

Safety Data Sheet
Potassium Hydroxide (V000460)

November 2, 2020

Section 1: Chemical Product and Company Identification

Product name: Potassium Hydroxide
Contact Info: Bramble Berry Inc.
2138 Humboldt Street
Bellingham, WA 98225
info@brambleberry.com
www.brambleberry.com
1-877-627-7883

Emergency Phone Number:

Within USA & Canada: 1.800.424.9300 CCN693143
Outside USA & Canada: +1.703.527.3887 (collect calls accepted)

Section 2: Hazard Identification

2.1 GHS Classification

Physical Hazards: Corrosive to metals – category 1
Health Hazards: Acute toxicity – category 4 (oral)
Skin corrosion/irritation – category 1

2.2 GHS Label Elements, including precautionary statements

Hazard symbols:



Signal word: Danger

Hazard statement:

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

Precautionary statement:

Prevention:

P234 Keep only in original container
P264 Wash hands thoroughly after handling
P270 Do not eat, drink, or smoke when using this product
P260 Do not breathe dust/fume/gas/mist/vapors/spray
P280 Wear protective gloves/protective clothing/eye protection/face protection

Response:

P390 Absorb spillage to prevent material damage
P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

P330 Rinse mouth

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

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

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P310 Immediately call a POISON CENTER or doctor/physician

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

Storage:

P406 Store in corrosive resistant/container with a resistant inner liner

P405 Store locked up

Disposal:

P501 Dispose of contents/container in accordance with local/regional/national/international regulation.

2.3 Other hazards which do not result in classification:

Skin exposure may cause serious damage.

Exposure to dust or mist may cause nasal septum disorder

Eye contact may cause conjunctival edema and corneal destruction

Inhalation may cause severe pain in the upper respiratory tract.

Ingestion may cause vomiting, diarrhea and burning pain in the throat and mouth.

Severe exposure may cause pneumonia, circulatory failure and peritonitis

NFPA Grade (0-4 level): Health-3, Flammability-0, Reactivity-1

Section 3: Composition/Information on Ingredients

Chemical Name	CAS #	%
Potassium Hydroxide	1310-58-3	90% / 95%
Water	7732-18-5	5-10%

Chemical Name	CAS #	KE NO	UN NO	EN NO
Potassium Hydroxide	1310-58-3	KE-29139	1813	215-181-3

Section 4: First Aid Measures

4.1 Inhalation: Remove exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

4.2 Eyes: Immediately hold eyelids apart and flush the eye continuously with running water for at least 15 minutes. Ensure irrigation under eyelids by occasionally lifting the upper and lower lids. Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

4.3 Skin Contact: Immediately flush the affected area with large amounts of water for at least 15 minutes. Remove contaminated clothing and shoes immediately. Transport to hospital, or doctor.

4.4 Ingestion: Wash out mouth with water. If swallowed do NOT induce vomiting. Never give anything by mouth to an unconscious person. Give large amounts of water or 2-4 cups of milk if conscious. Lay the patient down as head would be lower than the body for suffocation prevention if occur vomiting. Get medical attention immediately.

4.5 Delayed and Immediate Effects/Chronic Effects from Short/Long Term Exposure: If inhalation may cause nose and throat pain. May cause severe eye, skin, and respiratory irritation or burns. If ingestion may cause nausea, vomiting and stomach burns.

4.6 First-Aid Treatment and Note to Physician: Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Do not try to gastric lavage or induce vomiting. Treatment may vary with condition of victim and specifics of incident.

Section 5: Fire-Fighting Measures

5.1 Extinguishing Media: Foam, water, dry chemical powder, CO₂. If large fire, use regular extinguishing media or flood with fine water spray. Unsuitable extinguishing media: do not use water-jet.

5.2 Specific Hazards: Hazardous combustion product. Thermal decomposition may produce toxic or/and corrosive fume of potassium oxide. Carbon monoxide when reacting with carbohydrate, and hydrogen gas when reacting with aluminum, zinc, and tin. Thermal oxidation can produce toxic fumes of potassium oxide (K₂O). Fire and explosion hazard: may be ignored. Contact with water or moisture may generate enough heat to ignite combustibles. Can react with chemically reactive metals such as aluminum, zinc, magnesium, copper, etc. to release hydrogen gas which can form explosive mixtures with air.

5.3 Special Protection: Firefighters should wear self contained breathing apparatus and protective clothing. If safe to do so, remove containers from path of fire. If removal is impossible, cool containers and surrounding area with water. Cool containers with flooding quantities of water until well after fire is out. Wear full body protective clothing with breathing apparatus. Do not allow run-off from fire fighting to enter drains or water courses. Do not approach the edges of the tank. Avoid inhalation of vapor and keep upwind.

Section 6: Accidental Release Measures

6.1 Personal Precautions: Wear appropriate personal protective equipment and avoid inhalation or contact with eyes and skin. Wear appropriate personal protective equipment (see section 8. Exposure Controls/Personal Protection). Do not touch damaged containers or spilled materials unless wearing appropriate protective clothing. Do not touch or walk through spilled material. Isolate the site as a leak area by providing a zone that has an appropriate width to all directions. Stop leak if you can do it without risk. Keep unnecessary people away. Isolate hazard area and deny entry. Ventilate leak areas.

