

Potassium Hydroxide 45%

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SECTION 1. IDENTIFICATION

Product identifier used on the label

: **Potassium Hydroxide 45%**

Other means of identification : Not available.

Recommended use of the chemical and restrictions on use

: Chemical intermediate; Reagent
Use pattern: Professional Use Only
Recommended restrictions: No restrictions on use known.

Chemical family

: Inorganic potassium compound

Name, address, and telephone number
of the supplier:

Comet Chemical Company Ltd.

3463 Thomas Street
Innisfill, ON, Canada
L9S 3W4

Supplier's Telephone #

: (705) 436-5580

24 Hr. Emergency Tel #

: GFL Environmental - 1-888-772-2543

Name, address, and telephone number
of the manufacturer:

Refer to supplier

SECTION 2. HAZARDS IDENTIFICATION

Classification of the chemical

Clear, colorless liquid. Odorless.

Most important hazards: Corrosive to all tissues. May be corrosive to metals. Harmful if swallowed.

This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Hazard classification:

Corrosive to Metals - Category 1

Acute toxicity, oral - Category 4

Skin Corrosion/Irritation - Category 1

Eye Damage/Irritation - Category 1

Note: This material also has the following additional Hazard classification according to U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015):
Hazards Not Otherwise Classified (HNOC) / Health Hazards Not Otherwise Classified Category 1

Label elements

Hazard pictogram(s)



Signal Word

DANGER!

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Hazard statement(s)

May be corrosive to metals.
 Causes severe skin burns and eye damage.
 Harmful if swallowed.
 Corrosive to the respiratory tract.

Precautionary statement(s)

Keep only in original packaging.
 Do not breathe mist.
 Wash thoroughly after handling.
 Do not eat, drink or smoke when using this product.
 Wear protective gloves/clothing and eye/face protection.

Immediately call a POISON CENTRE or doctor/physician.
 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 Wash contaminated clothing before reuse.
 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.
 Call a POISON CENTER or doctor/physician if you feel unwell.
 Absorb spillage to prevent material damage.

Store in corrosive resistant container with a resistant inner liner.
 Store locked up.

Dispose of contents/container in accordance with local regulation.

Other hazards

Other hazards which do not result in classification:

Contact with most metals will generate flammable hydrogen gas. Contact with water gives off heat. Burning produces obnoxious and toxic fumes. Chronic skin contact with low concentrations may cause dermatitis. May cause respiratory irritation.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Chemical name</u>	<u>Common name and synonyms</u>	<u>CAS #</u>	<u>Concentration (% by weight)</u>
potassium hydroxide	Caustic potash Potassium hydrate	1310-58-3	45.00

SECTION 4. FIRST-AID MEASURES

Description of first aid measures

- Ingestion* : Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Have victim rinse mouth with water, then give one to two glasses of water to drink. Seek immediate medical attention/advice.
- Inhalation* : Immediately remove person to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing has stopped, give artificial respiration. Seek immediate medical attention/advice.
- Skin contact* : Wear appropriate protective equipment. Remove/Take off immediately all contaminated clothing. Immediately flush skin with gently flowing, running water for at least 20 minutes. Do not rub area of contact. Obtain medical attention immediately. Wash contaminated clothing before reuse. Contaminated leather may require disposal.
- Eye contact* : Wear appropriate protective equipment. Protect unharmed eye. If in contact with eyes, immediately flush eyes with running water for at least 20 minutes. If contact lens is present, DO NOT delay flushing or attempt to remove the lens until flushing is done. Obtain medical attention immediately.

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Most important symptoms and effects, both acute and delayed

- : Harmful if swallowed. Causes severe skin irritation. Symptoms may include redness, blistering, pain and swelling. Causes serious eye damage. Symptoms may include severe pain, blurred vision, redness and corrosive damage. Corrosive to the respiratory tract. Symptoms may include coughing, choking and wheezing. Could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed. Ingestion may cause severe burns to the mucous membranes of the digestive tract. Symptoms may include abdominal pain, vomiting, burns, perforations and bleeding.

Indication of any immediate medical attention and special treatment needed

- : Immediate medical attention is required. Causes chemical burns. Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

- : Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical. May react with water. Use water spray with caution.

Unsuitable extinguishing media

- : Use water spray with caution. Do not use a solid water stream as it may scatter and spread fire.

Special hazards arising from the substance or mixture / Conditions of flammability

- : Not considered flammable. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure. Contact with most metals will generate flammable hydrogen gas. Contact with water will generate considerable heat.

