Safety Data Sheet

Section 01 - Identification

Product Identifier	Potassium Hydroxide 90% Flake
Other Means of Identification	Caustic potash solid, caustic potash flake, potassium hydroxide flake, KOH, lye, potassium hydrate solid.
Product Use and Restrictions on Use	pH adjustment, intermediate to make inorganic potassium chemicals; raw material in the detergent and soap industry; manufacture of fertilizers, herbicides, pesticides; phosphate manufacture; electrolyte in alkaline storage batteries; manufacture of printing inks, paint, varnish removers; mercerizing cotton; for bleaching; absorbent for carbon dioxide and nitrogen oxides from gases; drain cleaners; degreasing agents; dairy pipeline cleaners; electroplating; desulfurizing crude oil; as a drying agent; analytical chemistry and organic synthesis.
Initial Supplier Identifier	Steveston Chemical Solutions Ltd. 2060 Viceroy Place Richmond, BC. Canada V6V 1Y9
Emergency Poison Phone Numbers by Province	Phone: 604 831 5865 Alberta: 1-800-332-1414 British Columbia: 1-800-567-8911 Manitoba: 1-855-776-4766 New Brunswick: 911 Newfoundland & Labrador: 1-866-727-1110 Northwest Territories: 1-800-332-1414 Nova Scotia: 1-800-565-8161 Nunavaut: 1-866-913-7897 Ontario: 1-800-268-9017 Prince Edward Island: 1-800-565-8161 Quebec: 1-800-463-5060 Saskatchewan: 1-866-454-1212 Yukon: 1-867-393-8700

Section 02 - Hazard Identification

GHS-Classification

Acute Toxicity-Oral	Category 4
Skin Corrosion/Irritation	Category 1A
Serious Eye Damage/Irritation	Category 1

Physical Hazards

Corrosive to Metals	Category 1

Danger

Hazards Statements
H302 – Harmful if swallowed.
H314 – Causes severe skin burns and eye damage.
H290 – May be corrosive to metals.

Pictograms

Precautionary Statements

P405 – Store locked up.
P234 – keep only in original packaging.
P260 – Do not breathe dust.
P304 + P340 – IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P280 – Wear protective gloves, protective clothing, eye protection, and face protection.
P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303 + P361 + P353 – IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P363 – Wash contaminated clothing before reuse.
P270 – Do not eat, drink or smoke when using this product.
P301 +P330 + P331 – IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P310 – Immediately call a POISON CENTER or doctor/physician.
P390 – Absorb spillage to prevent material damage.
P501 – Dispose of contents/container in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.

Section 03 - Composition / Information on Ingredients

Chemical Name	CAS Number	Weight %	Unique Identifiers
Potassium Hydroxide	1310-58-3	60-100%	

Section 04 - First Aid Measures

Inhalation

If symptoms are experienced, remove victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Seek immediate medical attention.

Skin Contact / Absorption

Remove contaminated clothing. Immediately flush with lukewarm, gently flowing water for at least 60 minutes. Seek immediate medical attention. Completely decontaminate clothing, shoes and leather goods before re-use or discard.

Eye Contact

Contact lenses should never be worn when working with this product. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 60 minutes, while holding the eyelid(s) open. If a contact lens is present, remove only if easy to do so. Neutral saline solution may be used as soon as it is available. Seek immediate medical attention.

Ingestion

NEVER give anything by mouth if victim is rapidly losing consciousness, is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Seek immediate medical attention.

Additional Information

Absence of visible signs or symptoms of burns does not reliably exclude the presence of actual tissue damage. Probable mucosal damage may contraindicate use of gastric lavage.

Section 05 - Fire Fighting Measures

Suitable Extinguishing Media

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.

Unsuitable Extinguishing Media

DO NOT use carbon dioxide as an extinguishing agent.

Specific Hazards Arising From the Chemical

Solid potassium hydroxide in contact with moisture or water may generate sufficient heat to ignite nearby combustible materials. When moist, potassium hydroxide can react with metals, such as aluminum, tin and zinc, to form flammable and explosive hydrogen gas.

	When hot or in the molten state, it can react violently with water causing spattering and releasing an irritating mist. Toxic potassium oxide fumes can be generated by thermal decomposition at elevated temperatures. Closed containers may rupture violently when heated.
Special Protective Equipment and Precautions for Fire-Fighters	Wear NIOSH-approved self-contained breathing apparatus and protective clothing. Protective clothing and pressure demand, self-contained breathing apparatus should be worn by fire fighters in areas where product is.
Further Information	Approach fire from upwind to avoid toxic decomposition products. Water must be used with extreme caution to extinguish a fire in an area where potassium hydroxide is stored and must not come into contact with the potassium hydroxide.

