

MATERIAL SAFETY DATA SHEET
ELECTROLYZER AQUEOUS SOLUTION
Potassium Hydroxide aqueous solution < 2 wt. %



1. Identification of the substance/mixture and the company/undertaking

1.1 Product identifiers

Company Identification: See producer
 Identification of the product: Potassium Hydroxide Aqueous Solution < 2 wt. %
 Chemical Name & Family: KOH/H₂O
 CAS: 1310-58-3 KOH, 7732-18-5 H₂O

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company: Enapter Srl, Via di Lavoria 56/G, 56040 – Crespina (PI - Italy)
 Phone: +39 050 644281
 Fax: +39 050 642251
 e-mail: info@enapter.com

1.4 Emergency telephone

+39-800-789-767 (CHEMTREC Italia)
 +39-02-4555-7031 (CHEMTREC chiamate internazionali)
 +39 02-6610-1029 (Centro Antiveleni Niguarda Ca' Granda - Milano)

2. Hazard Identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

May be corrosive to Metals (Category 1), H290

Eye irritation, (Category 2), H319

Skin irritation (Category 2), H315

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms:



Signal word: Warning

Hazard statement(s)

H290 | May be corrosive to metals.

H319 | Causes serious eye irritation.

H315 | Causes skin irritation.

Precautionary statement(s)

P280 | Wear protective gloves/ protective clothing/ eye protection/ face protection.

P337+P313 | If eye irritation persists: Get medical advice/attention.

P264 | Wash hands thoroughly after handling

P390 | Absorb spillage to prevent material damage.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative, and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

3. Composition/information on ingredients

3.1 Mixtures

Identification	x = conc. %	Classification (EC) 1272/2008 (CLP)
POTASSIUM HYDROXIDE		
INDEX 019-002-00-8	1,5 ≤ x ≤ 2	Met. Corr. 1 H290, Acute Tox. 4 H302, Skin Corr. 1A H314, Eye Dam. 1 H318
EC 215-181-3		Eye Irrit. 2; H319: 0,5 % ≤ C < 2 %
CAS 1310-58-3		Skin Corr. 1A; H314: C ≥ 5 %
		Skin Corr. 1B; H314: 2 % ≤ C < 5 %
		Skin Irrit. 2; H315: 0,5 % ≤ C < 2 %
		LD50 Oral: 333mg/kg
REACH Reg. -		

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. First aid measures

4.1 Description of first-aid measures

General advice

First-aiders need to protect themselves.

If inhaled

After inhalation: fresh air. Get medical advice/attention immediately.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Get medical advice/attention immediately. **In case of eye contact** Remove contact lenses, if present. Wash immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully. Get medical advice/attention.

If swallowed

After swallowing: make the victim drink water (two glasses at most) and avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralize.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture, no limitations on extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Potassium oxides

Not combustible.

5.3 Advice for firefighters

Stay in the danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Prevent fire extinguishing water from contaminating surface water or the groundwater system. Suppress (knock down) gases/vapors/mists with a water spray jet.

6. Accidental release measures

6.1 Personal precautions, protective equipment, and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapors or aerosols. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, and consult an expert. For personal protection see section 8.

6.2 Environmental precautions

Do not let the product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent and neutralizing material. Dispose of it properly. Clean up the affected area.

6.4 Reference to other sections

For disposal see section 13.

7. Handling and storage

7.1 Precautions for safe handling

Hygiene measures: Immediately change contaminated clothing. Wearing protective clothing for the skin. Wash hands and face after working with substances. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions No aluminum, tin, or zinc containers. Tightly closed. For recommended storage temperature see the Electrolyser box.

Storage class

Storage class (TRGS 510): 8B: Non-combustible, corrosive hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2, no other specific uses are stipulated

8. Exposure controls / Personal protection

8.1 Control parameters Ingredients with workplace control parameters

Derived No Effect Level (DNEL)

Application Area	Routes of exposure	Health effect	Value
Worker DNEL, longterm	Inhalation	Local effects	1 mg/m ³
Consumer DENL, longterm	Inhalation	Local effects	1 mg/m ³

Predicted No Effect Concentration (PNEC)

Compartment	Value
No data available	

8.2 Exposure controls

Personal protective equipment

Eye/face protection

Tightly fitting safety goggles

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us, and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g., KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de). Full contact Material: Nitrile rubber Minimum layer thickness: 0,11 mm Break through time: 480 min Material tested: KCL 741 Dermatrill® L This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g., KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de). Splash contact Material: Nitrile rubber Minimum layer thickness: 0,11 mm Break through time: 480 min Material tested: KCL 741 Dermatrill® L

Body Protection

protective clothing

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Control of environmental exposure

Do not let the product enter drains.

