



Material Safety Data Sheet

Potassium Hydroxide Flake

Section 1. Chemical Product and Company Identification		Page Number: 1	
Trade Name:	Potassium Hydroxide Liquid	Product Serial #:	PHL-1-01
Synonym:	Caustic Potash Liquid	CAS #:	1310-58-3
Chemical Name:	Potassium Hydroxide Liquid	UN #:	1814
Chemical Formula:	KOH	Packaging Group:	II
Molecular Weight:	56.11	EMERGENCY CALL +86-22-23528561	
Chemical Family:	Alkali		
Supplier Information:	Tianjin BRG Products Co., Ltd. Address: Kangning Tower B, Xikang Ave., Heping Dist., Tianjin, 300070 Tel #: +86-22-23528561 Fax #: +86-22-23523959 Website: www.brgproduct.com		

Section 2. Hazards Identification	
Pictogram	 
Signal word:	Danger
Hazard statements	<p>H314: Causes severe skin burns and eye damage.</p> <p>H302: Harmful if swallowed.</p> <p>H290: May be corrosive to metals.</p> <p>H318: Causes serious eye damage.</p> <p>H402: Harmful to aquatic life.</p> <p>These Hazard statements will vary based on the concentration and nature of each chemical</p>
Precautionary statement(s)	
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Prevention

Wash thoroughly after handling. Wear protective gloves, protective clothing, eye protection, and face protection.

Response

If swallowed: Rinse mouth. Do NOT induce vomiting.

If on Skin (or hair): Remove immediately all contaminated clothing. Rinse skin with water.

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 or doctor.

Wash contaminated clothing before reuse.

Storage

Store locked up.

Disposal:

Dispose of contents and container in accordance with government regulations.

Hazard(s) not otherwise classified (HNOC)

None known

Supplemental information

None

Section 3. Composition and Information on Ingredients

Ingredients Name	CAS Number	TWA(mg/m ³)	CEIL(mg/m ³)	% By Weight or Volume
1) Potassium Hydroxide	1310-58-3			45
2) Water	7732-18-5			55

Section 4. First Aid Measures

Eye Contact:	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.
Skin Contact:	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Serious Skin Contact:	Follow above directions. Flush skin with water for up to 60 minutes. Seek medical attention.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Serious Inhalation:	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.
Ingestion:	Do not induce vomiting. Rinse mouth and give as much water as possible to dilute material. Loosen clothing such as a collar, tie, belt or waistband. If vomiting occurs, have victim lean forward with head down, rinse mouth and administer more water, keeping a clear airway. Seek immediate medical attention.

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Serious Ingestion:	Follow above directions. Never give anything by mouth to an unconscious person. If victim is not breathing give artificial respiration. Do not use mouth-to mouth method if victim ingested or inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Seek immediate medical attention.
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Section 5. Fire and Explosion Data

Flammability of the Product:	Non-flammable
Auto-Ignition Temperature:	Not applicable
Flash Points:	Not applicable
Flammable Limits:	Not applicable
Products of Combustion:	Potassium oxide fumes.
Fire Hazards in Presence of Various Substances:	Potassium hydroxide in contact with water and acids may generate enough heat to ignite adjacent combustible materials. Can react with metals such as aluminum, tin, and zinc to form flammable hydrogen gas.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available.
	Risks of explosion of the product in presence of static discharge: Not available.
Fire Fighting Media and Instructions:	Dry chemical, carbon dioxide, water spray, or alcohol resistant foam. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Wear full chemical protective clothing. if tank, rail car, or tank truck is involved in a fire, isolate for 800 meters (1/2 mile) in all directions. Extinguish fire from maximum distance.
Special Remarks on Fire Hazards	Potassium hydroxide in contact with zinc metal dust will ignite. Under certain conditions of temperature, pressure and state, it can ignite or react violently with acetaldehyde, allyl alcohol, allyl chloride, benzene 1,4 diol, chlorinetrifluoride, 1,2 dichloroethylene, nitroethane, nitromethane, nitroparaffins, nitropropane, cinnamaldehyde, 2,2-dichloro-3,3-dimethylbutane. Phosphorus boiled with potassium hydroxide yields a product that may ignite spontaneously in air. See Section 10- Special Remarks on Reactivity.
Special Remarks on Explosion Hazards	Potassium hydroxide reacts to form explosive products with ammonia and silver nitrate. Benzene extract of allyl benzenesulfonate prepared from allyl alcohol and benzene sulfonyl chloride in presence of aqueous potassium hydroxide may darken and explode. Potassium hydroxide and impure tetrahydrofuran, which can contain peroxides, can cause serious explosions. Dry mixtures of potassium hydroxide and tetrahydroborate liberates hydrogen explosively at 230-270 deg. C.