Flammability classification (OSHA 29 CFR 1910.106)

- : Not flammable.

Hazardous combustion products

- : Potassium oxides

Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters

- : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Do not enter without wearing specialized protective equipment suitable for the situation. Firefighter's normal protective clothing (Bunker Gear) will not provide adequate protection. A full-body encapsulating chemical protective suit with positive pressure self-contained breathing apparatus (NIOSH approved or equivalent) may be necessary.

Special fire-fighting procedures

- : Move containers from fire area if safe to do so. Use water to cool fire-exposed containers. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply or any natural waterway. Dike for water control.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

- : Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus. Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.

- Environmental precautions** : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces. If necessary, dike well ahead of the spill to prevent runoff into drains, sewers, or any natural waterway or drinking supply.



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Methods and material for containment and cleaning up

- : Remove all sources of ignition. Ventilate area of release. Stop the spill at source if it is safe to do so. Dike for water control. Dilute acid with water and neutralize with Sodium Carbonate (soda ash) or lime. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand), then place absorbent material into a container for later disposal (see Section 13). Notify the appropriate authorities as required.

Special spill response procedures

- : In Canada: For 24-hour emergency assistance, call: 1-613-996-6666 (CANUTEC).
US CERCLA Reportable quantity (RQ): Potassium hydroxide (1000 lbs / 454 kg)

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

- : Wear protective gloves/clothing and eye/face protection. Use only in well-ventilated areas. Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable personal protective equipment. Do not breathe fumes or mists. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Keep away from heat and flame. Keep away from incompatibles. May react with water, generating heat. When diluting, always add the product to water. Never add water to the product. When mixing with water, stir small amounts in slowly. Use cold water to prevent excessive heat generation. The addition of caustic soda to liquid will cause a rise in temperature. Keep containers tightly closed when not in use. Empty containers retain residue (liquid and/or vapour) and can be dangerous.

- Conditions for safe storage** : Store in a well-ventilated place. Keep container tightly closed. Store locked up. Keep away from incompatibles. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. Do not freeze. Store in corrosion-resistant containers. Avoid contact with aluminum.

- Incompatible materials** : Acids; Water; Metals (e.g. tin, aluminum, zinc and alloys containing these metals); Halogenated compounds; Nitrogen compounds.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<u>Chemical Name</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
	<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
potassium hydroxide	2 mg/m ³ (Ceiling)	N/Av	2 mg/m ³ (Ceiling)	N/Av

Exposure controls

Ventilation and engineering measures

- : Use only in well-ventilated areas. Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits.

Respiratory protection

- : Respiratory protection is required if the concentrations exceed the TLV. NIOSH-approved respirators are recommended. A self contained breathing apparatus should be used in emergency situations or instances where exposure levels are not known. Seek advice from respiratory protection specialists. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02.

Skin protection

- : Wear protective gloves/clothing. Advice should be sought from glove suppliers. Wear appropriate protective clothing to prevent skin contact, such as coveralls or long sleeved shirt, long pants, and shoes and socks.

Eye / face protection

- : Wear eye/face protection. Chemical splash goggles must be worn when handling this material. A full face shield may also be necessary.

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Other protective equipment : An eyewash station and safety shower should be made available in the immediate working area. Other equipment may be required depending on workplace standards.

General hygiene considerations

- : Do not breathe fumes or mists. Do not ingest. Avoid contact with skin, eyes and clothing. Do not eat, drink, smoke or use cosmetics while working with this product. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. Remove soiled clothing and wash it thoroughly before reuse.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State : Liquid.
Colour : Clear, colorless.
Odour : No odour.
Odour threshold : Not applicable.
pH : 14
Melting Point/Freezing point : Not available.

Initial boiling point and boiling range

: 133°C (271.4°F)
Flash point : Not applicable.
Flashpoint (Method) : Not applicable.
Evaporation rate (BuAe = 1) : Not available.
Flammability : Not applicable.
Lower explosion or flammability limit (% by vol.)

: Not applicable.
Upper explosion or flammability limit (% by vol.)

: Not applicable.
Oxidizing properties : None known.
Explosive properties : Not explosive
Vapour pressure : 1.5 mmHg
Relative vapour density : Not available.

Relative density / Specific gravity

: 1.43
Solubility in water : Very soluble
Other solubility(ies) : Not available.