Section 06 - Accidental Release Measures

Personal Precautions / Protective Equipment / Emergency Procedures	Wear appropriate personal protective equipment. Ventilate area. Only enter area with PPE. Stop or reduce leak if safe to do so. Avoid breathing vapours, mist or gas.
Environmental Precautions	Prevent material from entering waterways as it is alkaline which may raise pH of surface water with low buffering capacity.
Methods and Materials for Containment and Cleaning Up	Shovel or sweep up dry potassium hydroxide for recycling or disposal. Neutralize final traces and flush area with water. LARGE SPILLS: Contact fire and emergency services and supplier for advice.

Section 07 - Handling and Storage

Precautions for Safe Handling	This material is EXTREMELY CORROSIVE and HIGHLY REACTIVE. Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure. When diluting with water, slowly add potassium hydroxide solution to cold water with mixing as heat will be produced during dilution and to avoid spattering.
Conditions for Safe Storage	Store in a cool, dry, well-ventilated area. Keep quantity stored as small as possible. Store away from incompatible material. Take measures to ensure storage area cannot be contaminated with water. Containers may develop pressure after prolonged storage. Drums may need to be vented.
Incompatibilities	Water, aluminum, tin, zinc, sodium borohydride, chlorine dioxide, nitrosomethylurea, tetrahydrofuran, maleic anhydride, nitrogen trichloride, nitroalkalanes, ammonium hexachloroplatinate, 2,4,6,-trinitrotoluene, nitrobenzene, 2-nitrophenol, acetaldehyde, acrolein, acrylonitrile, allyl alcohol, 1,2-dichloroethylene, trichloroethylene, tetrachloroethane, phosphorous, potassium peroxodisulfate, hyponitrous acid, sugars, mineral acids, acetic acids, chloroform, methanol.

Section 08 - Exposure Controls and Personal Protection

Exposure Limit(s)

Component	Regulation	Type of Listing	Value
Potassium Hydroxide	ACGIH	TLV-C	2mg/m^3
	OSHA	PEL-C	2mg/m^3

Engineering Control(s)

Ventilation Requirements	Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions must be provided in accordance with all fire codes and regulatory requirements. Supply sufficient replacement air to make up for air removed by exhaust systems.

Other	Emergency shower and eyewash must be available and tested in accordance with regulations and be in close proximity.

Protective Equipment

Eyes/Face	Chemical goggles, full-face shield, or a full-face respirator is to be worn at all times when product is handled. Contact lenses should not be worn; they may contribute to severe eye injury.
Hand Protection	Impervious gloves of chemically resistant material (rubber or PVC) should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse.
Skin and Body Protection	Body suite, aprons, and/or coveralls of chemical resistant material should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse. Impervious boots of chemically resistant material should be worn at all times. No special footwear is required other than what is mandated at place of work.
Respiratory Protection	Where concentrations exceed or are likely to exceed 2 mg/m3 use a NIOSH approved high-efficiency particulate filter with full face piece or self-contained breathing apparatus. Follow any applicable respirator use standards and regulations.
Thermal Hazards	Not Available

Section 09 - Physical and Chemical Properties

Appearance

Physical State	Solid, flakes or crystals
Colour	White
Odour	Odourless
Odour Threshold	Not Applicable

Property

pH	13.5 (0.1M (0.56%) solution) 14 (1M (5.6%) solution)
Melting Point/Freezing Point	406°C
Initial Boiling Point and Boiling Range	1327°C
Flash Point	Not Applicable
Evaporation Rate	Not Applicable
Flammability	Non-Flammable
Upper Flammable Limit	Not Applicable
Lower Flammable Limit	Not Applicable
Vapour Pressure (mm Hg, 20°C)	Approximately zero (solid form)
Vapour Density (Air=1)	Not Applicable
Relative Density	Not Available

Solubility(ies)	Very soluble in water.
Partition Coefficient: n-octanol/water	Not Applicable (dissociates)
Auto-ignition Temperature	Not Applicable
Decomposition Temperature	Not Available
Viscosity	Not Applicable
Explosive Properties	The product can react with metals such as aluminum, tin, zinc to form flammable and explosive hydrogen gas.
Specific Gravity (Water=1)	2.04
% Volatiles by Volume	Not Available
Formula	KOH
Molecular Weight	56.11

Section 10 - Stability and Reactivity

Reactivity	Not Available
Stability	Normally stable. Rapidly absorbs moisture and carbon dioxide from the air forming potassium carbonate.
Possibility of Hazardous Reactions	None reported.
Conditions to Avoid	Water, moisture.
Incompatible Materials	Aluminum, tin, zinc, sodium borohydride, chlorine dioxide, nitrosomethylurea, tetrahydrofuran, maleic anhydride, nitrogen trichloride, nitroalkalanes, ammonium hexachloroplatinate, 2,4,6,-trinitrotoluene, nitrobenzene, 2-nitrophenol, acetaldehyde, acrolein, acrylonitrile, allyl alcohol, 1,2-dichloroethylene, trichloroethylene, tetrachloroethane, phosphorous, potassium peroxodisulfate, hyponitrous acid, sugars, mineral acids, acetic acids, chloroform, methanol.
Hazardous Decomposition Products	Potassium oxide fumes may be generated by thermal decomposition at high temperatures.

