

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 16.07.2021

Version number 204

Revision: 09.02.2021

* SECTION 1: Identification of the substance/mixture and of the company/undertaking

- 1.1 Product identifier

- Trade name Ätzkali in Schuppen

- Article number: 1000321441002

- CAS Number:

1310-58-3

- EC number:

215-181-3

- Index number:

019-002-00-8

- REACH-Registration number 01-2119487136-33

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

For details on the identifiable uses according to EC-regulation No. 1907/2006 see annex of this safety data sheet.

- Application of the substance / the mixture

Basic chemical (without special defined application)

Industrial and commercial Use.

- 1.3 Details of the supplier of the safety data sheet

- Manufacturer/Supplier:

Stockmeier Chemie GmbH & Co. KG

Am Stadtholz 37

D - 33609 Bielefeld

Tel.: +49/521/3037-0

- Informing department:

Product safety department. Tel.: 0049 / 521 / 3037-381

E-mail: ehs-bielefeld@stockmeier.de

- 1.4 Emergency telephone number:

National Poisons Information Service (NPIS) - Emergency call (healthcare professionals): (+44) 844 892 0111 - 0344 892 0111

* SECTION 2: Hazards identification

- 2.1 Classification of the substance or mixture

- Classification according to Regulation (EC) No 1272/2008

Met. Corr.1 H290 May be corrosive to metals.

Acute Tox. 4 H302 Harmful if swallowed.

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- 2.2 Label elements

- Labelling according to Regulation (EC) No 1272/2008

The substance is classified and labelled according to the CLP regulation.

- Hazard pictograms



GHS05 GHS07

- Signal word Danger

- Hazard statements

H290 May be corrosive to metals.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

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- Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P280 Wear eye protection / face protection.

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

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

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

P310 Immediately call a POISON CENTER/doctor.

- 2.3 Other hazards**- Results of PBT and vPvB assessment****- PBT:** Not applicable.**- vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

- 3.1 Substances**- CAS No. Designation:**

1310-58-3 potassium hydroxide

- Identification no(s):**- EC number:** 215-181-3**- Index number:** 019-002-00-8

SECTION 4: First aid measures

- 4.1 Description of first aid measures**- General advice:** Instantly remove any clothing soiled by the product.**- After inhalation** Supply fresh air; consult doctor in case of symptoms.**- After skin contact**

Instantly wash with water and soap and rinse thoroughly. If skin irritation persists, seek medical advice.

- After eye contact

Rinse immediately opened eye for several minutes under running water. Then consult doctor.

- After swallowing

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; instantly call for medical help.

- 4.2 Most important symptoms and effects, both acute and delayed

Breathing difficulty

Headache

Dazed

Gastric or intestinal trouble

Coughing

Sickness

- Danger

Danger of pulmonary oedema.

Danger of pneumonia.

Danger of convulsion.

- 4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

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SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents**
Product is non-flammable. Use fire fighting measure that suit the surroundings.
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:**
Wear full protective suit with self-contained breathing apparatus.
See section 8.
- **Additional information** Collect contaminated fire fighting water separately. It must not enter drains.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment and keep unprotected persons away.
Ensure adequate ventilation
Avoid causing dust.
Do not breathe dust.
Avoid eye and skin contact.
Product forms slippery surface when combined with water.
- **6.2 Environmental precautions:**
Do not allow to enter drainage system, surface or ground water.
Damp down dust with water spray jet.
If large amounts are released, the authorities must be informed.
- **6.3 Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Pick up mechanically and rinse the remainder with water. Avoid dust development. Place in suitable container and send to be recycled or disposed of (taking item 13 into account).
- **6.4 Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Avoid contact with eyes and skin.
Prevent formation of dust.
Ensure good ventilation/exhaustion at the workplace.
Avoid contact with metals like aluminum, magnesium, zinc or lead (formation of hydrogen). Do not mix with acids.
When preparing solutions, always stir product into water.
- **Information about protection against explosions and fires:** The product is not flammable
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and containers:**
Observe official regulations on storage and handling of water hazardous substances
Keep container tightly closed and dry
- **Information about storage in one common storage facility:**
Do not store together with acids.
Store away from foodstuffs.

