SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Identifiers: Liquid K Blend, Potassium Carbonate/Potassium Hydroxide Solution  
Product Name: Potassium Carbonate/Potassium Hydroxide Blend in Water  
Identified Uses: Natural Gas Mining (fracking), chemical manufacturing

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):

<table>
<thead>
<tr>
<th>Hazard Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>H301</td>
</tr>
<tr>
<td>H314</td>
</tr>
<tr>
<td>H318</td>
</tr>
<tr>
<td>H402</td>
</tr>
</tbody>
</table>

Precautionary Statements

<table>
<thead>
<tr>
<th>Precautionary Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>P260</td>
</tr>
<tr>
<td>P264</td>
</tr>
<tr>
<td>P270</td>
</tr>
<tr>
<td>P273</td>
</tr>
<tr>
<td>P280</td>
</tr>
<tr>
<td>P301 + P310</td>
</tr>
<tr>
<td>P301 + P330 + P331</td>
</tr>
<tr>
<td>P303 + P361 + P353</td>
</tr>
</tbody>
</table>

5/15/2018
Synonyms:
CHEMICAL NAME: Potassium Carbonate/Hydroxide Solution
TRADE NAME: K Blend
SYNONYMS: Potash Liquor

CONCENTRATIONS:

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS Number</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Hydroxide</td>
<td>1310-58-3</td>
<td>10-15%</td>
</tr>
<tr>
<td>Potassium Carbonate</td>
<td>584-08-7</td>
<td>20-40%</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Balance</td>
</tr>
</tbody>
</table>

WHMIS: E
CHEMICAL FORMULA: K\textsubscript{2}CO\textsubscript{3}/KOH (in aqueous solution)
CHEMICAL FAMILY: Alkali

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

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
Take off immediately all contaminated clothing. Wash off IMMEDIATELY with plenty of water for at least 15-20 minutes. Get medical attention immediately! 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
Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Give plenty of water to drink. Consult a physician.
**SECTION 5: FIRE FIGHTING MEASURES**

- **Flash Point:** Not flammable
- **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:** Thermal decomposition generates corrosive vapors.

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

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

- **Small Spill:**
  Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid.

- **Large Spill:**
  Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of acetic acid. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities. Cleanup personnel must wear proper protective equipment. Completely contain spilled material with dikes, sandbags, etc. Recover as much material as possible into containers for disposal. Remaining material may be neutralized with dilute hydrochloric or acetic acid.

- **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. 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. 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 Carbonate/Potassium Hydroxide, water

**Occupational Exposure Limits:**
- ACGIH TLV = 2mg/m³ ceiling (KOH)
- OSHA PEL = None
- 15 Minute STEL = None
- NIOSH IDLH = None

**Exposure Controls:**
- **Eye Protection:** Chemical splash goggles and face shield.
- **Respiratory Protection:** 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.
- **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 liquid.</td>
</tr>
<tr>
<td>Odor</td>
<td>No odor</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>&gt;14</td>
</tr>
<tr>
<td>Initial boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Very soluble</td>
</tr>
<tr>
<td>Physical State</td>
<td>Liquid at room temperature</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>56.1 (KOH), 138.2 (K₂CO₃)</td>
</tr>
</tbody>
</table>
Freeze/Solidification | No data available
---|---
Specific Gravity (water = 1) | 1.35 – 1.50 at 20°C (depends on CO\textsubscript{3}:OH ratio)
Density Liquid (pounds per gallon) | 11.3 – 12.5 at 20°C (depends on CO\textsubscript{3}:OH ratio)
Vapor Density | No data available
Vapor Pressure | No data available

### SECTION 10: STABILITY AND REACTIVITY

**Stability:** Stable under normal condition.

**Conditions to avoid:** Reaction with acids will generate heat and release carbon dioxide.

**Incompatibility:** Strong acids, organic chemicals, nitrocarbons, halocarbons, and certain metals or alloys. Oxidizing agents, phosphorus, aluminum, zinc and tin.

**Hazardous decomposition products:** Flammable hydrogen gas may be generated when KOH and certain metals react.

**Polymerization:** Hazardous polymerization WILL NOT occur.

### 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/m\textsuperscript{3}. 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% KOH solution showed severe tissue damage when applied to skin for 4 hours.

**Sensitization:** Not available
Carcinogenicity: Not classified
Teratogenicity & Mutagenicity: Not classified
Reproductive Toxicology: Not classified
Toxicological Synergism: Not classified

Product Species Test Results: LD_{50}: 2730 mg/kg (rat oral)

SECTION 12: ECOLOGICAL INFORMATION

Ecological Information:
Persistence and degradability: Not established
Bioaccumulative potential: Not established
Mobility in soil: Not established
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 6 - 9. This change may be toxic to aquatic organisms.

Biodegradability: Not biodegradable, however potassium hydroxide/carbonate will be neutralized by acidity present in natural environment.

SECTION 13: DISPOSAL CONSIDERATIONS

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: 1760
Class: 8
Packing group: II
Proper shipping name: Corrosive Liquid, n.o.s. Potassium Carbonate and Potassium Hydroxide Sol.
Reportable Quantity (RQ): 1000lbs (100% KOH 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  
Acute Health Hazard

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

**Pennsylvania Right To Know Components**  
Potassium Hydroxide  
CAS#: 1310-58-3  
Potassium Carbonate  
CAS#: 584-08-7

**New Jersey Right To Know Components**  
Potassium Hydroxide  
CAS#: 1310-58-3  
Potassium Carbonate  
CAS#: 584-08-7

**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.  
CAS#: 584-08-7 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

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

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

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<table>
<thead>
<tr>
<th>Version</th>
<th>Description</th>
<th>Revision Date</th>
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<tbody>
<tr>
<td>Version 1.0</td>
<td>For the new GHS SDS Standard</td>
<td>2/6/2015</td>
</tr>
<tr>
<td>Version 1.1</td>
<td>Graphics updated</td>
<td>3/10/2015</td>
</tr>
<tr>
<td>Removed Version, Updated Format</td>
<td></td>
<td>5/16/2018</td>
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