



SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 19.11.2012

Version 3.1

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

1.1 Product identifier

Catalogue No. 109108
Product name Potassium hydroxide solution $c(\text{KOH}) = 1 \text{ mol/l}$ (1 N) TITRIPUR®
REACH Registration Number This product is a mixture. REACH Registration Number see section 3.

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

Identified uses Reagent for analysis
For additional information on uses please refer to the Merck Chemicals portal (www.merck-chemicals.com).

1.3 Details of the supplier of the safety data sheet

Responsible Department EQ-RS * e-mail: prodsafe@merckgroup.com
Regional representation Merck Chemicals Ltd * Boulevard Industrial Park * Padge Road *
Beeston * Nottingham * NG9 2JR * Tel. 01159 430840 *
information@merckchem.co.uk.

1.4 Emergency telephone number +49 (0) 6151 722440

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin corrosion, Category 1A, H314

Corrosive to metals, Category 1, H290

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

Classification (67/548/EEC or 1999/45/EC)

C Corrosive R35

For the full text of the R-phrases mentioned in this Section, see Section 16.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word

Danger

Hazard statements

H314 Causes severe skin burns and eye damage.

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Product name Potassium hydroxide solution c(KOH) = 1 mol/l (1 N) TitriPUR®

H290 May be corrosive to metals.

Precautionary statements

Prevention

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

Response

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

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

P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

Reduced labelling (≤125 ml)

Hazard pictograms



Signal word

Danger

Hazard statements

H314 Causes severe skin burns and eye damage.

Precautionary statements

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

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

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

P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

Labelling (67/548/EEC or 1999/45/EC)

Symbol(s)  C Corrosive

R-phrase(s) 35 Causes severe burns.

S-phrase(s) 26-36/37/39-45 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

Chemical nature Aqueous solution

3.1 Substance

not applicable

3.2 Mixture

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Hazardous components (REGULATION (EC) No 1272/2008)

Chemical Name (Concentration)

CAS-No. Registration number Classification

potassium hydroxide (>= 5 % - < 10 %)

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

1310-58-3	01-2119487136-33-XXXX	Skin corrosion, Category 1A, H314 Acute toxicity, Category 4, H302 Corrosive to metals, Category 1, H290
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For the full text of the H-Statements mentioned in this Section, see Section 16.

Hazardous components (1999/45/EC)

Chemical Name (Concentration)

CAS-No. Classification

potassium hydroxide (>= 5 % - < 10 %)

1310-58-3	Xn, Harmful; R22 C, Corrosive; R35
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For the full text of the R-phrases mentioned in this Section, see Section 16.

SECTION 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air. Get medical attention.

After skin contact: wash off with plenty of water. Immediately remove contaminated clothing. If available swab with polyethylene glycol 400. Call a physician immediately.

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

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

4.2 Most important symptoms and effects, both acute and delayed

Irritation and corrosion, pain, collapse
Risk of corneal clouding.
Drying-out effect resulting in rough and chapped skin.

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting 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 of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Not combustible.
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

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Special protective equipment for firefighters

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

Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapours, aerosols. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

6.2 Environmental precautions

Do not empty into 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 neutralising material (e.g. Chemizorb® OH⁻, Merck Art. No. 101596). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Observe label precautions.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Requirements for storage areas and containers

No aluminium, tin, or zinc containers.

Tightly closed.

Store at +15°C to +25°C.

7.3 Specific end use(s)

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

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

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Components with workplace control parameters

Components

Basis	Value	Threshold limits	Remarks
<i>potassium hydroxide (1310-58-3)</i>			
EH40 WEL	Short Term Exposure Limit (STEL):	2 mg/m ³	

Derived No Effect Level (DNEL)

<i>potassium hydroxide (1310-58-3)</i>			
Worker DNEL, longterm	Local effects	inhalation	1 mg/m ³
Consumer DNEL, longterm	Local effects	inhalation	1 mg/m ³

Recommended monitoring procedures

Methods for measurement of the workplace atmosphere have to correspond to the requirements of norms DIN EN 482 and DIN EN 689.

Predicted No Effect Concentration (PNEC)

potassium hydroxide (1310-58-3)
PNEC not applicable

8.2 Exposure controls

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection

Tightly fitting safety goggles

Hand protection

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0.11 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0.11 mm
Break through time:	> 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

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).

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Other protective equipment
protective clothing

Respiratory protection

required when vapours/aerosols are generated.