Partition coefficient: n-octanol/water or Coefficient of water/oil distribution

: N/Ap (dissociates)
Auto-ignition temperature : Not applicable.
Decomposition temperature : Not available.
Viscosity : Not available.
Particle characteristics : Not applicable.
Volatiles (% by weight) : Not available.

Volatile organic Compounds (VOC's)

: N/Av

Absolute pressure of container

: N/Ap
Flame projection length : N/Ap

Other physical/chemical comments

- : None known or reported by the manufacturer.

SECTION 10. STABILITY AND REACTIVITY

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- Reactivity** : Not normally reactive. May be corrosive to metals. Contact with most metals will generate flammable hydrogen gas. Contact with water will generate considerable heat.
- Chemical stability** : Material is stable under normal conditions.
- Possibility of hazardous reactions** : Hazardous polymerization does not occur.
- Conditions to avoid** : Avoid heat and open flame. Keep away from incompatibles. Keep container tightly closed when not in use. Avoid contact with water.
- Incompatible materials** : Incompatible materials (see Section 7).
- Hazardous decomposition products** : None known, refer to hazardous combustion products in Section 5.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure:

- Routes of entry inhalation** : YES
- Routes of entry skin & eye** : YES
- Routes of entry Ingestion** : YES
- Routes of exposure skin absorption** : YES

Potential Health Effects:

Signs and symptoms of short-term (acute) exposure

Sign and symptoms Inhalation

- : May cause severe irritation to the nose, throat and respiratory tract. Symptoms may include coughing, choking and wheezing. Could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed.

Sign and symptoms ingestion

- : Harmful if swallowed. May cause severe irritation and corrosive damage in the mouth, throat and stomach. Symptoms may include abdominal pain, vomiting, burns, perforations, bleeding and eventually death.

Sign and symptoms skin

- : May be harmful if absorbed through the skin. Causes severe skin burns and eye damage. Symptoms may include redness, blistering, pain and swelling.

Sign and symptoms eyes

- : Causes serious eye damage.

Potential Chronic Health Effects

- : Chronic skin contact with low concentrations may cause dermatitis.

Mutagenicity

- : Not expected to be mutagenic in humans.

Carcinogenicity

- : No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

Reproductive effects & Teratogenicity

- : Not expected to have other reproductive effects.

Sensitization to material

- : Not expected to be a skin or respiratory sensitizer.

Specific target organ effects

- : Target Organs: Eyes, skin, respiratory system and digestive system.

Corrosive to the respiratory tract.

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Medical conditions aggravated by overexposure

- : Pre-existing skin, eye and respiratory disorders.

Synergistic materials

- : Not available.

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Toxicological data : There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data. The calculated ATE values for this mixture are:
 ATE oral = 455 mg/kg
 ATE dermal = 2888 mg/kg

<u>Chemical name</u>	<u>LC₅₀(4hr)</u>	<u>LD₅₀</u>	
	<u>inh, rat</u>	<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
potassium hydroxide	N/Av	205 mg/kg	> 1260 mg/kg

Other important toxicological hazards

: None known or reported by the manufacturer.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity : The ecological characteristics of this product have not been fully investigated. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters. Toxicity is primarily associated with pH.

Ecotoxicity data:

<u>Ingredients</u>	<u>CAS #</u>	<u>Toxicity to Fish</u>		
		<u>LC₅₀ / 96h</u>	<u>NOEC / 21 day</u>	<u>M Factor</u>
potassium hydroxide	1310-58-3	80 mg/L (Mosquito fish)	N/Av	None.

<u>Ingredients</u>	<u>CAS #</u>	<u>Toxicity to Daphnia</u>		
		<u>EC₅₀ / 48h</u>	<u>NOEC / 21 day</u>	<u>M Factor</u>
potassium hydroxide	1310-58-3	56 mg/L Ceriodaphnia (water flea)	N/Av	None.

<u>Ingredients</u>	<u>CAS #</u>	<u>Toxicity to Algae</u>		
		<u>EC₅₀ / 96h or 72h</u>	<u>NOEC / 96h or 72h</u>	<u>M Factor</u>
potassium hydroxide	1310-58-3	N/Av	N/Av	None.

Persistence and degradability

: The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulation potential

: No data is available on the product itself.

<u>Components</u>	<u>Partition coefficient n-octanol/water (log K_{ow})</u>	<u>Bioconcentration factor (BCF)</u>
potassium hydroxide (CAS 1310-58-3)	N/Av	N/Av

Mobility in soil : No data is available on the product itself.