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- **Further information about storage conditions:**
Keep container tightly sealed.
Protect from humidity and keep away from water.
- **Storage class** 8 B L (VCI - Konzept, 2007)
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Additional information about design of technical systems:**
Ensure ventilation/exhaustion at the workplace

- **Components with critical values that require monitoring at the workplace:**

1310-58-3 potassium hydroxide

WEL Short-term value: 2 mg/m³

- **DNELs**

Inhalative	DNEL (worker)	1 mg/m ³ (Long-term - local effects)
	DNEL (population)	1 mg/m ³ (Long-term - local effects)

- **PNECs**

The product does not cause acute or chronic toxicity to aquatic organisms. Therefore, neither the NOEC nor the PNEC values can be determined experimentally.

- **Additional information:** The lists that were valid during the compilation were used as basis.

- **8.2 Exposure controls**

- **Personal protective equipment**

- **General protective and hygienic measures**

Keep away from food, beverages and fodder.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.
Do not inhale dust. Prevent formation of dust.

- **Breathing equipment:**

Respiratory protection necessary at exposure limit excess or at formation of dust, vapours or aerosols. Use suitable filter apparatus or surrounding-air independent breathing apparatus.
Use suitable filter apparatus or surrounding-air independent breathing apparatus.

- **Recommended filter device for short term use:**

Filter P2

Take care of limitations and rules for the use of breathing protection equipment (DGUV Regel 112-190).

- **Protection of hands:** Protective gloves.

- **Material of gloves**

Butyl rubber, BR
Fluorocarbon rubber (Viton)
Nitrile rubber, NBR
Natural rubber, NR

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

- **Penetration time of glove material**

Pay attention to information supplied by the manufacturer of gloves (permeation rate and penetration times) just as to workplace-specific conditions (mechanical stress, wearing duration).

- **Eye protection:** Tightly sealed safety glasses.

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- Body protection:

Standard protective working clothes, chemical resistant safety-shoes or wellingtons. If skin contact is possible, wear impenetrable protective clothing.

Alkaline resistant protective clothing

* SECTION 9: Physical and chemical properties

- 9.1 Information on basic physical and chemical properties**- General Information****- Appearance:**

Form:	Solid.
Colour:	White
Smell:	Odourless
Odour threshold:	Not determined

- pH-value (100 g/l) at 20 °C: > 14

- Melting point/freezing point: 360 °C

- Initial boiling point and boiling range: 1327 °C

- Flash point: Product is non-flammable nor potentially explosive

- Vapour pressure: Not determined

- Density Not determined

- Relative density at 20 °C 2.04

- Vapour density Not determined

- Evaporation rate Not determined

- Solubility in / Miscibility with Water at 20 °C: 1120 g/l

- Partition coefficient: n-octanol/water: Not determined

- Viscosity:
 dynamic: Not determined
 kinematic: Not determined

- 9.2 Other information molar mass: 56,11 g/mol
 Potassium hydroxide is hygroskopisch.

SECTION 10: Stability and reactivity

- 10.1 Reactivity No further relevant information available.

- 10.2 Chemical stability**- Thermal decomposition / conditions to be avoided:**

No decomposition if used according to specifications.

- 10.3 Possibility of hazardous reactions

Reacts with light alloys in the presence of moisture to form hydrogen

Diluting or dissolving in water always causes rapid heating

Strong exothermic reaction with acids

- 10.4 Conditions to avoid No further relevant information available.

- 10.5 Incompatible materials: Light metals, acids, ammonium compounds.

- 10.6 Hazardous decomposition products:

Formation of gaseous hydrogen in case of reaction with base metals-

Reaction with ammonium compounds forming ammonia.

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- **Additional information:** Product reacts with Carbon dioxide out of the air.

* SECTION 11: Toxicological information

- 11.1 Information on toxicological effects

- Acute toxicity

Harmful if swallowed.

- LD/LC50 values that are relevant for classification:

Oral	LD50	>300 mg/kg (rat)
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- Primary irritant effect:

- Skin corrosion/irritation

Causes severe skin burns and eye damage.

- Serious eye damage/irritation

Causes serious eye damage.

- Respiratory or skin sensitisation Based on available data, the classification criteria are not met.

- Subacute to chronic toxicity:

- Germ cell mutagenicity: Ames-Test: negativ

- Additional toxicological information:

- CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

- Germ cell mutagenicity Based on available data, the classification criteria are not met.

- Carcinogenicity Based on available data, the classification criteria are not met.

- Reproductive toxicity Based on available data, the classification criteria are not met.

