SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Potassium Hydroxide, Liquid 45-50%

Product Name: Caustic Potash, Liquid

Identified Uses: Chemical manufacturing, fertilizer, batteries, soaps

Company Information:
ASHTA Chemicals Inc.
P.O. Box 858
Ashtabula Ohio 44005
Phone: (440) 997-5221
Fax: (440) 998-0286
24-hour Emergency Phone: CHEMTREC: (800) 424-9300

SECTION 2: HAZARDS IDENTIFICATION

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

GHS label elements, including precautionary statements:

Signal Word: Danger

Pictogram(s):

Hazard Statements
H290 May be corrosive to metals.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage
H318 Causes serious eye damage.
H402 Harmful to aquatic life.

Precautionary Statements
P234 Keep only in original container.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/eye protection/face protection.
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you
feel unwell. Rinse mouth.

<table>
<thead>
<tr>
<th>No.</th>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P301 + P330 + P331</td>
<td>IF SWALLOWED:</td>
<td>Rinse mouth. Do NOT induce vomiting.</td>
</tr>
<tr>
<td>P303 + P361 + P353</td>
<td>IF ON SKIN (or hair):</td>
<td>Remove/ Take off immediately all contaminated clothing. Rinse SKIN with water/ shower.</td>
</tr>
<tr>
<td>P305 + P351 + P338 + P310</td>
<td>IF IN EYES:</td>
<td>Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.</td>
</tr>
<tr>
<td>P304 + P340 + P310</td>
<td>IF INHALED:</td>
<td>Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.</td>
</tr>
<tr>
<td>P363</td>
<td>Wash contaminated clothing before reuse.</td>
<td></td>
</tr>
<tr>
<td>P390</td>
<td>Absorb spillage to prevent material damage.</td>
<td></td>
</tr>
<tr>
<td>P405</td>
<td>Store locked up.</td>
<td></td>
</tr>
<tr>
<td>P406</td>
<td>Store in corrosive resistant stainless steel container with a resistant inner liner.</td>
<td></td>
</tr>
<tr>
<td>P501</td>
<td>Dispose of contents/container in accordance with local/state/national regulations.</td>
<td></td>
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</tbody>
</table>

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

**Synonyms:**
- CHEMICAL NAME: Potassium Hydroxide Solution
- TRADE NAME: Potash Liquor
- SYNONYMS: Caustic Potash Liquid, Potassium Hydrate, Lye, KOH
- CONCENTRATION: 45-50%
- C.A.S: 1310-58-3
- WHMIS: D1B, E
- CHEMICAL FORMULA: KOH (in aqueous solution)
- CHEMICAL FAMILY: Alkali

**SECTION 4: FIRST AID MEASURES**

**Description of first aid measures:**
Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

**If inhaled:**
If breathed in, move person into fresh air. If breathing is difficult, give humidified air. Give oxygen but only by a certified physician. If breathing stops, provide artificial respiration. Get medical attention immediately.

**In case of skin contact:**
Immediately take off all contaminated clothing. Wash off IMMEDIATELY with plenty of water for at least 15-20 minutes. Get medical attention. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes.

**In case of 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.
If ingested:
Never give anything by mouth to an unconscious person. Rinse mouth with water. Give plenty of water to drink. Consult a physician.

SECTION 5  FIRE FIGHTING MEASURES

Flash Point: None.
Extinguishing Media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Auto Ignition Temp: Non-combustible.
Special Fire Fighting Procedures: Wear self-contained breathing apparatus and full protective clothing. In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers.
Unusual Fire/Explosion Hazards: Not combustible, however the product can react with metals such as aluminum, tin, zinc to form flammable and explosive hydrogen gas.
Fire-Fighting Measures: Potassium hydroxide does not burn or support combustion. Use extinguishing agents compatible with potassium hydroxide and appropriate for the surrounding fire. If water is used, care should be taken, since it can generate heat and cause spattering if applied directly to potassium hydroxide.

SECTION 6  ACCIDENTAL RELEASE MEASURES

Environmental Precautions:
Do not discharge into drains, water courses or onto the ground.

Containment and Cleaning:
Cleanup personnel must wear proper protective equipment. Completely contain spilled material with dikes, sandbags, etc., and prevent run-off into ground or surface waters or sewers. Recover as much material as possible into containers for disposal. Remaining material may be neutralized with dilute hydrochloric or acetic acid. Neutralization products, both liquid and solid, must be recovered for disposal.

Waste Control Procedures:
All disposals of this material must be done in accordance with federal, state and local regulations. Waste characterization and compliance with disposal regulations are the responsibilities of the waste generator.

