1. Identification

Product identifier: Potassium Hydroxide 45%

Other means of identification:
Product code: -

Recommended use: Industrial use.

Recommended restrictions: None known.

Manufacturer / Importer / Supplier / Distributor information:
Manufacturer/Supplier: KMG Electronic Chemicals, Inc.
Address: 9555 W. Sam Houston Parkway South, Suite 600, Houston Texas 77099 US
Phone number: 713-600-3800
Emergency telephone: +1 866-706-3266 Access code: 333035

2. Hazard(s) identification

Physical hazards: Not classified.
Health hazards:
- Acute toxicity, oral: Category 4
- Skin corrosion/irritation: Category 1A
- Serious eye damage/eye irritation: Category 1

OSHA defined hazards: Not classified.

Label elements:

Signal word: Danger
Hazard statement: Harmful if swallowed. Causes severe skin burns and eye damage.
Precautionary statement:
Prevention: Do not breathe mist. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.
Response: If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse. 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.
Storage: Store locked up.
Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC): Not classified.

3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Substances</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide</td>
<td></td>
<td>1310-58-3</td>
<td>45</td>
</tr>
</tbody>
</table>

Composition comments: All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation: Move injured person into fresh air and keep person calm under observation. Get medical attention if symptoms occur.
Skin contact: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Chemical burns must be treated by a physician.

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Hold eyelids apart. Continue rinsing. Get medical attention immediately.

Ingestion: Rinse mouth thoroughly with water and give large amounts of milk or water to people not unconscious. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn’t enter the lungs. Obtain medical attention and take along these instructions.

Most important symptoms/effects, acute and delayed: Corrosive. Prolonged contact causes serious eye and tissue damage. May cause burns in mucous membranes, throat, esophagus and stomach. May cause lung edema. Symptoms may be delayed.

Indication of immediate medical attention and special treatment needed: In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptons may be delayed.

General information: In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately. In case of shortness of breath, give oxygen. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Thermal 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.

5. Fire-fighting measures

Suitable extinguishing media: Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media: Carbon Dioxide.

Specific hazards arising from the chemical: Fire may produce irritating, corrosive and/or toxic gases.

Special protective equipment and precautions for firefighters: Firefighters should wear full protective clothing including self contained breathing apparatus. Structural firefighters protective clothing will only provide limited protection.

Fire-fighting equipment/instructions: Use standard firefighting procedures and consider the hazards of other involved materials. Use water spray to cool unopened containers. Cool containers with flooding quantities of water until well after fire is out. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Stay upwind. Keep out of low areas. Ensure adequate ventilation. Avoid any exposure. Use personal protection recommended in Section 8 of the SDS. Should not be released into the environment.

Methods and materials for containment and cleaning up: Large Spills: Dike far ahead of liquid spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Small Spills: Absorb spill with vermiculite or other inert material. Clean contaminated surface thoroughly. After removal flush contaminated area thoroughly with water.

Environmental precautions: Never return spills in original containers for re-use.

7. Handling and storage

Precautions for safe handling: Handle and open container with care. Use only with adequate ventilation. Avoid any exposure. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities: Keep in a well-ventilated place. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep this material away from food, drink and animal feed. Use care in handling/storage.

8. Exposure controls/personal protection

Occupational exposure limits

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide (CAS 1310-58-3)</td>
<td>Ceiling</td>
<td>2 mg/m3</td>
</tr>
</tbody>
</table>

Potassium Hydroxide 45%

SDS US

1503  Version #: 01  Revision date: -  Issue date: 24-November-2013
<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide (CAS 1310-58-3)</td>
<td>TWA</td>
<td>2 mg/m³</td>
</tr>
</tbody>
</table>

**Biological limit values**

No biological exposure limits noted for the ingredient(s).

**Exposure guidelines**

Tennessee OELs: TWA: 5 mg/m³; STEL: 10 mg/m³.

**Appropriate engineering controls**

If enclosed handling cannot be guaranteed, ventilation and protective clothing must be used. Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors. Eye wash facilities and emergency shower must be available when handling this product.

