

MATERIAL SAFETY DATA SHEET

PRODUCT NAME : POTASSIUM HYDROXIDE SOLUTION

1. Product and Company Identification

Product name: Potassium Hydroxide Solution 30% to 50%
Synonyms: None
Item Numbers: E48010300

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2. Hazards Identification

EMERGENCY OVERVIEW

Odourless, clear to slightly turbid corrosive liquid. Harmful if swallowed. Causes severe burns. The product may decompose at high temperatures, to produce irritating, corrosive and/or toxic fumes.

For short and long term exposure effects see Section 11 Toxicological data.

Eye Effects: Causes eye burns. Contact may cause ulceration of the conjunctiva and cornea. Eye damage may be delayed. Causes redness and pain. Prolonged or repeated eye contact may cause conjunctivitis.

Skin Effects: Causes severe skin burns with delayed tissue destruction. May cause deep penetrating ulcers of the skin. Causes redness and pain. Prolonged or repeated skin contact may cause dermatitis.

Ingestion/Oral Effects: May cause severe and permanent damage to the digestive tract. May cause circulatory system failure. May cause perforation of the digestive tract. Causes severe digestive tract burns with abdominal pain, vomiting, and possible death. May cause systemic effects.

Inhalation Effects: Inhalation may lead to chemical pneumonitis and pulmonary oedema. It causes severe irritation of the upper respiratory tract with coughing, burns, breathing difficulty, and possible coma.
Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. May cause systemic effects.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: May aggravate pre-existing eye, skin, and respiratory conditions.

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NFPA Hazard codes		HMIS Hazard codes		Rating System
Health	3	Health	3	0 = No Hazard
Flammability	0	Flammability	0	1 = Slight Hazard
Instability	1	Reactivity	1	2 = Moderate Hazard
				3 = Serious Hazard
				4 = Severe Hazard

3. Composition/Information on Ingredients

Ingredient	% Weight	CAS No	Hazard class*	Risk phrase*
Potassium hydroxide	30 to 50	1310-58-3	8	R22, R35
Water	50 to 70	7732-18-5	Not applicable	Not applicable

*Hazard class & Risk phrase. These columns are only completed for ingredients which are classified as hazardous under EU Directive No 1272/2008 (as amended) and are present in sufficient concentration to make the overall substance hazardous. In all other situations, the column will be completed as "Not applicable".

4. First Aid Measures

- Eyes:** Immediately seek medical attention and start to flush the eyes (with the eyelids open) with plenty of water, and continue to flush for at least 30 minutes. Do not delay flushing of the eyes. Do NOT allow the victim to rub their eyes or keep their eyes closed.
- Skin:** Immediately seek medical attention, and start to flush the skin with plenty of water, and continue to flush for at least 15 minutes, while removing any contaminated clothing and shoes.
- Ingestion/Oral:** Immediately seek medical attention. Do not induce vomiting. If the victim is conscious and alert, give 2 to 4 cupfuls of milk or water to drink. Never give anything by mouth to an unconscious person.
- Inhalation:** Immediately seek medical attention. Remove the victim from exposure to fresh air immediately. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation. If breathing has ceased, apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.
- Other Information:** Discard/dispose of contaminated clothing and shoes in a manner that limits further exposure.

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5. Fire Fighting Measures

- Extinguishing Media:** The product itself is non-combustible. Use the agent most appropriate to extinguish surrounding fire. Cool containers with flooding quantities of water until well after the fire is out.
- Fire and Explosion Hazard:** The product itself will not burn, but may decompose upon heating to produce irritating, corrosive and/or toxic fumes. The product will produce flammable hydrogen gas on contact with many metals.
- Special Protective Equipment for Fire Fighters:** Use NIOSH approved (or equivalent) full-face piece, self-contained, breathing apparatus in pressure-demand mode, and full protective gear with additional chemical protective clothing to prevent exposure to the product and its decomposition products.

For Flammability Properties - see Section 9.

6. Accidental Release Measures

Do not walk through or otherwise scatter or spread any spilled product. Put on the appropriate protective equipment (See Section 8) and clean up spills immediately. Isolate the area of the spill and dike well ahead of large spills for later recycling or disposal.

Use inert material (for example, vermiculite, dry sand or earth) to absorb the spilled product, and then place it into a chemical waste container. Do not use combustible materials such as sawdust to absorb the product. Safely dispose of the recovered spilled product (See Section 13).

Spills may be neutralized with a weak acid such as vinegar or acetic acid. Avoid runoff into storm sewers, drains and ditches that lead to waterways.

7. Handling and Storage

- Handling:** Wear appropriate protective equipment. Use only in a chemical fume hood. Do not inhale fumes or vapours from the product. Do not get the product in eyes, on skin, or on clothing. Do not ingest the product. Do not eat, drink, smoke, apply cosmetics, or store personal items in areas where this product is used. Wash thoroughly after handling. Immediately remove contaminated clothing and wash before reuse. Dispose of contaminated footwear.
- Storage:** Store in tightly closed containers in a dedicated corrosives area. Keep containers closed when not in use. Store in cool, dry, well-ventilated conditions. Keep in a corrosives area, away from incompatible materials (See Section 10).

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8. Exposure Controls/Personal Protection

Exposure Limits:

Ingredient	ACGIH - TLV -	OSHA - PEL	Occupational Exposure Limits EH40 (UK)
Potassium hydroxide	2 mg/m ³ - STEL	None Established	2 mg/m ³ - STEL

Personal Protection:

Engineering Measures: Provide eyewash facilities and safety showers. Ensure adequate ventilation in areas where the product is used, to keep airborne concentrations low.