- STOT-single exposure Based on available data, the classification criteria are not met.

- STOT-repeated exposure Based on available data, the classification criteria are not met.

- Aspiration hazard Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

- 12.1 Toxicity

- Aquatic toxicity:

LC 50 / 96 h	45.4 mg/l (Oncorhynchus mykiss)
	80 mg/l (Gambusia affinis)
EC 50 / 48 h	40 mg/l (Aquatic invertebrates)
	40.4 mg/l (Ceriodaphnia dubia)

- 12.2 Persistence and degradability No further relevant information available.

- 12.3 Bioaccumulative potential No bioaccumulation

- 12.4 Mobility in soil No further relevant information available.

- Additional ecological information:

Does not cause any biological oxygen consumption. After neutralization, the toxicity is reduced. Toxic effects refer to pH-values below pH<6 or above pH>9.

- General notes:

Do not allow to enter drainage system, surface or ground water

Water hazard class 1 (Assessment by list): slightly hazardous for water.

- 12.5 Results of PBT and vPvB assessment

- PBT: Not applicable.

- vPvB: Not applicable.

- 12.6 Other adverse effects No further relevant information available.

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SECTION 13: Disposal considerations

- 13.1 Waste treatment methods

The following advice is related to new material and not to any processed products. In case of a mixture with other products other disposal methods may become necessary. If in doubt seek advice from product supplier or from local authorities.

- Recommendation

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. A used product should be recycled or used in other contexts, otherwise be handed over to an appropriate disposal site.

- Waste disposal key number:

Since 01/01/99 the waste code numbers have not only been product-related but are also essentially application-related. The valid waste code number of the application can be obtained from the European waste catalogue.

- Uncleaned packagings:

- **Recommendation:** After complete emptying and cleaning, send to be reconditioned or recycled.

- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

* SECTION 14: Transport information

- 14.1 UN-Number

- ADR/RID, IMDG, IATA UN1813

- 14.2 UN proper shipping name

- ADR/RID 1813 POTASSIUM HYDROXIDE, SOLID
- IMDG, IATA POTASSIUM HYDROXIDE, SOLID

- 14.3 Transport hazard class(es)

- ADR/RID

- Class 8 (C6) Corrosive substances.
- Label 8

- IMDG, IATA

- Class 8 Corrosive substances.
- Label 8

- 14.4 Packing group

- ADR/RID, IMDG, IATA II

- 14.6 Special precautions for user

- **Warning:** Corrosive substances.
- **Kemler Number:** 80
- **EMS Number:** F-A,S-B
- **Segregation groups** Alkalies
- **Stowage Category** A
- **Segregation Code** SG35 Stow "separated from" SGG1-acids

- 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable.

- Transport/Additional information:

- ADR/RID

- **Limited quantities (LQ)** 1 kg

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- Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 500 g
- Transport category	2
- Tunnel restriction code	E
- IMDG	
- Limited quantities (LQ)	1 kg
- Excepted quantities (EQ)	Código E4 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 g
- UN "Model Regulation":	UN 1813 POTASSIUM HYDROXIDE, SOLID, 8, II

SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- Labelling according to Regulation (EC) No 1272/2008

The substance is classified and labelled according to the CLP regulation.

- Hazard pictograms



GHS05 GHS07

- Signal word Danger

- Hazard statements

H290 May be corrosive to metals.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

- Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P280 Wear eye protection / face protection.

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

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

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

P310 Immediately call a POISON CENTER/doctor.

- Directive 2012/18/EU

- Named dangerous substances - ANNEX I Substance is not listed.

- National regulations

- Information about limitation of use:

Employment restrictions concerning young persons must be observed.

- Other regulations, limitations and prohibitive regulations

- Substances of very high concern (SVHC) according to REACH, Article 57 Substance is not listed.

- 15.2 Chemical safety assessment: A Chemical Safety Assessment has been carried out.