**Individual protection measures, such as personal protective equipment**

- **Eye/face protection**
  - Wear approved safety glasses or goggles.

- **Skin protection**
  - **Hand protection**
    - Wear protective gloves. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.
  - **Other**
    - Wear appropriate chemical resistant gloves. Wear appropriate chemical resistant clothing. Protective shoes or boots. Structural firefighters protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations. Wear chemical protective equipment that is specifically recommended by the Personal Protective Equipment manufacturer.

- **Respiratory protection**
  - If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Use a NIOSH/MSHA approved air purifying respirator as needed to control exposure. Consult with respirator manufacturer to determine respirator selection, use, and limitations. Use positive pressure, air-supplied respirator for uncontrolled releases or when air purifying respirator limitations may be exceeded. Follow respirator protection program requirements (OSHA 1910.134 and ANSI Z88.2) for all respirator use.

- **Thermal hazards**
  - Wear appropriate thermal protective clothing, when necessary.

- **General hygiene considerations**
  - When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product. Remove and isolate contaminated clothing and shoes. Handle in accordance with good industrial hygiene and safety practice. Launder contaminated clothing before reuse.

**9. Physical and chemical properties**

- **Appearance**
  - Colorless liquid.

- **Physical state**
  - Liquid.

- **Form**
  - Liquid.

- **Color**
  - Colorless.

- **Odor**
  - Odorless.

- **Odor threshold**
  - Not available.

- **pH**
  - 14

- **Melting point/freezing point**
  - Not available.

- **Initial boiling point and boiling range**
  - Not available.

- **Flash point**
  - Not available.

- **Evaporation rate**
  - Not available.

- **Flammability (solid, gas)**
  - Not available.

- **Upper/lower flammability or explosive limits**
  - **Flammability limit - lower (%)**
    - Not available.
  - **Flammability limit - upper (%)**
    - Not available.

- **Vapor pressure**
  - 319 hPa

- **Vapor density**
  - Not available.

- **Relative density**
  - 1.14 (Water=1)

- **Solubility (ies)**
  - Completely soluble in water.

- **Partition coefficient (n-octanol/water)**
  - No data available.

- **Auto-ignition temperature**
  - Not available.
Decomposition temperature: Not available.
Viscosity: Not available.

Other information:
- Density: 1.14 g/cm³
- Molecular formula: KOH
- Molecular weight: 56.11 g/mol
- VOC (Weight %): Not available

10. Stability and reactivity

Reactivity: The product is non-reactive under normal conditions of use, storage and transport.
Chemical stability: Stable at normal conditions.
Possibility of hazardous reactions: Hazardous polymerization does not occur.
Conditions to avoid: Water, moisture.
Hazardous decomposition products: Potassium oxides.

11. Toxicological information

Information on likely routes of exposure
- Ingestion: Causes digestive tract burns. May cause burns of the gastrointestinal tract if swallowed.
- Inhalation: Causes severe respiratory tract irritation.
- Skin contact: Causes severe skin burns. Causes permanent skin damage (scarring).
- Eye contact: Causes severe eye burns. Causes permanent eye injury. Lachrymation (discharge of tears).

Symptoms related to the physical, chemical and toxicological characteristics
- Permanent eye damage including blindness could result. Will cause conjunctivitis. Shortness of breath. Cough. Sore throat.

Information on toxicological effects

Acute toxicity: Harmful if swallowed.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide (CAS 1310-58-3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute Dermal</td>
<td>Rabbit</td>
<td>1260 mg/kg</td>
</tr>
<tr>
<td>LD50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>Rat</td>
<td>273 mg/kg</td>
</tr>
<tr>
<td>LD50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Causes severe skin burns.
Serious eye damage/eye irritation: Causes severe eye damage.
Respiratory sensitization: Not classified.
Skin sensitization: Not classified.
Germ cell mutagenicity: Not classified.
Carcinogenicity: Not classified.
Reproductive toxicity: Not classified.
Specific target organ toxicity - single exposure: Not classified.
Specific target organ toxicity - repeated exposure: Not classified.