6.2 Environmental Precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. If large spills, advise emergency services.

6.3 Methods and Materials for Containment and Cleaning Up: Small Spills: Clean up all spills immediately. Avoid generating dust. For disposal of spilled material in appropriate containers collected and clear surface.

Large Spills: Contain spill with sand, earth or vermiculite. Collect recoverable product into labeled containers for recycling. Neutralize/decontaminate residue. Wash spill area with water. Prevent runoff into waterways, sewers, basements for confined spaces.

Section 7: Handling and Storage

7.1 Handling: Avoid breathing dust and contact with the eyes, skin. Wear appropriate personal protective equipment (see section 8. Exposure Controls/Personal Protection). Use in well-ventilated area. **WARNING:** To avoid violent reaction, ALWAYS add material to water and NEVER water to material. Avoid contact with heat, open flames, sparks and other source of ignition. Avoid contact with incompatible materials. When handling, DO NOT eat, drink or smoke. Keep containers securely sealed when not in use. Wash hands with soap and water after handling. Work clothes should be laundered separately. Launder contaminated clothing before re-use.

7.2 Storage: Store in original containers. Keep containers securely sealed. Store in a cool, dry, well-ventilated area. Store away from incompatible materials and foodstuff containers. Avoid contact with heat, open flames, sparks, and other source of ignition. Store away from water or moisture and store in dry area (strong hygroscopic property). Keep this product away from VOCs (Volatile Organic Compounds) to prevent its discoloration.

Section 8: Exposure Controls/Personal Protection

8.1 Exposure Limits: Exposure limit under ISHL (Korea) : TWA (c2 mg/m3), STEL (-) ACGIH limit: TLV 2 mg/m3 ceiling Biological exposure limits: not applicable.

8.2 Engineering Controls: The use of local exhaust ventilation is recommended to control emissions near the source. Laboratory samples should be handled in a fume hood. Provide mechanical ventilation of confined spaces.

8.3 Personal Protective Equipment: Respiratory Protection: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use. Dust, mist, fume-purifying respiratory protection. Any air purifying respirator with a corpuscle filter of high efficiency. Any respiratory protection with electro motion fan (for dust, mist, fume purifying).

8.4 Eye Protection: Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield. Provide an emergency eye wash station and quick drench shower in the immediate work area.

8.5 Hand Protection: Wear appropriate protective gloves (rubber, nitrile, neoprene, PVC).

8.6 Body Protection: Wear appropriate protective cloth.

Section 9: Physical and Chemical Properties

Viscosity:	Not available	Upper/Lower Flammability:	Not available (non flammable)
Molecular Weight:	56.11	Evaporation Rate:	Not available
Appearance:	Solid/no color or white	Vapor Pressure:	1 mm Hg at 719°C
Odor:	No odor	Specific Gravity:	
Odor Threshold:	Not available	Solubility:	112g/100ml at 20°C (water) Soluble: ethanol
pH:	13.5 (0.1 M solution)	Vapor Density:	Not available (not applicable)
Melting Point:	380°C	Relative Density:	2.04 (water=1)
Boiling Point:	1320°C (@ 101 KPa)	Partition Coefficient of n-octanol/water:	Not available
Flash Point:	Not available (non flammable)	Autoignition Temp:	Not available (not applicable)



Flammability (solid, gas):	Not applicable	Decomposition Temp:	Not available
----------------------------	----------------	---------------------	---------------

Section 10: Stability and Reactivity

10.1 Stability: This material is stable under recommended storage at normal temperature and pressure. When dissolved in the water, may produce dilution heat.

10.2 Possibility of Hazardous Reaction: Polymerization will not occur.

10.3 Conditions to Avoid: Keep away from heat, flame, sparks and source of ignition. Hazardous vapors may accumulate in confined spaces. Contact with combustible materials may ignite or explode.

10.4 Materials to Avoid: Acid, combustible materials, metals, halocarbon compounds, oxidizer, metal salt, reductant, reducing agent materials.

10.5 Hazardous Decomposition Products: Thermal decomposition may produce toxic or/and corrosive fume of potassium oxide. Carbon monoxide when reacting with carbohydrates, and hydrogen gas when reacting with aluminum, zinc and tin. Thermal oxidation can produce toxic fumes of potassium oxide (K2O).

Section 11: Toxicological Information

11.1 Information of Exposure Route: Respiratory tract: May cause respiratory irritation. Oral: Harmful if swallowed. Eye-Skin: Causes severe skin burns and eye damage.

11.2 Delayed/Immediate/Chronic Effects from Short/Long Term Exposure: Acute toxicity: Oral toxicity: LD50 = 333mg/kg b/w/ (Rat: Sprague-Dawley). Dermal toxicity: Not available. Inhalation toxicity: Not available.

Skin corrosion/irritation: Application of KOH 10% during the 4 hours in a rabbit Draize test, KOH was appeared as corrosive.

