation:** Move to fresh air. Call a physician if symptoms develop or persist.  
**Skin contact:** Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.  
**Eye contact:** Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.  
**Ingestion:** Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

**Most important symptoms/effects, acute and delayed:** Nausea, vomiting. Diarrhea. Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Coughing.

**Indication of immediate medical attention and special treatment needed:** Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep patient under observation. Symptoms may be delayed.

**General information:** Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

**SECTION 5 - FIRE FIGHTING MEASURES**

|  |   |  |   |
|--|---|--|---|
| <b>Flash Point:</b> Not Applicable                                   | <b>Flammable Limits in Air % by Volume:</b> Not Applicable  | <b>Extinguishing Media:</b><br>Water fog. Foam.<br>Dry chemical powder.<br>Carbon dioxide (CO2). | <b>Auto-Ignition:</b><br>Not Applicable |
| <b>Special Fire Fighting Procedures</b>                              | Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Do not use water jet as an extinguisher, as this will spread the fire. Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |  |   |
| <b>Unusual Fire and Explosion Hazards</b>                            | During fire, gases hazardous to health may be formed. No unusual fire or explosion hazards noted.   |  |   |
| <b>Unsuitable extinguishing media</b>                                | Do not use water jet as an extinguisher, as this will spread the fire.  |  |   |
| <b>Special protective equipment and precautions for firefighters</b> | Self-contained breathing apparatus and full protective clothing must be worn in case of fire.   |  |   |
| <b>Firefighting equipment/instructions</b>                           | Move containers from fire area if you can do so without risk  |  |   |
| <b>Specific methods</b>  | Use standard firefighting procedures and consider the hazards of other involved materials   |  |   |

**SECTION 6 - ACCIDENTAL RELEASE MEASURES**

**Personal Precautions, protective equipment and emergency procedures:**

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during cleanup. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see Section 8 of this SDS.

**Methods and materials for containment and cleanup:**

Prevent entry into waterways, sewers, basements or confined areas.

Large Spills: If safe to do so, stop the flow of material. Dike the spilled material, where this is possible and safe to do. Adsorb in vermiculite, dry sand, or earth and place into containers. Following product recovery, flush area with water. Contain and dispose of all water and runoff.

Small Spills: Wipe up with adsorbent material. Clean the surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use.

**Environmental Precautions:**

Avoid discharge into drains, water courses or onto the ground.

**SECTION 7 - HANDLING AND STORAGE**

**Precautions for safe handling:** Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Provide adequate ventilation. Avoid prolonged exposure. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

**Conditions for safe storage, including any incompatibilities:** Store locked up. Store in cool, dry place out of direct sunlight in original, tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Keep away from acids, waters, metals (when wet), halogenated hydrocarbons, maleic anhydride.

**Storage -** In general, containers should be stored indefinitely at ambient temperatures.

**SECTION 8 - EXPOSURE CONTROLS & PERSONAL PROTECTION**

| Chemical Name                            | Exposure Limits / Guidelines |                                |                              |
|--|------------------------------|--------------------------------|------------------------------|
|  | OSHA Exposure Limits         | NIOSH                          | ACGIH                        |
| POTASSIUM HYDROXIDE (KOH)                | PEL not established          | Ceiling: 2 mg/m <sup>3</sup> ) | Ceiling: 2 mg/m <sup>3</sup> |
| Other components below reportable levels | PEL not established          | Not Established                | Not Established              |

**Biological limit values:** No biological exposure limits noted for the ingredient(s).

**Engineering Controls:**

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

**Exposure Controls:**

**Protective Gloves:** Wear appropriate chemical resistant gloves. Inspect gloves prior to use. Suitable gloves for full contact or splash contact include nitrile rubber, 0.11 mm minimum thickness. (data source: KCL GmbH, D-36124 Eichenzell). If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the glove supplier. This recommendation is advisory only.

**Eye/Face Protection:** Wear safety glasses with side shields (or goggles) and a face shield.

**Respiratory Protection:** In case of insufficient ventilation, or where risk assessment shows air-purifying respirators are appropriate, wear a full-face particle respirator with type N100 (US) or type P3 (EN 143) cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