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* SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing data specification sheet:** see item 1: Informing department

- **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

LEV: Local Exhaust Ventilation

RPE: Respiratory Protective Equipment

RCR: Risk Characterisation Ratio (RCR= PEC/PNEC)

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

CLP: Classification, Labelling and Packaging (Regulation (EC) No. 1272/2008)

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

TRGS: Technische Regeln für Gefahrstoffe (Technical Rules for Dangerous Substances, BAuA, Germany)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Met. Corr. 1: Corrosive to metals – Category 1

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

- *** Data compared to the previous version altered.**

- **ANNEX**

Exposure Scenarios:

Industrial and professional use

of solid and liquid KOH

Consumer end use of solid and liquid KOH (excl. batteries)

Consumer end use, service life and waste stage of KOH in batteries

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Annex: Exposure scenario 1

- Short title of the exposure scenario

Industrial and professional use
of solid and liquid KOH

- Sector of Use

SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites

SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Because potassium hydroxide has so many uses and is used so widely it can potentially be used in all sectors of end use (SU) described by the use descriptor system (SU 1-23). KOH is used for different purposes in a variety of industrial sectors.

- Product category

PC9a Coatings and paints, thinners, paint removers

PC12 Fertilisers

PC19 Intermediate

PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents

PC35 Washing and cleaning products (including solvent based products)

PC37 Water treatment chemicals

PC39 Cosmetics, personal care products

PC40 Extraction agents

However, it could potentially also be used in other chemical product categories (PC 0 – 40).

- Process category

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

PROC4 Chemical production where opportunity for exposure arises

PROC5 Mixing or blending in batch processes

PROC7 Industrial spraying

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

PROC10 Roller application or brushing

PROC11 Non industrial spraying

PROC13 Treatment of articles by dipping and pouring

PROC14 Tableting, compression, extrusion, pelletisation, granulation

PROC15 Use as laboratory reagent

PROC19 Manual activities involving hand contact

PROC23 Open processing and transfer operations at substantially elevated temperature

PROC24 High (mechanical) energy work-up of substances bound in /on materials and/or articles

PROC26 Handling of solid inorganic substances at ambient temperature

The categories mentioned above are assumed to be the most important ones but other categories could also be possible.

- Environmental release category

ERC2 Formulation into mixture

ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

ERC5 Use at industrial site leading to inclusion into/onto article

ERC6a Use of intermediate

ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)

ERC7 Use of functional fluid at industrial site

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor)

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ERC8c Widespread use leading to inclusion into/onto article (indoor)

ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

ERC8e Widespread use of reactive processing aid (no inclusion into or onto article, outdoor)

ERC8f Widespread use leading to inclusion into/onto article (outdoor)

The categories mentioned above are assumed to be the most important ones but other categories could also be possible.

- Conditions of use

- Duration and frequency

8 h (full working shift).

200 days/year

- Environment Continuous release.**- Physical parameters****- Physical state**

Solid.

(low dustiness)

Fluid

- Concentration of the substance in the mixture Includes concentrations up to: 100%**- Other operational conditions****- Other operational conditions affecting worker exposure**

Assumes a good basic standard of occupational hygiene is implemented

- Risk management measures

- Worker protection**- Organisational protective measures**

Keep good industrial hygiene.

Workers in the risky process/areas identified should be trained

a) to avoid to work without respiratory protection and

b) to understand the corrosive properties and, especially, the respiratory inhalation effects of the substance and

c) to follow the safety procedures instructed by the employer.

The employer must ensure that the necessary personal protective Devices are available and will be applied according to the instructions.

- Technical protective measures

Replacing, where appropriate, manual processes by automated and/or closed processes. This would avoid irritating mists, sprayings and subsequent potential splashes:

- Use closed systems or covering of open containers (e.g. screens).

- Transport over pipes, technical barrel filling/emptying of barrel with automatic systems (suction pumps etc.).

- Use of pliers, grip arms with long handles with manual use to avoid direct contact and exposure by splashes (no working over one's head).

- Local exhaust ventilation and/or general ventilation is good practice.

Avoid splashes.

- Personal protective measures

Respiratory protection necessary at exposure limit excess or at formation of dust, vapours or aerosols. Use suitable filter apparatus or surrounding-air independent breathing apparatus.

Use suitable filter apparatus or surrounding-air independent breathing apparatus.

Protective gloves.

Butyl rubber, BR

Fluorocarbon rubber (Viton)

Nitrile rubber, NBR

Natural rubber, NR

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

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Tightly sealed safety glasses.

Standard protective working clothes, chemical resistant safety-shoes or wellingtons. If skin contact is possible, wear impenetrable protective clothing.