Aspiration hazard: Not classified.
Chronic effects: Prolonged inhalation may be harmful.
Further information: Erosion of exposed teeth.

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.
Components Test Results

**Species**

**Potassium hydroxide (CAS 1310-58-3)**

<table>
<thead>
<tr>
<th>Aquatic</th>
<th>LC50</th>
<th>Western mosquitofish (Gambusia affinis) 80 mg/l, 96 hours</th>
</tr>
</thead>
</table>

**Persistence and degradability**

No data available.

**Bioaccumulative potential**

No data available.

**Mobility in soil**

The product is water soluble and may spread in water systems.

**Other adverse effects**

Expected to be harmful to aquatic organisms.

13. **Disposal considerations**

**Disposal instructions**

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Dispose of contents/container in accordance with local/regional/national/international regulations. Dispose in accordance with all applicable regulations.

**Hazardous waste code**

D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]

Waste codes should be assigned by the user based on the application for which the product was used.

**Waste from residues / unused products**

Dispose of in accordance with local regulations.

**Contaminated packaging**

Dispose of in accordance with local regulations. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. **Transport information**

**DOT**

- **UN number**: UN1814
- **UN proper shipping name**: Potassium hydroxide, solution
- **Transport hazard class(es)**: 8
- **Subsidiary class(es)**: -
- **Packing group**: II
- **Special precautions for user**: Read safety instructions, SDS and emergency procedures before handling.
- **Special provisions**: B2, IB2, T7, TP2
- **Packaging exceptions**: 154
- **Packaging non bulk**: 202
- **Packaging bulk**: 242
- **ERG number**: 154

**IATA**

- **UN number**: UN1814
- **UN proper shipping name**: Potassium hydroxide, solution
- **Transport hazard class(es)**: 8
- **Subsidiary class(es)**: -
- **Packing group**: II
- **Environmental hazards**: No
- **Labels required**: 8
- **ERG Code**: 8L
- **Special precautions for user**: Read safety instructions, SDS and emergency procedures before handling.

**IMDG**

- **UN number**: UN1814
- **UN proper shipping name**: Potassium hydroxide, solution
- **Transport hazard class(es)**: 8
- **Subsidiary class(es)**: -
- **Packing group**: II
- **Environmental hazards**: No
- **Marine pollutant**: No
- **Labels required**: 8
- **EmS**: F-A, S-B
- **Special precautions for user**: Read safety instructions, SDS and emergency procedures before handling.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

This substance/mixture is not intended to be transported in bulk.

15. **Regulatory information**

**US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

All components are on the U.S. EPA TSCA Inventory List.
Potassium Hydroxide 45% SDS US
1503 Version #: 01 Revision date: - Issue date: 24-November-2013

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)
Potassium hydroxide (CAS 1310-58-3) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

<table>
<thead>
<tr>
<th>Hazard categories</th>
<th>Immediate Hazard - Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Delayed Hazard - No</td>
</tr>
<tr>
<td></td>
<td>Fire Hazard - No</td>
</tr>
<tr>
<td></td>
<td>Pressure Hazard - No</td>
</tr>
<tr>
<td></td>
<td>Reactivity Hazard - No</td>
</tr>
</tbody>
</table>

SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA)
Not regulated.

Food and Drug Administration (FDA)
Not regulated.

US state regulations
This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List
Potassium hydroxide (CAS 1310-58-3)

US. New Jersey Worker and Community Right-to-Know Act
Not regulated.

US. Pennsylvania RTK - Hazardous Substances
Potassium hydroxide (CAS 1310-58-3)

US. Rhode Island RTK
Potassium hydroxide (CAS 1310-58-3)

US. California Proposition 65
US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
Not regulated.

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>European</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates this product complies 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).
Further information

The mixture is classified based on test data for physical hazards. The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available. For details, refer to Sections 9, 11 and 12.

NFPA Ratings

References

ACGIH
EPA: Acquire database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents

Disclaimer

This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.