SECTION 7:  HANDLING AND STORAGE

Precautions to be taken for handling and storage:
Storage tanks should be contained in a diked area that has sufficient capacity to hold the contents of the tank. This area should be free of potential contact with acids, organics, and reactive metals. Keep container tightly closed. Store in a cool, dry, well-ventilated place. Store in corrosive resistant container with a resistant inner liner. Store away from incompatible materials. Store at temperatures not exceeding 40°C/104°F. Compatible storage materials may include, but not be limited to, the following: nickel and nickel alloys, steel, plastics, plastic or rubber-lined steel, FRP, or Derakane vinyl ester resin. Do not allow material to freeze.
Precautions for repair:
**Equipment:** Only personnel trained and qualified in handling this product should prepare equipment for maintenance. Wash thoroughly with water.

**Other Precautions:** Spillage can be slippery.

**SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION**

**Principal Component:** Potassium hydroxide, water

**Occupational Exposure Limits:**

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>15 Minute STEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalable Particulate</td>
<td>2 mg/m3 (ceiling)</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

**Exposure Controls:**

**Eye Protection:** Chemical splash goggles and face shield.

**Respiratory Protection:** None is normally required, however, if misting or heavy vapor formation should occur, a NIOSH approved mist respirator should be worn.

**Other Protection:** Rubber boots. Rubbers over leather shoes are not recommended. Rubber apron, rainwear or disposal tyvek suit with hard hat should be worn.

**Ventilation Recommended:** Provide adequate ventilation to meet TLV requirements.

**Glove Type Recommended:** Rubber, nitrile, neoprene, PVL.

**Additional Information:** Safety eyewash/shower stations must be available in the work area.

**Appropriate 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.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

Information on basic physical and chemical properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Colorless, viscous liquid.</td>
</tr>
<tr>
<td>Odor</td>
<td>No odor</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>pH</td>
<td>&gt;14</td>
</tr>
<tr>
<td>Boiling point</td>
<td>45% KOH Solution: 132.2°C (270°F)</td>
</tr>
<tr>
<td></td>
<td>50% KOH Solution: 143.3°C (290°F)</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Slightly less than water</td>
</tr>
<tr>
<td>Property</td>
<td>Value</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Flammability</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>Not flammable</td>
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<tr>
<td>Explosive properties</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>100%</td>
</tr>
<tr>
<td>Physical State</td>
<td>Liquid at room temperature</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>56.1</td>
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</table>
| Freeze/Solidification          | 45% KOH Solution: -28.8°C (-20°F)  
50% KOH Solution: 8.9°C (48°F) |
| Specific Gravity (water = 1)   | 45% KOH Solution: 1.457 at 15.6°C (60°F)  
50% KOH Solution: 1.516 at 15.6°C (60°F) |
| Density Liquid (pounds per gallon) | 45% KOH Solution:12.2 lbs/gal  
50% KOH Solution:12.5 lbs/gal |
| Vapor Density                  | No data available |
| Vapor Pressure                 | 45% KOH Solution: 39mm Hg at 140°F (60°C)  
50% KOH Solution: 27 mm Hg at 140°F (60°C) |
| Partition Coefficient: n-octanol/water | No data available |

**SECTION 10: STABILITY AND REACTIVITY**

- **Stability:** Stable under normal conditions.
- **Conditions to avoid:** Exposure to air can form potassium carbonate.
- **Hazardous decomposition products:** Flammable hydrogen gas may be generated when KOH and certain metals react.
- **Polymerization:** Hazardous polymerization WILL NOT occur.
- **Additional Information:** Trichlorethylene will react to form dichloracetylene, which is spontaneously flammable.

**SECTION 11: TOXICOLOGICAL INFORMATION**

**Information on likely routes of exposure:**

**Skin Contact:** Major potential hazard - contact with the skin can cause severe burns with deep ulcerations. Contact with solution or mist can cause multiple burns with temporary loss of hair at burn site. Solutions may not cause immediate pain or irritation upon skin contact. Prolonged or repeated contact with dilute solutions may cause drying and cracking of skin and possible skin damage.

**Skin Absorption:** It can penetrate to deeper layers of skin and corrosion will continue until removed. The severity of injury depends on the concentration and the duration of exposure.
**Eye Contact:** Major potential hazard – Liquid in the eye can cause severe destruction and blindness. These effects can occur rapidly affecting all parts of the eye. Mist or dust can cause irritation with high concentrations causing destructive burns.

**Inhalation:** By analogy with sodium hydroxide, inhalation of solution mist is expected to cause mild irritation at 2 mg/m³. More severe burns and tissue damage in the upper respiratory tract can occur at higher concentrations. Pneumonitis can result from severe exposures.