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9. Physical and Chemical properties

Appearance: Form: clear
Color: colorless solution.
Odor: odorless.
Solubility: Miscible in water.
pH: 13.3 (0.179 M solution)
% Volatiles by volume @ 21°C: > 95 (as water)
Evaporation rate: No information found.
Boiling Point: No information found.
Melting Point: No information found.
Vapor Density: No information found.
Flammability (solid, gas): No information found.
Upper/lower flammability or explosive limits: No information found.
Vapor density: No information found.
Density: 1,58 g/cm³ at 20 °C.
Relative density: No information found.
Water solubility: at 20 °C soluble.
Partition coefficient n-octanol/water: No information found.
Autoignition temperature: No information found.
Decomposition temperature: No information found.
Viscosity: Viscosity, kinematic: No data available Viscosity, dynamic: No data available.
Explosive properties: Not classified as explosive.
Oxidizing properties: none
Other safety information: no data available

10. Stability and reactivity

10.1 Reactivity
No data available
10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).
10.3 Possibility of hazardous reactions
Risk of explosion with:
Violent reactions are possible with:

Azides	Nonmetallic oxyhalides
Strong acids	Halogenated hydrocarbon
Anhydrides	Halogen-halogen compounds
Hydrocarbons	Halogens
Nonmetallic oxides	Alkaline earth metals
Phosphorus	Ammonium compounds
Organic nitro compounds	Light metals
Halogen oxides	Gives off hydrogen by reaction with metals

10.4 Conditions to avoid

no information available

10.5 Incompatible materials

animal/vegetable tissues, glass, various plastics, Metals

10.6 Hazardous decomposition products

In the event of fire: see section 5

11. Toxicological information

11.1 Information on toxicological effects

Mixture

Acute toxicity estimates Oral - 593,58 mg/kg (Calculation method) Symptoms: burns of mucous membranes, Cough, Shortness of breath, Possible damages: damage to the respiratory tract, Inhalation may lead to the formation of oedemas in the respiratory tract.

Dermal: No data available

Skin corrosion/irritation Mixture causes severe burns. Drying-out effect resulting in rough and chapped skin.

Serious eye damage/eye irritation Risk of corneal clouding. The mixture causes serious eye damage. Risk of blindness!

Respiratory or skin sensitization no data available

Germ cell mutagenicity No data available

Carcinogenicity No data available

Reproductive toxicity No data available

Specific target organ toxicity - single exposure No data available

Specific target organ toxicity - repeated exposure No data available

Aspiration hazard No data available

11.2 Additional Information

Endocrine disrupting properties

Product Assessment: The substance/mixture does not contain components considered to have endocrine-disrupting properties according to REACH Article 57(f) of Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Components caustic potash

Acute toxicity LD50 Oral - Rat - male - 333 mg/kg (OECD Test Guideline 425) Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Symptoms: burns of mucous membranes, Cough, Shortness of breath.

Possible damages: damage to the respiratory tract

Dermal: No data available

Skin corrosion/irritation Skin - Rabbit Result: Causes burns. Remarks: (IUCLID)

Serious eye damage/eye irritation Eyes - Rabbit Result: Causes serious eye damage.

(OECD Test Guideline 405) Causes serious eye damage. Respiratory or skin sensitization

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test: - Guinea pig Result: negative Remarks: (IUCLID)

Germ cell mutagenicity Test Type: Ames test system: S. Typhimurium Result: negative
Remarks: (ECHA) Test Type: In vitro mammalian cell gene mutation test system: mouse lymphoma cells Result: negative

Carcinogenicity No data available

Reproductive toxicity No data available

Specific target organ toxicity - single exposure Acute oral toxicity - If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach. Acute inhalation toxicity - burns of mucous membranes, Cough, Shortness of breath, Possible damages: damage to the respiratory tract

Specific target organ toxicity - repeated exposure No data available

Aspiration hazard No data available

12. Ecological information

Environmental Fate: No information was found

Environmental Toxicity: Potassium Hydroxide: Tlm: 80 ppm/Mosquito fish/ 24 hr./ Freshwater

13. Disposal consideration

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Dispose of containers and unused contents in accordance with federal, state, and local requirements.

14. Transport information

14.1 UN number or ID number

ADR/RID, IMDG, IATA: 1814

14.2 UN proper shipping name

ADR/RID, IMDG, IATA: POTASSIUM HYDROXIDE SOLUTION

14.3 Transport hazard class(es)

ADR/RID, IMDG, IATA: Class: 8 Label: 8

14.4 Packing group

ADR/RID, IMDG, IATA: III

14.5 Environmental hazards

ADR/RID, IMDG, IATA: NO

14.6 Special precautions for user

ADR / RID: HIN-Kemler: 80 Special provision: - Limited qty: 5L Tunnel restriction code: (E)

IMDG: EMS: F-A, S-B Limited quantity: 5L



15. Regulatory information

15.1 Safety, health, and environmental regulations/legislation specific to the substance or mixture

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Other regulations

Observe work restrictions regarding maternity protection in accordance with Dir 92/85/EEC or stricter national regulations where applicable. Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance

16. Other information

Full text of H-Statements referred to under sections 2 and 3.

H290 May be corrosive to metals

H302 Harmful if swallowed

H314 Causes severe skin burns and eye damage

H315 Causes skin irritation

H319 Causes serious eye irritation

The contents and format of this MSDS are in accordance with EEC Commission Directive 93/112/EEC

Disclaimer

Enapter Italy Srl provides the information contained herein in good faith and does not represent its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this material.