Alkaline resistant protective clothing

For more information on "Personal protective equipment" see section 8 of the MSDS

- Environmental protection measures

- Water

Risk management measures related to the environment aim to avoid discharging the substance into municipal wastewater or to surface water, in case such discharges are expected to cause significant pH changes. Regular control of the pH value during introduction into open waters is required. In general discharges should be carried out such that pH changes in receiving surface waters are minimised. In general most aquatic organisms can tolerate pH values in the range of 6-9. This is also reflected in the description of standard OECD tests with aquatic organisms.

- Notes

There are additionally some specific environmental risk management measures related to fertilizers containing up to 20% of KOH in the end product. Direct releases to adjacent surface waters should be avoided. Drift should be minimized. And in line with the requirements for good agricultural practice, agricultural soil should be analysed prior to application of the fertiliser and the application rate should be adjusted according to the results of the analysis.

- Disposal measures

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. A used product should be recycled or used in other contexts, otherwise be handed over to an appropriate disposal site.

- Exposure estimation

- Worker (dermal)

For the handling of corrosive substances and formulations, immediate dermal contacts occur only occasionally and it is assumed that repeated daily dermal exposure can be neglected. Therefore, dermal exposure to the substance was not quantified.

KOH is not expected to be systemically available in the body under normal handling and use conditions and therefore systemic effects of KOH after dermal or inhalation exposure are not expected to occur.

- Worker (inhalation)

The exposure estimation was carried out in accordance with ECETOC TRA.

It was assumed that there is no local exhaust ventilation and no respiratory protection unless specified otherwise. The duration of exposure was set at more than 4 hours per day as a worst-case assumption and professional use was specified where relevant as a worst-case assumption. For the solid, the low dustiness class was selected because KOH is very hygroscopic. Only the most relevant PROCs were considered in the assessment.

PROC	description Liquid (mg/m3)	Solid (mg/m3)
PROC 1	0.23	0.01
PROC 2	0.23	0.01
PROC 3	0.23	0.1
PROC 4	0.23	0.2 (mit LEV)
PROC 5	0.23	0.2 (mit LEV)
PROC 7	0.23	Nicht anwendbar
PROC 8a/b	0.23	0.5
PROC 9	0.23	0.5
PROC10	0.23	0.5
PROC11	0.23	0.2 (mit LEV)
PROC13	0.23	0.5
PROC14	0.23	0.2 (mit LEV)
PROC15	0.23	0.1
PROC19	0.23	0.5
PROC23	0.23	0.4 (mit LEV und RPE(90 %))

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PROC24 0.23 0,5 (mit LEV und RPE(90 %))

PROC 26 was considered to mainly applicable to metals industry. Handling of inorganic substances is assumed to be included in the existing PROCs assessed.

- Environment

The aquatic effect and risk assessment only deals with the effect on organisms/ecosystems due to possible pH changes related to OH⁻ discharges, as the toxicity of the K⁺ ion is expected to be insignificant compared to the (potential) pH effect.

The high water solubility and very low vapour pressure indicate that KOH will be found predominantly in water. When the risk management

measures related to the environment are implemented, there is no exposure to the activated sludge of a sewage treatment plant and there is not exposure of the receiving surface water.

The sediment compartment is not considered, because it is not considered relevant for KOH. If emitted to the aquatic compartment, sorption to sediment particles will be negligible.

Significant emissions to air are not expected due to the very low vapour pressure of KOH. If emitted to air as an aerosol in water, KOH will be rapidly neutralised as a result of its reaction with CO₂ (or other acids).

Significant emissions to the terrestrial environment are not expected either. The sludge application route is not relevant for the emission to agricultural soil, as no sorption of KOH to particulate matter will occur in STPs/WWTPs. If emitted to soil, sorption to soil particles will be negligible. Depending on the buffer capacity of the soil, OH⁻ will be neutralised in the soil pore water or the pH may increase.

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Annex: Exposure scenario 2

- Short title of the exposure scenario

Consumer end use
of solid and liquid KOH (excl. batteries)

- Sector of Use SU21 Consumer uses: Private households / general public / consumers

- Product category

PC4 Anti-Freeze and de-icing products
PC9a Coatings and paints, thinners, paint removers
PC9b Fillers, putties, plasters, modelling clay
PC12 Fertilisers
PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents
PC28 Perfumes, fragrances
PC35 Washing and cleaning products (including solvent based products)
PC39 Cosmetics, personal care products
However, it could potentially also be used in other chemical product categories (PC 0 – 40).