**Other Protective Equipment:** Wear appropriate chemical resistant clothing and footwear.

**Thermal Hazards:** Wear appropriate thermal protective clothing when necessary.

**General Hygiene Considerations:** Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

**Administrative Controls:** Follow proper handling guidelines in section 7.

**SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES**

|   |   |
|---|---|
| BOILING POINT (760 mm Hg)                 | 270 °F (132.22 °C) (45% solution)   |
| VAPOR PRESSURE (mm Hg, 25°C)              | 6.4 mm Hg at 77 °F (25 °C) (45% solution)   |
| VAPOR DENSITY (air=1)                     | Not Available   |
| VOLATILE BY VOLUME (%)                    | Not Applicable  |
| EVAPORATION RATE (butyl acetate=1)        | Not Available   |
| PHYSICAL STATE                            | Liquid  |
| SOLUBILITY IN WATER (% by weight)         | Soluble   |
| PH  | 14.0  |
| APPEARANCE                                | Clear to slightly hazy  |
| ODOR                                      | No odor   |
| ODOR THRESHOLD                            | Not Available   |
| MELTING POINT/FREEZING POINT              | -20 °F (-28.89 °C)  |
| FLAMMABILITY                              | Not Applicable  |
| PERCENT VOLATILE                          | 55% estimated   |
| UPPER/LOWER FLAMMABILITY EXPLOSIVE LIMITS | Not Applicable  |
| RELATIVE DENSITY                          | For product range of concentrations: 1.283 g/cm <sup>3</sup> to 1.572 g/cm <sup>3</sup> |
| DENSITY                                   | 12.10 lbs./gal.   |
| SPECIFIC GRAVITY                          | 1.4   |
| PARTITION COEFFICIENT: (N-OCTANOL/WATER)  | Not Available   |
| AUTO IGNITION TEMPERATURE                 | Not Applicable  |
| DECOMPOSITION TEMPERATURE                 | Not Available   |
| VISCOSITY                                 | Not Available   |

**SECTION 10 - STABILITY AND REACTIVITY**

**REACTIVITY:** Corrosive to metals.

**STABLE OR NOT STABLE:** Material is stable under normal conditions. Hazardous polymerization does not occur.

**INCOMPATIBILITY (MATERIAL TO AVOID):** Strong acids, Maleic anhydride, metals, oxidizing agents.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Contact with metals (aluminum, zinc, tin) and sodium tetrahydroborate liberates hydrogen gas.

**CONDITIONS TO AVOID:** Contact with incompatible materials.

**SECTION 11 - TOXICOLOGICAL INFORMATION**

**Information on likely routes of exposure:**

Inhalation: May cause irritation to the respiratory system. Prolonged inhalation may be harmful.

Skin contact: Causes severe skin burns.

Eye contact: Causes serious eye damage.

Ingestion: Toxic if swallowed. Causes digestive tract burns

Symptoms related to the physical, chemical and toxicological characteristics: Nausea, vomiting, diarrhea, burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, blurred vision. Permanent eye damage including blindness could result. Coughing.

**Information on toxicological effects:**

**Acute toxicity:** Toxic if swallowed

Acute - Oral  
LD50 Rat 273 mg/kg

**Skin corrosion/irritation:** Causes severe skin burns and eye damage

**Serious eye damage/eye irritation:** Causes serious eye damage

**Respiratory or skin sensitization**

**Respiratory sensitization:** Due to partial or complete lack of data the classification is not possible.

**Skin sensitization:** Due to partial or complete lack of data the classification is not possible.

**Germ Cell mutagenicity** Due to partial or complete lack of data the classification is not possible.

**Carcinogenicity** Due to partial or complete lack of data the classification is not possible.

IARC Monographs, overall evaluation of carcinogenicity: Not listed.

OSHA Specifically Regulated Substances (29CFR 1910.1001-1050): Not regulated.

US National Toxicology Program (NTP) Report on Carcinogens: Not listed.

**Reproductive Toxicity** Due to partial or complete lack of data the classification is not possible.

Specific target organ toxicity - single exposure: Due to partial or complete lack of data the classification is not possible.

Specific target organ toxicity - repeated exposure: Due to partial or complete lack of data the classification is not possible.

Aspiration hazard: Due to partial or complete lack of data the classification is not possible.  
Chronic effects: Prolonged inhalation may be harmful

**SECTION 12 - ECOLOGICAL INFORMATION**

**Ecotoxicity:** The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

| <u>Components</u>                           | <u>Species</u>                              | <u>Test Results</u> |
|---|---|---------------------|
| Potassium Hydroxide (K(OH)) (CAS 1310-58-3) |   |                     |
| <b>Aquatic</b>                              |   |                     |
| Fish  | LC50 Western mosquitofish(Gambusia affines) | 80 mg/l, 96 hours   |

**Persistence and degradability:** Not data available

**Bioaccumulative potential:** Not data available

**Mobility in soil** Not data available

**Other adverse effects** No other environmental effects (e.g., ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

**SECTION 13 - DISPOSAL CONSIDERATIONS**

Dispose in accordance with the applicable regulations in country and state. Disposal should be performed by licensed professional disposal firms knowledgeable in Federal, State or Local requirements of hazardous waste treatment and hazardous waste transportation.