Other Adverse Environmental effects

: No data is available on the product itself.

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SECTION 13. DISPOSAL CONSIDERATIONS

- Handling for Disposal** : Handle waste according to recommendations in Section 7.
- Methods of Disposal** : Dispose in accordance with all applicable federal, state, provincial and local regulations.
- RCRA** : If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

SECTION 14. TRANSPORT INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
TDG	UN1814	POTASSIUM HYDROXIDE, SOLUTION	8	II	
TDG Additional information	May be shipped as LIMITED QUANTITY when shipped in quantities no larger than 1.0 Litre, in packages not exceeding 30 kg. ERG #154.				
ICAO/IATA	UN1814	Potassium hydroxide solution	8	II	
ICAO/IATA Additional information	Refer to ICAO/IATA Packing Instruction				
IMDG	UN1814	POTASSIUM HYDROXIDE SOLUTION	8	II	
IMDG Additional information	May be shipped as a Limited Quantity, consult the IMDG regulations for details.				

Special precautions for user : None reported by the manufacturer.

Environmental hazards : This substance does not meet the criteria for an environmentally hazardous substance according to the IMDG Code. See ECOLOGICAL INFORMATION, Section 12.

SECTION 15 - REGULATORY INFORMATION

US Federal Information:

Components listed below are present on the following U.S. Federal chemical lists:

Ingredients	CAS #	TSCA Inventory	CERCLA Reportable Quantity(RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	
					Toxic Chemical	de Minimis Concentration
potassium hydroxide	1310-58-3	Yes	1000 lb/ 454 kg	None.	No	No



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SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes: Immediate (Acute) health hazard; Chronic Health Hazard

US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

<u>Ingredients</u>	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
potassium hydroxide	1310-58-3	No	N/Ap	Yes	Yes	Yes	Yes	Yes	Yes

Canadian Information:

All ingredients are present on the DSL.

International Information:

Components listed below are present on the following International Inventory list:

<u>Ingredients</u>	CAS #	European EINECS	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECS	NewZealand IOC
potassium hydroxide	1310-58-3	215-181-3	Present	Present	(1)-369	KE-29139	Present	HSR001546

SECTION 16. OTHER INFORMATION

Legend

- : ACGIH: American Conference of Governmental Industrial Hygienists
- CAS: Chemical Abstract Services
- CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
- CFR: Code of Federal Regulations
- CSA: Canadian Standards Association
- DOT: Department of Transportation
- EPA: Environmental Protection Agency
- HMIS: Hazardous Materials Identification System
- HSDB: Hazardous Substances Data Bank
- IARC: International Agency for Research on Cancer
- IATA: International Air Transport Association
- ICAO: International Civil Aviation Organisation
- IMDG: International Maritime Dangerous Goods
- Inh: Inhalation
- LC: Lethal Concentration
- LD: Lethal Dose
- N/Ap: Not Applicable
- N/Av: Not Available
- NFPA: National Fire Protection Association
- NIOSH: National Institute of Occupational Safety and Health
- NTP: National Toxicology Program
- OSHA: Occupational Safety and Health Administration
- PEL: Permissible exposure limit
- RCRA: Resource Conservation and Recovery Act
- RTECS: Registry of Toxic Effects of Chemical Substances
- SARA: Superfund Amendments and Reauthorization Act
- STEL: Short Term Exposure Limit
- TDG: Canadian Transportation of Dangerous Goods Act & Regulations

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TLV: Threshold Limit Values
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

References :

1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices
2. ECHA - European Chemical Agency
3. Canadian Centre for Occupational Health and Safety, CCHInfoWeb databases
4. Safety Data Sheets from manufacturer.
5. US EPA Title III List of Lists
6. California Proposition 65 List
7. OECD - The Global Portal to Information on Chemical Substances - eChemPortal

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: 01/29/2016

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Revision No.

: 2

Revision Information

: Updated SDS to the comply with new 2023 WHMIS format

Other special considerations for handling

: Provide adequate information, instruction and training for operators.

<p><u>Prepared for:</u> Comet Chemical Company Ltd. 3463 Thomas Street Innisfill, ON L9S 3W4 Information (M-F 8:00-5:00): 705-436-5580 www.cometchemical.com</p>	
<p><u>Prepared by:</u> ICC The Compliance Center Inc. Telephone: (888) 442-9628 (U.S.): (888) 977-4834 (Canada) http://www.thecompliancecenter.com</p>	

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