Serious eye damage/irritation: Reported as cause irreversible damage in human and in a rabbit Draize test.

Respiratory sensitization: Not available

Skin sensitization: In the intracutaneous skin sensitization test with guinea pig, allergic skin reactions wasn't observed.

Carcinogenicity: Not applicable

Germ cell mutagenicity: KOH was not mutagen because negative results were obtained in bacterial reverse mutation assay and in a mouse bone micronucleus test.

Reproductive toxicity: No adverse effects were observed in the reproductive study using mouse or rat.

Specific target organ toxicity (single exposure): Inhalation of dust or mist may cause injury in nose and respiratory.

Specific target organ toxicity (repeated exposure) Not available

Aspiration hazard: Not available.

Section 12: Ecological Information

12.1 Ecotoxicity: Toxicity to fish: LC50=80mg/L, 96hr, Gambusia affinis (non-GLP)

Toxicity to daphnia magna: EC50=660mg/L, 48hr, Daphnia magna (non-GLP)

Toxicity to algal: EC50=1337mg/L, 120hr, Nitscheria linear is (non-GLP)

12.2 Persistence and Degradability: Persistence: log know -3.88

12.3 Bioaccumulation: Bioaccumulation: BCF 3.162

Biodegradation: Ready biodegradation (BiOWin 5)

12.4 Mobility in Soil: Not available

12.5 Other adverse effects: Not available



Section 13: Disposal Conditions

13.1 Disposal Methods: The user of this product must properly characterize the waste/container generated from the use of this product in accordance with all applicable federal, state and/or local laws and regulations in order to determine the proper disposal of the waste in accordance with all applicable federal, state and/or local laws and regulations.

13.2 Special Precautions for Disposal: The user of this product must dispose by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities. Dispose of waste in accordance with local regulation.

Section 14: Transport Information

UN Number: 1813

UN Proper Shipping Name: Potassium Hydroxide, Solid

Transport Hazard Class(es): 8

Packing Group: 2

Sea Pollutants: Not applicable

Special precautions for user related to transport or transportation measures:

- EmS Fire Schedule: F-A
- EmS Spillage Schedule: S-B

Canadian transportation of dangerous goods: Shipping name: Potassium Hydroxide, solid

UN Number: UN 1813

Class or division: 8

Packing/risk group: 11

Section 15: Regulatory Information

15.1 ISHL (The industrial safety and health law in Korea); Environment monitoring required substances. Korea occupational exposure limits. Hazardous substances requiring management. Chemical control act in Korea (CCA in Korea); Toxic chemical (Potassium Hydroxide and its compounds: contents > 5%)

Dangerous goods safety management law in Korea: designated waste

Other regulations: POPs management law: not applicable

Information of EU classification: - Classification: XN (harmful): R22 C (corrosive): R35

Symbol(s) and Indication(s) of danger: R22: Harmful if swallowed R35: Causes severe burns.

Risk and Safety Phrases: S1/2: Keep locked up and out of reach of children. S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37/39: Wear suitable protective clothing, gloves and eye/face protection. S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

15.2 US Regulations: CERCLA section 103 (40 CFR 302.4): Potassium Hydroxide 1000 lbs rq

SARA Section 302 (40 CFR 355.30): Not regulated

SARA Section 304 (40 CFR 355.40): Not regulated

SARA Hazard Categories, SARA section 311/312 (40 CFR 370.21): Acute – Yes

Chronic – No

Fire – No

Reactive – Yes



Sudden Release – No

SARA Section 313 (40 CFR 372.65): Not regulated

OSHA Regulation (29 CFR 1910.119): Not regulated

US State Regulations: California Proposition 65: Not regulated

15.3 Chemical Inventory Status: US Inventory (TSCA): Listed

TSCA 12(b) Export Notifications: Not listed

15.4 Others: Rotterdam Convention on Harmful Chemicals & Pesticides: Not applicable

Stockholm Convention on Persistent Organic Pollutants: Not applicable

Montreal Protocol on Substances that Deplete the Ozone Layer: Not applicable

15.5 Canadian Regulations: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

15.6 WHMIS – Classifications of Substances: E – Corrosive Material

Section 16: Other Information

16.1 Reference: a) The Korea Occupational Safety and Health Agency: KOSHA MSDS

b) Korea regulations – Industrial Safety and Health Law, Waste Management Law, Chemical Control Act in Korea, Enforcement Decree of The Water Quality and Ecosystem Conservation Act.

16.2: Issue date: 2017/11/01 (full revision according to the GHS harmonized criteria)

16.3: Revision number: Last date revised – 2017/12/26

The information in this publication is believed to be accurate and is given in good faith, but no representation of warranty as to its completeness or accuracy is made. Suggestions for uses or applications are only opinions. Users are responsible for determining the suitability of these products for their own particular purpose. No representing of warranty, expressed or implied, is made with respect to information or products including, without limitation, warranties or merchantability, fitness for a particular purpose, non-fringement of any third party patent or other intellectual property rights including, without limit, copyright, trademark and design.