Section 11 - Toxicological Information

Acute Toxicity

Component	Oral LD_{50}	Dermal LD_{50}	Inhalation LC_{50}
Potassium Hydroxide	205mg/kg (rat)	>1260mg/kg (rabbit)	Not Available

Chronic Toxicity – Carcinogenicity

Component	IARC
Potassium Hydroxide	IARC: has not evaluated the carcinogenicity of this chemical.

Skin Corrosion/Irritation Potassium hydroxide is corrosive and is capable of producing severe burns, blisters, ulcers, and permanent scarring depending on the concentration of the solution and the duration of contact. Capable of penetrating deeper layers of skin causing permanent scaring and possibly death.

Ingestion	Potassium hydroxide is corrosive. Ingestion can result in burns to the lips, tongue, throat, esophagus and stomach; abdominal pain; nausea; vomiting; diarrhea and death.
Inhalation	If aerosols are inhaled, potassium hydroxide would probably cause severe irritation of the respiratory tract. In severe cases, a potentially fatal build-up of fluid in the lungs (pulmonary edema) could result.
Serious Eye Damage/Irritation	Potassium hydroxide is corrosive. It can penetrate deeply, causing severe eye burns and permanent injury, including blindness, depending on the concentration of the solutions and duration of contact.
Respiratory or Skin Sensitization	Potassium hydroxide is not known to be a skin sensitizer.
Germ Cell Mutagenicity	The available evidence does not suggest that potassium hydroxide is a mutagen.
Reproductive Toxicity	Potassium hydroxide is not known to cause reproductive toxicity.
STOT-Single Exposure	Not Available
STOT-Repeated Exposure	Not Available
Aspiration Hazard	Inhalation at concentrations higher than 2mg/m³ may cause burns and tissue damage in upper respiratory tract. Pnuemonitis can result from inhalation at high concentrations. Severe scarring of throat can occur after swallowing. Death may result from ingesting product.
Synergistic Materials	No information was located.

Section 12 – Ecological Information

Ecotoxicity

Component	Toxicity to Algae	Toxicity to Fish	Toxicity to Daphnia and Other Aquatic Invertebrates
Potassium Hydroxide	EC_{50}(Algae, 120hr): 1337mg/L	LC_{50}(Gambusia affinis, 96hr): 80mg/L	LC_{50}(Ceriodaphnia dubia, 48hr): 40mg/L

Biodegradability	Material will disassociate into ionic form in an aquatic environment. Carbon dioxide will slowly neutralize material.
Bioaccumulation	Product will not bioaccumulate.
Mobility	Not Available.
Other Adverse Effects	May cause shifts in water pH outside the range of pH 5 -10. This change may be toxic to aquatic organisms.

Section 13 – Disposal Considerations

Waste From Residues/Unused Products	Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.
Contaminated Packaging	Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.

Section 14 – Transport Information

UN Number	UN1813
UN Proper Shipping Name	POTASSIUM HYDROXIDE, SOLID
Transport Hazard Class(es)	8
Packaging Group	II
Environmental Hazards	Not listed as a marine pollutant under Canadian TDG Regulations, schedule III.
Special Precautions	Not Available

Transport in Bulk Not Available

Additional Information

Packing Group	Limited Quantity
II	1 Kg

TDG

Other Secure containers (full and/or empty) with suitable hold down devises during shipment and ensure all caps, valves, or closures are secured in the closed position.

TDG PRODUCT CLASSIFICATION: This product has been classified on the preparation date specified at section 14 of this MSDS / SDS, for transportation in accordance with the requirements of part 2 of the Transportation of Dangerous Goods Regulations. If applicable, testing and/or published test data regarding the classification of this product are listed in the references at section 16 of this MSDS / SDS.

Section 15 – Regulatory Information

NOTE: THE PRODUCT LISTED ON THIS SDS HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN CONTROLLED PRODUCTS REGULATIONS. THIS SDS CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.

Section 16 – Other Information

Preparation Date 2017 September 20

Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations.

References:

1) CHEMINFO
2) eChemPortal
3) TOXNET
4) Transportation of Dangerous Goods Canada
5) HSDB
6) ECHA

24 Hour Emergency Number - All Locations – 1(306) 664-2522