

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

- 1.1 Product identifiers**
 Product name: Electrolyte Fluid ELE-1 (Potassium Hydroxide Solution)
 Product Number: 11795 / SFV/ELE-1-AIR/SEA
 Brand: SPIRIG
 Index-No.: 019-002-00-8
 REACH No.: A pre-registration has been entered at REACH Helsinki, however a registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
- 1.2 Relevant identified uses of the substance or mixture and uses advised against**
 Identified uses: Electrolyte Fluid for use solely in the microflame/hydrogen generator Spiriflame®
- 1.3 Details of the supplier of the safety data sheet**
 Company: Spirig Ernest Dipl. Ing., Hohlweg 1, 8640 Rapperswil, Switzerland
 Telephone: +41 55 222 6900
 Fax: +41 55 222 6969
 E-mail address: spirig@spirig.com
- 1.4 Emergency telephone number**
 Emergency Phone #: +41 79 423 3950

SECTION 2: HAZARDS IDENTIFICATION

- 2.1 Classification of the substance or mixture**
Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Oral (Category 4)
 Skin corrosion (Category 1A)
 Hazard Statements
 Harmful if swallowed.
 Causes severe skin burns and eye damage.

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

Pictogram



Signal word **Danger**

Hazard statement(s)

H301 Toxic if swallowed.
 H314 Causes severe skin burns and eye damage.

Precautionary statement(s)

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
 P264 Wash with water thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
 P330 Rinse mouth.
 P331 Do NOT induce vomiting.
 P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P363 Wash contaminated clothing before reuse.
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P310 Immediately call a POISON CENTER/doctor.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P405 Store locked up.
 P501 Dispose of contents/container according to disposal.

- 2.3 Other hazards – none**

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

- 3.2 Mixtures**
 Formula : HKO
 Molecular Weight : 56.11 g/mol

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
Potassium hydroxide CAS-No. 1310-58-3 EC-No. 215-181-3 Index-No. 019-002-00-8	Skin Corr. 1A; Acute Tox. 4; H314, H301	30 %

Non hazardous ingredients

Component	Classification	Concentration
Water CAS-No. 7732-18-5	Not hazardous	balance
Additives (proprietary)	Not hazardous	5%

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

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

4.3 Indication of any immediate medical attention and special treatment needed

no data available

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Potassium oxides

5.3 Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information

no data available

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers, which are opened, must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

A part from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Potassium hydroxide	1310-58-3	STEL	2 mg/m ³	UK. EH40 WEL - Workplace Exposure Limits

8.2

Exposure controls

Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1

Information on basic physical and chemical properties

Appearance	Form: liquid
	Colour: colourless
Odour	characteristic
Odour Threshold	no data available
pH	14 (@ 20°C)
Melting point/freezing point	no data available
Flash point	no data available
Evaporation rate	no data available
Flammability (solid, gas)	no data available
Upper/lower flammability or explosive limits	no data available
Vapour pressure	23 hPa (@20°C)
Vapour density	no data available
Relative density	1.29 g/mL at 20 °C
Water solubility	fully mixable
Partition coefficient: noctanol/water	no data available
Auto-ignition temperature	no data available

9.2

Other safety information

no data available

SECTION 10: STABILITY AND REACTIVITY

10.1

Reactivity

no data available

10.2

Chemical stability

Stable under recommended storage conditions.

10.3

Possibility of hazardous reactions

no data available

10.4

Conditions to avoid

no data available

10.5

Incompatible materials

Water, Light metals, Alkali metals, Metals, Organic materials, Copper, reacts violently with.; vigorous reaction with.; Halogens, Nitro compounds, Magnesium, Azides, Contact with aluminum, tin and zinc liberates hydrogen gas. Contact with nitromethane and other similar nitro compounds causes formation of shock-sensitive salts.

10.6

Hazardous decomposition products

Other decomposition products - no data available

In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1

Information on toxicological effects

Acute toxicity Acute oral toxicity

CAS-No	Chemical name	Exposure routes	Method	Dose	Species	Source
1310-58-3	Caustic potash, potassium hydroxide	oral	LD50	273 mg / kg	Rat	RTECS

Irritation and corrosivity

Causes severe skin burns and eye damage. If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).

Additional Information on tests

This mixture is classified as hazardous according to 1999/45/EC.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Aquatic toxicity

CAS-No	Chemical name	Aquatic toxicity	Method	Dose	Time	Species Source
1310-58-3	Caustic potash, potassium hydroxide	Acute fish toxicity	LC50	80 mg / l	96 hours	Gambusia affinis IUCLID

Further information

According to the criteria of the European classification and labelling system, the substance/the product has not to be labelled as "dangerous for the environment".

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Advice on disposal

Do not allow to enter into surface water or drains. Dispose of waste according to applicable legislation.

Contaminated packaging

Wash with plenty of water. Completely emptied packages can be recycled.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

ADR/RID: 1814 IMDG: 1814 IATA: 1814

14.2 UN proper shipping name

ADR/RID: POTASSIUM HYDROXIDE SOLUTION
IMDG: POTASSIUM HYDROXIDE SOLUTION
IATA: Potassium hydroxide solution

14.3 Transport hazard class(es)

ADR/RID: 8 IMDG: 8 IATA: 8

14.4 Packaging group

ADR/RID: II IMDG: II IATA: II

14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user

no data available

SECTION 15: REGULATORY INFORMATION

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

National regulatory information

Water contaminating class (D): 1 – slightly water contaminating

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

SECTION 16: OTHER INFORMATION

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

Acute Tox.	Acute toxicity
H301	Toxic if swallowed.
H314	Causes severe skin burns and eye damage.
Skin Corr.	Skin corrosion

Further information

Reason for the last update: General update 12.03.2021
First made: 11.7.1997

The information is based on present level of our knowledge. It does not, however, give assurances of product properties and establishes no contract legal rights. This text is a translation of the German original version (see German SDS) which in any case overrules the english version. The receiver of our product is singularly responsible for adhering to existing laws and regulations. The SDB is intellectual property of the Dipl. Ing. Ernest Spirig and is only valid for the product delivered by us. Any change of this MSDS is only allowed with a written authorization of Dipl. Ing. Ernest Spirig.