**Ingestion:** Ingestion of potassium hydroxide can cause severe burning and pain in lips, mouth, tongue, throat and stomach. Severe scarring of the throat can occur after swallowing. Death can result from ingestion.

**Information on toxicological effects:**

| Irritancy: | A study with a 10% solution showed severe tissue damage when applied to skin for 4 hours. |
| Sensitization: | Not available |
| Carcinogenicity: | One study was identified relative to potassium hydroxide and carcinogenicity. Mice painted with a 3 to 6% aqueous potassium hydroxide solution for 46 weeks developed skin tumors. This study was conducted in 1925 and the adequacy of the test and its design are unknown. No conclusions can be drawn from this study. Potassium hydroxide is not listed on the IARC, OSHA or NTP carcinogen lists. |
| Teratogenicity & Mutagenicity: | Not available |
| Reproductive Toxicology: | Not available |
| Toxicological Synergism: | Not available |

**Product Species Test Results:**

- **LD₅₀:** There are several different numbers published:
  - 205 mg/kg (rat oral) (1975)
  - 365 mg/kg (rat oral) (1975)
  - 273 mg/kg (male rat oral) (1987)
  - 273 mg/kg (rat oral) (1996)
- **LC₅₀:** Fresh water mosquito fish: 80.0 mg/L (24 Hours, static)

**SECTION 12: ECOLOGICAL INFORMATION**

**Ecological Information:**

- **Persistence and degradability:** No data is available on the degradability of this product.
- **Bioaccumulative potential:** No data available for this product.
- **Mobility in soil:** Not available.
- **Other adverse effects:** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.
- **Aquatic Toxicity:** May cause shifts in water pH outside the range of pH 5-10. This change may be toxic to aquatic organisms.
Biodegradability:
Not biodegradable (Biodegradability term pertains to an organic material capable of decomposition as a result of attack by microorganisms). However, potassium hydroxide will be neutralized by acidity present in natural environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Collect and reclaim or dispose in sealed containers at licensed waste disposal site if possible. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. Empty containers or liners may retain some product residues.

SECTION 14: TRANSPORT INFORMATION

Shipping:
Usual Shipping Containers: Tank car, Tank truck, ABS Drums.
Usual Shelf Life: Sealed containers, unlimited.
Storage/Transport Temperatures: Ambient.

Suitable Storage:
Materials/Coatings: Steel, plastic, polyethylene (when dry).
Unsuitable: Aluminum or galvanized containers.

D.O.T. Information:
UN number: 1814
Class: 8
Packing group: II
Proper shipping name: Potassium hydroxide, solution
Reportable Quantity (RQ): 1000 lbs (100% basis)
Marine pollutant: No
Poison Inhalation Hazard: No

SECTION 15 REGULATORY INFORMATION

SARA 302 Components
SARA 302: Not listed.

SARA 313 Components
SARA 313: Not regulated.

SARA 311/312 Hazards
EPCRA reporting quantities: TQ:10,000 pounds (100% KOH basis).

Massachusetts Right To Know Components
Potassium Hydroxide CAS#: 1310-58-3

Pennsylvania Right To Know Components
**Water** CAS#: 7732-18-5  
**Potassium Hydroxide** CAS#: 1310-58-3  

**New Jersey Right To Know Components**  
**Water** CAS#: 7732-18-5  
**Potassium Hydroxide** CAS#: 1310-58-3

**California Prop. 65 Components**  
This product does not contain any chemicals known to state of California to cause cancer, birth defects, or any other reproductive harm.

**OSHA PSM TPQ:** Not listed

**Toxic Substances Control Act (TSCA):**  
CAS# 1310-58-3 is listed on the TSCA inventory.

**Comprehensive Environmental Response Compensation Liability Act: (CERCLA)**  
CAS# 1310-58-3 is listed on the CERCLA list.

### SECTION 16 OTHER INFORMATION

**NFPA Rating:**  
Health Hazard: 3  
Fire Hazard: 0  
Reactivity Hazard: 0

**HMIS Rating:**  
Health hazard: 3  
Chronic Health Hazard:  
Flammability: 0  
Physical Hazard 0

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<th>Version</th>
<th>Description</th>
<th>Revision Date</th>
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<td>1.0</td>
<td>For the new GHS SDS Standard</td>
<td>12/15/2014</td>
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<td>Updated graphics</td>
<td>2/4/2015</td>
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<td>1.1</td>
<td>Hazard and precautionary statements</td>
<td>3/9/2015</td>
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<td>1.3</td>
<td>UN#, ICC GHS Edits</td>
<td>5/20/2015</td>
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<td>Edits in Section 9</td>
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<td>Edits to Section 5</td>
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