- Process category Not applicable

- Article category Not applicable

- Environmental release category

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor)
ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
ERC8e Widespread use of reactive processing aid (no inclusion into or onto article, outdoor)
ERC9a Widespread use of functional fluid (indoor)
ERC9b Widespread use of functional fluid (outdoor)
ERC10a Widespread use of articles with low release (outdoor)
ERC10b Widespread use of articles with high or intended release (outdoor)
ERC11a Widespread use of articles with low release (indoor)
ERC11b Widespread use of articles with high or intended release (indoor)
The categories mentioned above are assumed to be the most important ones but other categories could also be possible.

- Conditions of use

- Physical parameters

- Physical state

Solid.
(low dustiness)
Fluid

- Concentration of the substance in the mixture

Includes concentrations up to: 100%
Practically no KOH is left in the final consumer product as the amounts used will interact with other ingredients in acid-base reactions. However, some cleaning products may contain 0.25-0.45% of KOH in the final formulation. Some toilet cleaners may contain up to 1.1% and certain soaps contain up to 0.5% of KOH in the final formulation.

- Other operational conditions

- Other operational conditions affecting consumer exposure

- Other operational conditions affecting consumer exposure (continuation)

It is required that appropriate use instructions, and product information should always be provided to consumers. This clearly can reduce the risk of misuse. For reducing the number of accidents, it is advisable to use these products in the absence of children or other potential sensitive groups. To prevent improper use of potassium hydroxide, instructions for use should contain a warning against dangerous mixtures.

- Risk management measures Do not apply product into ventilator openings or slots.

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- Worker protection**- Personal protective measures**

For consumer, both solid and liquid KOH containing products at concentration > 2%:

- Respiratory protection: In case of dust or aerosol formation (e.g. spraying): use respiratory protection with approved filter (P2)

- Hand protection: use impervious chemical resistant protective gloves

- If splashes are likely to occur, wear tightly fitting goggles, face-shield

- Measures for consumer protection

Keep out of reach of children.

- It is required to use resistant labelling-package to avoid its auto-damage and loss of the label integrity, under normal use and storage of the product. The lack of quality of the package provokes the physical loss of information on hazards and use instructions.

- It is required that household chemicals, containing potassium hydroxide for more than 2%, which may be accessible to children should be provided with a child-resistant fastening (currently applied) and a tactile warning of danger (Adaptation to Technical Progress of the Directive 1999/45/EC, annex IV, Part A and Article 15(2) of Directive 67/548 in the case of, respectively, dangerous preparations and substances intended for domestic use). This would prevent accidents by children and other sensitive groups of society.

- It is advisable to deliver only in very viscous preparations

- It is advisable to delivery only in small amounts

- Environmental protection measures No special measures required.**- Exposure estimation****- Environment**

Exposure is considered negligible.

If the recommended RMMS are respected, local exposure through inhalation will not be higher compared to inhalation exposures in ES1. Therefore, the consumer exposure through inhalation was not further quantified.

- Consumer

Consumer uses relates to already diluted products which will further be neutralized quickly in the sewer, well before reaching a WWTP or surface water.

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Annex: Exposure scenario 3

- Short title of the exposure scenario

Consumer end use

service life and waste stage of KOH in batteries

- Sector of Use SU21 Consumer uses: Private households / general public / consumers

- Product category Not applicable

- Process category Not applicable

- Article category AC3 Electrical batteries and accumulators

- Environmental release category

ERC9a Widespread use of functional fluid (indoor)

ERC9b Widespread use of functional fluid (outdoor)

- Conditions of use

- Physical parameters

- Physical state Fluid

- Risk management measures

- Measures for consumer protection

It is required to use completely sealed articles with a long service life maintenance.

- Environmental protection measures No special measures required.

- Disposal measures

- Disposal procedures

Batteries should be recycled as much as possible (e.g. by returning to a public recycling facility). Recovery of KOH from alkaline batteries includes emptying the electrolyte, collection and neutralization with sulphuric acid and carbon dioxide. The occupational exposure related to these steps are considered in the exposure scenario on industrial and professional use of KOH.

- Exposure estimation

- Environment

Exposure is considered negligible.

The environmental release from the consumer use during service life is negligible because batteries are sealed articles with a long service life maintenance. After use, batteries normally are recycled.

- Consumer

Consumer exposure is negligible because batteries are sealed articles with a long service life maintenance. During waste phase, exposure to consumers is also negligible as batteries normally are recycled.