|   |   |
|---|---|
| <b>Disposal instructions:</b>                 | Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate material under controlled conditions in an approved incinerator. Dispose of contents/container in accordance with local/regional/national/ international regulations. |
| <b>Hazardous waste code:</b>                  | D002: Waste Corrosive material (pH <= 2 or =>12.5, or corrosive to steel). The waste code should be assigned in discussion between the user and the waste disposal company.   |
| <b>Waste from residues /: unused products</b> | Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).  |
| <b>Contaminated Packaging:</b>                | Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.  |

**SECTION 14 - TRANSPORT INFORMATION**

**DOT**

|                                      |   |
|--------------------------------------|---|
| <b>UN number:</b>                    | UN1814  |
| <b>UN proper shipping name:</b>      | Potassium Hydroxide, Solution   |
| <b>Transport hazard class:</b>       | 8   |
| <b>Subsidiary risk:</b>              | -   |
| <b>Packing group:</b>                | II  |
| <b>Special precautions for user:</b> | Read safety instructions, SDS and emergency procedures before handling. |
| <b>ERG number:</b>                   | 154   |

**SECTION 15 - REGULATORY INFORMATION**

|  |  |
|--|--|
| <b>US Federal Regulation</b>   | This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.                       |
| <b>TSCA Section 12(b) Export Notification</b>                                | Not regulated  |
| <b>CERCLA Hazardous Substance List</b>                                       | Potassium Hydroxide (K(OH)) (CAS 1310-58-3) Listed   |
| <b>SARA 304 Emergency Release Notification</b>                               | Not regulated  |
| <b>OSHA Specifically Regulated Substances</b>                                | Not regulated  |
| <b>SARA 302 Extremely Hazardous Substance:</b>                               | Not Listed   |
| <b>SARA 311/312 Hazardous Chemical:</b>                                      | Yes. Corrosive to metal. Acute toxicity (any route of exposure). Skin corrosion or irritation. Serious eye damage or eye irritation. |
| <b>SARA 313 (TRI Reporting):</b>   | Not regulated  |
| <b>Other federal regulations</b>   |  |
| <b>Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List:</b> | Not regulated.   |
| <b>Clean Air Act (CAA) Section 112 Accidental Release Prevention:</b>        | Not regulated.   |

**US state regulations**

California Proposition 65: This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US Massachusetts RTK – Substance List: Potassium Hydroxide (K(OH)) (CAS 1310-58-3)

US New Jersey Worker and Community Right-To-Know Act: Potassium Hydroxide (K(OH)) (CAS 1310-58-3)

US Pennsylvania Worker and Community Right-To-Know Law: Potassium Hydroxide (K(OH)) (CAS 1310-58-3)

US Rhode Island RTK: Potassium Hydroxide (K(OH)) (CAS 1310-58-3)

**International Inventories**

|                             |  |     |
|-----------------------------|--|-----|
| Australia                   | Australian Inventory of Chemical Substances (AICS)                     | Yes |
| Canada                      | Domestic Substance List (DSL)  | Yes |
| Canada                      | Non-Domestic Substance List (NDSL)                                     | No  |
| China                       | Inventory of Existing chemical substances in China (IECSC)             | Yes |
| Europe                      | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes |
| Europe                      | European List of Notified chemical Substances (ELINCS)                 | No  |
| Japan                       | Inventory of Existing and New Chemical Substances (ENCs)               | Yes |
| Korea                       | Existing Chemicals List (ECL)  | Yes |
| New Zealand                 | New Zealand Inventory  | Yes |
| Philippines                 | Philippine Inventory of Chemicals and chemical substances              | Yes |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) inventory                          | Yes |

A “Yes” indicates that all components of this product comply with the inventory requirements administered by the governing country(s).

A “No” indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**SECTION 16 - OTHER INFORMATION**

HMIS ratings                      Health: 3 Flammability: 0 Physical Hazard: 0

NFPA ratings                      Health: 3 Flammability: 0 Instability: 1

**This SDS is intended to provide a summary of our knowledge and guidance regarding the use of this chemical. The information contained here has been compiled from sources considered by EaglePicher Technologies, LLC to be dependable and is accurate to the best of the Company’s knowledge. It is not meant to be an all-inclusive document on worldwide hazard communication regulations. This information is offered in good faith. Each user of this material needs to evaluate the conditions of use and design the appropriate protective mechanisms to prevent employee exposures, property damage or release to the environment. EaglePicher Technologies, LLC assumes no responsibility for injury to the recipient or third persons or for any damage to any property resulting from misuse of the chemical.**

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