1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Product Identifier:

Product name: Potassium hydroxide, solution aqueous

Synonyms: Potassium hydroxide (K(OH)); potassium hydroxide, 5%<conc. <55%, aqueous solutions

Registration number EU REACH: 01-2119487136-33-XXXX

Product type REACH: Substance/mono-constituent

CAS number: 1310-58-3

EC index number: 019-002-00-8

EC number: 215-181-3

Molecular mass: 56.11 g/mol

Formula: KOH

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

Identified use(s): Distribution of the substance, loading and repacking (industrial and professional).
Formulation & (re)packing of substances and mixtures.
Use as processing aid: pH-regulator, flocculant, precipitant, neutralization agent in the manufacturing of chemicals, pulp & paper, food, in regeneration of ion-exchange resins, in formulations like washing & cleaning products, fertilisers, developers for photography, metal working fluids, (industrial and professional).
Use in batteries (articles).
Use in detergents, paint strippers, drain deblockers, cosmetics, (consumer).
Use in detergents, paint strippers, drain deblockers, cosmetics, metal treatment products, extracting agents, water treatment or as laboratory chemicals (industrial and professional).
Industrial use as intermediate: manufacture of potassium salts, fertilisers, de-icers, pesticides, pigments, detergents, pharmaceuticals, food products, additives, cosmetics, … (industrial and professional).

Uses advised against: No uses advised against have been identified.

Details of the supplier of the safety data sheet:

Company name: Nexchem Ltd
Unit 3 Barshaw Park
Leycroft Road
Leicester
LE4 1ET
Tel: 0116 2311130
24/7 Emergency Tel: 0800 246 1274
Email: sales@nexchem.co.uk

[cont…]

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

Classification (EC 1272/2008):

Class	Category	Hazard statements
Met. Corr.	Category 1	H290: May be corrosive to metals.
Acute Tox.	Category 4	H302: Harmful if swallowed.
Skin Corr.	Category 1A	H314: Causes severe skin burns and eye damage.
Eye Dam.	Category 1	H318: Causes serious eye damage.
STOR SE	Category 3	H335: May cause respiratory irritation

GHS Labelling:

Statutory basis: EU-CLP as per Regulation (EU) No. 1272/2008:

Hazard defining component(s) (GHS): Potassium hydroxide

Hazard pictograms:



Signal word: Danger

Hazard statement:
H290 May be corrosive to metals
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation

Precautionary Statement – Prevention: P280 Wear protective gloves, protective clothing and eye protection/face protection.
P260 Do not breathe vapours/mist.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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.

Supplemental information: EUH071 Corrosive to the respiratory tract.

Other Hazards: Warning! Product may cause floors to be slippery.
The criteria PBT and vPvB as listed in Annex XIII of Regulation (EC) No 1907/2006 do not apply to inorganic substances.

[cont…]

3. COMPOSITION / INFORMATION ON INGREDIENTS

Name REACH reg. No.	CAS No. EC No.	Conc. (C)	Classification according to CLP	Note	Remark
Potassium hydroxide 01-2119487136-33	1310-58-2 215-181-3	5%< C <55%	Met. Corr. 1; H290 Acute Tox. 4; H302 Skin Corr. 1A; H314 Eye Dam. 1; H318 Skin Corr. 1A; H314: C≥5%, (CLP Annex VI (ATP 0)) Skin Corr. 1B; H314: 2%≤C<5% (CLP Annex VI (ATP 0)) Skin Irrit. 2; H315: 0,5% ≤C<2%, (CLP Annex VI (ATP 0)) Eye Irrit. 2; H319: 0,5%≤C<2% (CLP Annex VI (ATP 0)) STOT SE 3; H335: C≥20%, (ECHA) EUH071: C≥2%, (ECHA)	(1) (2) (6) (10)	Constituent

(1) For H- and EUH-statements in full: see section 16.
(2) Substance with a Community workplace exposure limit.
(6) Enumerated in Annex VI of Regulation (EC) No. 1272/2008 but the classification has been adapted after evaluation of available test data.
(10) Subject to restrictions of Annex XVII of Regulation (EC) No. 1907/2006.

4. FIRST AID MEASURES

Description of first aid measures:

General advice: Observe (own) safety. If possible, approach victim and check vital functions. In case of injury and/or intoxication, call the European emergency number 112. Treat symptoms starting with most life-threatening injuries and disorders. Keep victim under observation, possibility of delayed symptoms.

Inhalation: Remove victim into fresh air. Immediately consult a doctor/medical service.

Ingestion: Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Do not give activated charcoal. Do not give chemical antidote. Immediately consult a doctor/medical service.

Skin contact: If possible, wipe up/dry remove chemical. Then rinse/shower immediately for 30 minutes with (lukewarm) water; never remove burnt clothing from the wound. Do not give any pain medication. Consult a doctor/medical service.