Recommended Filter type: Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful substances

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls

Do not empty into drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Colour	colourless
Odour	odourless
Odour Threshold	No information available.
pH	ca. 14 at 20 °C
Melting point	No information available.
Boiling point	No information available.
Flash point	No information available.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	No information available.
Relative vapor density	No information available.
Relative density	1.05 g/cm ³ at 20 °C
Water solubility	at 20 °C soluble
Partition coefficient: n-octanol/water	No information available.

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Auto-ignition temperature No information available.
Decomposition temperature No information available.
Viscosity, dynamic No information available.
Explosive properties No information available.
Oxidizing properties No information available.

9.2 Other data

Corrosion May be corrosive to metals.

SECTION 10. Stability and reactivity

10.1 Reactivity

See section 10.3

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 possible with:

azides, Strong acids, anhydrides, Hydrocarbons, nonmetallic oxides, phosphorus, organic nitro compounds, halogen oxides, nonmetallic oxyhalides, Halogenated hydrocarbon, halogen-halogen compounds, halogens, Alkaline earth metals, ammonium compounds, Light metals, Metals

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

no information available

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Mixture

Acute oral toxicity

Acute toxicity estimate: 8,913 mg/kg

Calculation method

absorption

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach., Pain, shock, Vomiting, oedema, collapse, death

Acute inhalation toxicity

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

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Symptoms: Possible damages:

Symptoms: damage of respiratory tract, Inhalation may lead to the formation of oedemas in the respiratory tract.

Acute dermal toxicity

This information is not available.

Skin irritation

Drying-out effect resulting in rough and chapped skin.
Mixture causes severe burns.

Eye irritation

Risk of corneal clouding. Risk of blindness!
Mixture causes serious eye damage.

Sensitisation

This information is not available.

Germ cell mutagenicity

This information is not available.

Carcinogenicity

This information is not available.

Reproductive toxicity

This information is not available.

Teratogenicity

This information is not available.

Specific target organ toxicity - single exposure

This information is not available.

Specific target organ toxicity - repeated exposure

This information is not available.

Aspiration hazard

This information is not available.

11.2 Further information

Handle in accordance with good industrial hygiene and safety practice.

Components

potassium hydroxide

Acute oral toxicity

LD50 rat: 273 mg/kg (RTECS)

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

Skin irritation

rabbit

Result: Causes burns.

(IUCLID)

Eye irritation

rabbit

Result: Causes burns.

(IUCLID)

Sensitisation

Sensitisation test: guinea pig

Result: negative

(IUCLID)

Germ cell mutagenicity

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Genotoxicity in vitro
Ames test
Escherichia coli
Result: negative
(IUCLID)

SECTION 12. Ecological information

Mixture

12.1 Toxicity

No information available.

12.2 Persistence and degradability

Biodegradability

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6 Other adverse effects

Additional ecological information

Biological effects:

Harmful effect due to pH shift. Forms corrosive mixtures with water even if diluted.

Neutralisation possible in waste water treatment plants.

Further information on ecology

Discharge into the environment must be avoided.

Components

potassium hydroxide

Toxicity to fish

LC50 *Gambusia affinis* (Mosquito fish): 80 mg/l; 96 h (IUCLID)

Biodegradability

The methods for determining the biological degradability are not applicable to inorganic substances.

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SECTION 13. Disposal considerations

Waste treatment methods

Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number UN 1814
14.2 Proper shipping name POTASSIUM HYDROXIDE SOLUTION
14.3 Class 8
14.4 Packing group II
14.5 Environmentally hazardous --
14.6 Special precautions for user yes
Tunnel restriction code E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 UN number UN 1814
14.2 Proper shipping name POTASSIUM HYDROXIDE SOLUTION
14.3 Class 8
14.4 Packing group II
14.5 Environmentally hazardous --
14.6 Special precautions for user no

Sea transport (IMDG)

14.1 UN number UN 1814
14.2 Proper shipping name POTASSIUM HYDROXIDE SOLUTION
14.3 Class 8
14.4 Packing group II
14.5 Environmentally hazardous --
14.6 Special precautions for user yes
EmS F-A S-B

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

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SECTION 15. Regulatory information

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

EU regulations

Major Accident Hazard 96/82/EC
Legislation Directive 96/82/EC does not apply

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work. Take note of Dir 92/85/EEC on the safety and health at work of pregnant workers.

National legislation

Storage class 8 B

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.

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

Full text of R-phrases referred to under sections 2 and 3

R22 Harmful if swallowed.
R35 Causes severe burns.

Training advice

Provide adequate information, instruction and training for operators.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.