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Section 6. Accidental Release Measures

Small Spill:	Absorb or cover with dry earth, sand, or other non-combustible material and transfer to waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid. Flush area with water.
Large Spill:	Evacuate area. Remove all ignition sources and ventilate area. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into surface water, sewers, basements or confined areas; dike if needed. Notify appropriate government, occupational health and safety and environmental authorities. Neutralize the residue with a dilute solution of acetic acid. Call fire department immediately.

Section 7. Handling and Storage

Precautions:	Use with adequate ventilation. Do not breathe dust. When mixing, never add water to this product. Instead, always add sodium hydroxide to water and provide agitation. Use cold water and stir in small amount in slowly. Avoid contact with skin and eyes.
Storage:	Hygroscopic. Keep container tightly closed and dry. Keep container in a cool, well-ventilated area. Do not store above 23°C (73.4°F). Keep away from incompatibles such as oxidizing agents, reducing agents, metals, acids, alkalis, water and organic materials.

Section 8. Exposure Controls/Personal Protection

Engineering Controls:	Use process enclosures, ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use local exhaust ventilation to keep exposure to airborne contaminants below the exposure limit. Eye wash and safety showers are necessary.
Personal Protection:	Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Face shield. Provide an emergency eye wash and shower station.
Personal Protection in Case of a Large Spill:	Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits:	STEL: 2 (mg/m ³) from ACGIH (TLV) [United States]TWA: 2 CEIL: 2 (mg/m ³) from OSHA (PEL) [United States]CEIL: 2 (mg/m ³) from NIOSH Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance:	Liquid
Odor:	Odorless.
Taste:	Not available.
Color:	Colorless clear liquid
Molecular Weight:	56.11 g/mole
pH (1% soln/water):	13
Boiling Point:	269.6 °F (132 °C) (45% solution)
Melting Point:	-22 °F (-30 °C) (45% solution)

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Relative density:	1.457 g/cm ³ @ 15.6°C / 60°F (45% solution).
Specific Gravity:	1.46 @ 15.6°C / 60°F (45% solution)
Vapor Pressure:	Not available.
Vapor Density:	Not available.
Volatility:	Not available.
Odor Threshold:	Not applicable.
Water/Oil Dist. Coeff.:	Not applicable.
Ionicity (in Water):	Not applicable.
Dispersion Properties:	See solubility in water.
Solubility:	Easily soluble in cold water

Section 10. Stability and Reactivity Data

Stability:	The product is stable under normal conditions.
Instability Temperature:	Not available.
Conditions of Instability:	Incompatible materials, moisture, moist air
Incompatibility with various substances	Avoid contact with organic materials, acids, water, flammable liquids, organic halogens, amphoteric metals and nitro compounds. Reactive with oxidizing agents, reducing agents. See Special Remarks on Reactivity.
Corrosivity:	Corrosive to aluminum, tin, zinc, copper and most alloys in which they are present. Corrosive to steel at temperatures above 140°C
Special Remarks on Reactivity	Hygroscopic. Much heat is evolved when solid material is dissolved in water. Therefore cold water and caution must be used for this process. Reactive with water, all mineral acids, all organic acids, aldehydes, carbamates, esters, organic halogens, ketones, acid chlorides, strong bases, oxidizing agents, reducing agents, flammable liquids, powdered metals, metal compounds, nitrides, nitriles, nitro compounds, acetic anhydride, chlorohydrin, chlorosulfonic acid, ethylene cyanohydrin, glyoxal, hydrosulfuric acid, oleum, propiolactone, acrylonitrile, phosphorous pentoxide, chloroethanol, chloroform-methanol, tetrahydroborate, cyanogen azide, 1,2,4,5-tetrachlorobenzene, cinnamaldehyde, formaldehyde hydroxide. Produces hydrogen gas when it reacts with sodium tetrahydroborate or certain metals such as aluminum, tin, zinc. Can form spontaneously flammable chemicals upon contact with 1,2-dichloroethylene, trichloroethylene, or tetrachloroethane. Can produce carbon monoxide upon contact with solutions of sugars, such as fructose, lactose.
Special Remarks on Corrosivity	Very caustic to aluminum and other metals in presence of moisture.
Polymerization	Will not occur

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Section 11. Toxicological Information