Eye contact: Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Consult a doctor/medical service.

[cont…]

Most important symptoms and effects, both acute and delayed:

Acute symptoms:

After inhalation: Irritation of the respiratory tract. Irritation of the nasal mucous membranes. EXPOSURE TO HIGH CONCENTRATIONS: Dry/sore throat. Corrosion of the upper respiratory tract. Respiratory difficulties. Possible laryngeal spasm/oedema Risk of pneumonia. FOLLOWING SYMPTOMS MAY APPEAR LATER: Risk of lung oedema.

After skin contact: Caustic burns/corrosion of the skin. Slow-healing wounds.

After eye contact: Corrosion of the eye tissue. Permanent eye damage. Blindness.

After ingestion: Abdominal pain. Blood in vomit. Difficulty in swallowing. Possible oesophageal perforation. Burns to the gastric/intestinal mucosa. AFTER INGESTION OF HIGH QUANTITIES: Change in the haemogramme/blood composition. Disturbances of heart rate. Low arterial pressure. Blood in stool. Bleeding of the gastrointestinal tract. Shock.

Indication of any immediate medical attention and special treatment needed:

If applicable and available, it will be listed below.

5. FIRE-FIGHTING MEASURES

Extinguishing media:

Suitable extinguishing media: Adapt extinguishing media to the environment.

Unsuitable extinguishing media: No unsuitable extinguishing media known.

Special hazards arising from the substance or mixture:

On heating: Release of corrosive gases/vapours.

Advice for fire-fighters: Cool tanks/drums with water spray/remove them into safety. Take account of toxic fire-fighting water. Use water moderately and if possible, collect or contain it.

Protective equipment for fire-fighters: Gloves (EN 374). Face shield (EN 166). Corrosion-proof suit (EN 14605). Large spills/in enclosed spaces: self-contained breathing apparatus (EN 136 + EN 137). Large spills/in enclosed spaces: gas-tight suit (EN 943). Heat/fire exposure: self-contained breathing apparatus (EN 136 + EN 137).

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

No naked flames. Corrosion-proof appliances. Large spills/in confined spaces: consider evacuation.

Protective equipment for non-emergency personnel: See Section 8.

Protective equipment for emergency responders: Gloves (EN 374). Face shield (EN 166). Corrosion-proof suit (EN 14605).

Large spills/in enclosed spaces: Self-contained breathing apparatus (EN 136 + EN 137).

Large spills/in enclosed spaces: Gas-tight suit (EN 943).

See also Section 8.

Environmental precautions: Contain released substance, pump into suitable containers. Plug the leak, cut off the supply. Dam up the liquid spill. Take account of toxic/corrosive precipitation water. Prevent soil and water pollution. Prevent spreading in sewers. [cont…]

Methods and material for containment and cleaning up:

Take up liquid spill into inert absorbent material, e.g.: powdered limestone or dry sand/earth. Scoop absorbed substance into closing containers. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Take collected spill to manufacturer/competent authority. Neutralise small quantities of the liquid spill with sodium bisulphite. Wash away neutralised product with plentiful water. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

Reference to other sections: For waste disposal, see section 13.

7. HANDLING AND STORAGE

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.
Precautions for safe handling
Observe very strict hygiene - avoid contact. Safety showers and eye wash fountains should be readily available in handling and storage areas. Remove contaminated clothing immediately. Use corrosion-proof equipment. Do not discharge the waste into the drain. Never dilute by pouring water to the product. Always add the product to the water. Keep container tightly closed. Avoid splashing.

Conditions for safe storage, including any incompatibilities:

Safe storage requirements:

Storage temperature: 20°C. Store in a dry area. Keep out of direct sunlight. Keep container in a well-ventilated place. Protect against frost. Keep locked up. Provide for a tub to collect spills.
Unauthorised persons are not admitted. May be stored under inert gas. Meet the legal requirements.

Keep away from: Heat sources, oxidising agents, (strong) acids, highly flammable materials, metals, halogens, organic materials.

Suitable packaging material: Steel, stainless steel, carbon steel, nickel, cardboard, polyethylene, iron, synthetic material, glass, stoneware/porcelain, steel with rubber inner lining, corrosion-proof.

Unsuitable packaging material: Metal, lead, aluminium, copper, tin, zinc, bronze.

Specific end uses: If applicable and available, exposure scenarios are attached in annex. See information supplied by the manufacturer.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters – UK:

Potassium Hydroxide: STEL WEL 2 mg/m3 DNEL/DMEL

Workers: Long term local effects – Inhalation 1 mg/m3 General population
Long term local effects – Inhalation 1 mg/m3

Exposure controls: The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

[cont…]

Appropriate engineering controls: Keep container tightly closed. Avoid splashing. Safety showers and eye wash fountains should be readily available in handling and storage areas. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

General measures: Observe very strict hygiene - avoid contact. Safety showers and eye wash fountains should be readily available in handling and storage areas Do not eat, drink or smoke during work.