Respiratory Protection: A respiratory protection program, that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149, must be followed whenever workplace conditions warrant the use of a respirator.

Hand/Skin Protection: Wear appropriate protective and chemical-resistant gloves, clothing and splash protection, or fully encapsulating vapour protective clothing, as necessary to prevent exposure.

Eye/Face Protection: Wear appropriate chemical safety goggles with full face shield.

Hygiene Measures: Do not eat, drink or smoke while using the product. Wash hands after using the product and before eating, drinking or smoking. Immediately change contaminated clothing that is not impervious to the product.

Other/General Protection: Overalls should be laundered regularly. Dispose of contaminated footwear.

9. Physical and Chemical Properties

Appearance and Odour	Clear to slightly turbid liquid. Odourless.	Boiling point	133-145 / 271-293	°C/°F
pH (as supplied)	12.0 (0.1 M sol.)	Freezing Point	-29 / -20	°C/°F
Solubility in Water	Completely soluble	Auto Ignition	No data available	°C/°F
Volatile Content by Volume	30 to 50%	Flash Point	No data available	°C/°F
Specific Gravity	1.51			
Vapour Pressure (mbar)	3.5 @ 20 °C	Vapour Pressure (Torr)	2.6 @ 68 °F	

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10. Stability and Reactivity

Stability:	Stable at room temperature in closed containers under normal storage and handling conditions.
Material/Conditions to Avoid:	Acids, oxidising agents and metals. (The product reacts with many metals such as aluminium, lead, tin and zinc, to evolve flammable hydrogen gas). High temperatures (which may result in thermal decomposition).
Hazardous Decomposition:	Corrosive, irritating and/or toxic fumes and gases (including potassium oxides) are evolved as the result of thermal decomposition.
Hazardous Polymerisation:	Will not occur.

11. Toxicological Information

For a comprehensive description for the various toxicological (health) effects which may arise if the user comes into contact with the substance or preparation refer to Section 2 Hazards Identification.

Animal data:

LD50 value: Oral: 273 mg/kg (rat); Dermal: 50 mg/24 H (Draize test: rabbit).

LC50 value: No data available.

Carcinogenicity:

No known carcinogenic effects.

12. Ecological Information

Aquatic ecotoxicity: LC50 = 80.0 mg/l (24 H, mosquito fish).

No other ecological information is available.

13. Disposal Considerations

If recycling is not practicable, dispose of the product and used containers in accordance with all local and national requirements. Products considered hazardous for supply are classified as Special Waste and the disposal of such chemicals is covered by regulations which may vary according to location.

Empty containers must be decontaminated before recycling.

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14. Transport Information

This product is classified as dangerous under transport regulations.

PARAMETER	EUROPEAN	CANADIAN TDG	UNITED STATES DOT
Proper Shipping Name	Potassium Hydroxide, Solution	Potassium Hydroxide, Solution	Potassium Hydroxide, Solution
Hazard Class	8	8	8
Identification Number	UN 1814	UN 1814	UN 1814
Shipping Label	Not applicable	Not applicable	Not applicable

Packing Group: II

Other Information: In the US, if the net weight of potassium hydroxide is 454 kg (1000 pounds) or more, the container must be marked with the letters "RQ".

15. Regulatory Information

European Regulatory Information

This product has been classified in accordance with EU Regulation No 1272/2008 (as amended) on the Classification, Labelling and Packaging of Substances and Mixtures.

Classified as dangerous to supply : Yes.

Risk Phrases : R22 Harmful if swallowed.

R35 Causes severe burns.

Safety Phrases : S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S27 Take off immediately all contaminated clothing.

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 whenever possible).

Symbols : C.

WGK: 1 (for CAS no 1310-58-3.)

United States Regulatory Information

All materials contained in this product are on the U.S. Toxic Substances Control Act (TSCA).

SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION:

This product does not contain toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 and 40 CFR Part 372.

California Proposition 65: This product does not contain chemicals known to the State of California to cause cancer or reproductive toxicity.

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

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Canadian Regulatory Information

WHMIS Classification: E, D2B.

All ingredients in this product are included in the Canadian DSL.

16. Other Information

This MSDS is compiled in accordance with ANSI Z400.1 and Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Sources of information for this data sheet:

- Fisher Scientific UK "Potassium Hydroxide Solution 30% to 50%" Material Safety Data Sheet. MSDS# 19430. Revision # 9 Date 11/06/2007.

Glossary:

ACGIH - American Conference of Governmental Industrial Hygienists; **ANSI** - American National Standards Institute; **Canadian TDG** - Canadian Transportation of Dangerous Goods; **CAS** - Chemical Abstracts Service; **Chemtrec** - Chemical Transportation Emergency Center (US); **DSL** - Domestic Substances List; **EH40 (UK)** - HSE Guidance Note EH40 Occupational exposure limits; **HMIS** - Hazardous Material Information Service; **LC** - Lethal Concentration; **LD** - Lethal Dose; **NFPA** - National Fire Protection Association; **NIOSH** - National Institute for Occupational Safety and Health; **OSHA** - Occupational Safety and Health Administration, US department of Labour; **PEL** - Permissible exposure limit; **SARA (Title III)** - Superfund Amendments and Reauthorization Act; **SARA 313** - Superfund Amendments and Reauthorization Act, Section 313; **STEL** - Short Time Exposure Limit; **TLV** - Threshold Limit Value; **TSCA** - Toxic Substances Control Act Public Law 94-469; **US DOT** - US Department of Transportation; **WGK** - Water hazard Class; **WHMIS** - Workplace Hazardous Materials Information System.

Revisions:

Oct 2010 - Data Sheet updated to reflect the latest regulatory and supplier safety information.

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