Routes of Entry:	Absorbed through skin. Eye contact. Inhalation. Ingestion.
Toxicity to Animals:	LD50: 205 mg/kg [Rat]
Chronic Effects on Humans:	MUTAGENIC EFFECTS: Mutagenic on mammals under test situations.
Other Toxic Effects on Humans:	Extremely hazardous in case of inhalation (lung corrosive). Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (corrosive), of ingestion,
Special Remarks on Toxicity to Animals:	Moderately toxic to aquatic life.
Special Remarks on Chronic Effects on Humans:	May affect genetic material. Investigation as a mutagen (cytogenetic analysis)
Special Remarks on other Toxic Effects on Humans:	Immediately dangerous to life or health at 10 mg/ m ³ Acute Potential Health Effects: Skin: May be harmful if absorbed through skin. Causes severe skin irritation and burns. May cause deep penetrating ulcers of the skin. Eyes: Causes severe eye irritation and burns. May cause blindness. Inhalation: Harmful if inhaled. Causes severe irritation of the respiratory tract and mucous membranes with coughing, burns, breathing difficulty, and possible coma. Irritation may lead the chemical pneumonitis and pulmonary edema. Causes chemical burns to the respiratory tract and mucous membranes. Ingestion: May be fatal if swallowed. May cause severe and permanent damage to the digestive tract. Causes severe gastrointestinal tract irritation and burns. May cause perforation of the digestive tract. Causes severe pain, nausea, vomiting, diarrhea, and shock. May cause corrosion and permanent destruction of the esophagus and digestive tract.

Section 12. Ecological Information


Ecotoxicity:	Not available.
BOD5 and COD:	Not available.
Products of Biodegradation:	Inorganic, no biodegradation.
Toxicity of the Products of Biodegradation:	Not applicable.
Special Remarks on the Products of Biodegradation:	Not available.

Section 13. Disposal Considerations

Waste Disposal:	If this product becomes a waste it could meet the criteria of a hazardous waste as defined by the Resource Conservation Recovery Act (RCRA) 40 CFR 261. Before disposal, it should be determined if the waste meets the criteria of a hazardous waste. Consult local, state, federal regulations for specific requirements. Harmful to aquatic life at low concentrations. Do not contaminate domestic or irrigation water supplies or bodies of water.
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Section 14. Transport Information

DOT Classification:	Class 8: Corrosive material
Identification	Potassium hydroxide, liquid UN1814 Packing group: II
Special Provisions for Transport	Air transport: IATA/ICAO- Class 8, UN1814, Packing group: II
DOT (Pictograms)	





Section 15. Regulatory Information

Other Regulations:	<p>OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances. SARA Section 311 and 312: The product is to be reported under the Immediate (Acute) and Reactive Health Hazards. DSL: This product is on the Domestic Substances List of Canada. On the Air Contaminants Regulatory List and the Registered Pesticide List.</p>	
Other Classifications:	WHMIS (Canada)	CLASS E: Corrosive liquid
	DSCL (EEC)	<p>R35- Causes severe burns. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.S28- After contact with skin, wash immediately with plenty of water S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.S38- In case of insufficient ventilation, wear suitable respiratory equipment.S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).</p>

<p>HMIS (U.S.A.):</p> <table border="1" style="display: inline-table;"> <tr><td style="background-color: blue; color: white;">Health</td><td style="background-color: blue; color: white;">3</td></tr> <tr><td style="background-color: red; color: white;">Fire</td><td style="background-color: red; color: white;">0</td></tr> <tr><td style="background-color: yellow; color: black;">Reactivity</td><td style="background-color: yellow; color: black;">0</td></tr> <tr><td colspan="2" style="background-color: black; color: white; text-align: center;">Personal Protection</td></tr> </table>	Health	3	Fire	0	Reactivity	0	Personal Protection		<p>National Fire Protection Association (U.S.A.)</p>	<p>Health</p> <table border="1" style="display: inline-table;"> <tr><td style="background-color: red; color: white;">0</td></tr> <tr><td style="background-color: blue; color: white;">3</td><td style="background-color: yellow; color: black;">0</td></tr> </table> <p>Flammability Reactivity Specific hazard</p>	0	3	0
Health	3												
Fire	0												
Reactivity	0												
Personal Protection													
0													
3	0												

WHMIS (Canada)(Pictograms):	
DSCL (Europe)(Pictograms):	
ADR (Europe)(Pictograms):	

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Protective Equipment:		Gloves.
		Synthetic apron.
		Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
		Splash goggles.

Section 16. Other Information

Prepared By	Jack Lee, 2015-5-5
Notice to Reader	All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Tianjin BRG Products Co., Ltd., assumes no responsibility for the completeness or accuracy of the information contained herein.

Tianjin BRG Products Co., Ltd.

Address: Kangning Tower B, Xikang Ave., Heping Dist., Tianjin, 300070

Tel #: +86-22-23528561

Fax #: +86-22-23523959

Website: www.brgproduct.com