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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

DISTRIBUTOR: GHL inc.
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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.
P301 + P330 + P331 P303 + P361+ P353	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse SKIN with water/ shower.
P305 + P351 + P338 + P310	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 or doctor/ physician.
P304 + P340 + P310	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P405	Store locked up.
P406	Store in corrosive resistant stainless steel container with a resistant inner liner.
P501	Dispose of contents/container in accordance with local/state/national regulations.

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:

Regulatory Limits:

ACGIH TLV	=	2 mg/m ³ (ceiling)
OSHA PEL	=	none
15 Minute STEL	=	none
NIOSH IDLH	=	none

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:

Appearance	Colorless, viscous liquid.
Odor	No odor
Odor Threshold	Not available
pH	>14
Boiling point	45% KOH Solution: 132.2°C (270°F) 50% KOH Solution: 143.3°C (290°F)
Flash point	No data available
Evaporation rate	Slightly less than water

Flammability	Not flammable
Upper/lower flammability or explosive limits	Not flammable
Explosive properties	Not flammable
Autoignition Temperature	No data available
Water solubility	100%
Physical State	Liquid at room temperature
Decomposition Temperature	No data available
Molecular Weight	56.1
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
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Stability:	Stable under normal conditions.
Conditions to avoid:	Exposure to air can form potassium carbonate.
Incompatibility:	Organic chemicals, nitrocarbons, halocarbons and metals or alloys mentioned above. Oxidizing agents. Acids. Phosphorus. Aluminum. Zinc. Tin. Initiates or catalyzes violent polymerization of acetaldehyde, acrolein or acrylonitrile.
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 dichloroacetylene, which is spontaneously flammable.

SECTION 11:	TOXICOLOGICAL INFORMATION
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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
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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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Version 1.0	For the new GHS SDS Standard	Revision Date: 12/15/2014
Version 1.1	Hazard and precautionary statements	Revision Date: 2/4/2015
Version 1.2	Updated graphics	Revision Date: 3/9/2015
Version 1.3	UN#, ICC GHS Edits	Revision Date: 5/20/2015
Version 1.4	Edits in Section 9	Revision Date: 5/21/2015
Version 1.5	Edits to Section 5	Revision Date: 6/2/2015
Version 1.6	Additions to Section 9	Revision Date: 6/25/2015
Version 1.7	Change to Section 1	Revision Date: 4/15/2016
Version 1.8	Changed P501 text (Section 2)	Revision Date: 6/15/16