Respiratory protection: Full face mask with filter type B at conc. in air > exposure limit. High vapour/gas concentration: self-contained breathing apparatus (EN 136 + EN 137).

Hand protection: Gloves.

Materials	**Remark**
Butyl rubber	Excellent resistance
Natural rubber	Excellent resistance
Neoprene	Excellent resistance
PVC	Excellent resistance
Viton	Excellent resistance
Chlorosulfonated polyethylene	Good resistance
Tetrafluoroethylene	Good resistance
Nitrile rubber/PVC	Good resistance
Nitrile rubber	Good resistance
Polyethylene	Less resistance
Polyurethane	Less resistance
Styrene-butadiene rubber	Less resistance
Neoprene/SBR	Less resistance
Leather	Poor resistance
Natural fibres	Poor resistance
PVA	Poor resistance

Eye protection: Face shield (EN 166).

Body protection: Corrosion-proof clothing (EN 14605).

Environmental protection: Refer to Sections 6 and 13

[cont…]

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

Physical form:	Liquid
Viscosity:	Viscous
Odour:	Odourless
Odour threshold:	Not applicable
Colour:	Colourless
Translucency:	Clear
Particle size:	Not applicable (liquid)
Explosion limits:	Not applicable
Flammability:	Non-flammable
Log Kow:	Not applicable (mixture)
Dynamic viscosity:	0.0087 Pa.s; 20°C
Kinematic viscosity:	No data available
Melting point:	6°C
Boiling point:	145°C
Evaporation rate:	No data available
Relative vapour density:	No data available
Vapour pressure:	No data available
Solubility:	Water; miscible
Relative density:	1.5; 20°C
Decomposition temperature:	Not applicable
Auto-ignition temperature:	Not applicable
Flash point:	Not applicable
Explosive properties:	No chemical group associated with explosive properties
Oxidising properties:	No chemical group associated with explosive properties
pH:	14.5%

Other information:

Solidification (freezing) point: 10°C

10. STABILITY AND REACTIVITY

Possibility of hazardous reactions: Basic reaction. May be corrosive to metals.

Chemical stability: Absorbs the atmospheric CO2.

Possibility of hazardous reactions: May be corrosive to metals. Absorbs the atmospheric CO2. Violent to explosive reaction with many compounds e.g.: with organic material, with (some) halogens and with (some) acids: heat release resulting in increased fire or explosion risk.

Conditions to avoid Precautionary measures: Keep away from naked flames/heat.

Materials to avoid: Oxidising agents, (strong) acids, highly flammable materials, metals, halogens, organic materials.

Hazardous decomposition products: Reacts with (some) metals and their compounds: release of highly flammable gases/vapours (hydrogen). On heating: release of corrosive gases/vapours. [cont…]

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects:

Acute oral toxicity: LD50; Rat (male); 333 - 338 mg/kg bw.

Method: Equivalent to OECD 425.

Experimental value Conclusion: Harmful if swallowed.
Not classified as acute toxic in contact with skin.
Not classified as acute toxic if inhaled.

Corrosion/irritation:

Eye: Serious eye damage. Equivalent to OECD 405, 5 minutes. Rabbit. Experimental value 5% aqueous solution.

Skin Corrosive: Equivalent to 4 h OECD 404. 24; 48 hours. Rabbit. Experimental value 10% aqueous solution

Inhalation: Irritating. Human observation. Human Read-across (NaOH).
Causes severe skin burns and eye damage. Not classified as irritating to the respiratory system.

Respiratory or skin sensitisation: No test data available.
Not classified as sensitising for skin.
Not classified as sensitising for inhalation.

Specific target organ toxicity: No test data available.
Not classified for subchronic toxicity.

Mutagenicity in vitro: No test data available.
Not classified for mutagenic or genotoxic toxicity.

Mutagenicity in vivo: No test data available.
Not classified for mutagenic or genotoxic toxicity.

Carcinogenicity: No data available. Not classified for carcinogenicity.

Conclusion CMR: Not classified for carcinogenicity.
Not classified for mutagenic or genotoxic toxicity.
Not classified for reprotoxic or developmental toxicity.

Other toxicity effects: No evidence of endocrine disrupting properties.

Chronic effects from short- and long-term exposure: Dry skin. Skin rash/inflammation.

[cont…]

12. ECOLOGICAL INFORMATION

Ecotoxicity effects: No test data available.
Judgement of the mixture is based on the relevant ingredients.

Acute toxicity (fishes): LC50, 80 mg/l, 96h, Pisces (literature study)

Conclusion: Not classified as dangerous for the environment according to the criteria of Regulation (EC) No. 1272/2008.

Persistence and degradability:

Biodegradability: Not applicable

Bioaccumulative potential: Does not contain bioaccumulative components

Mobility in soil: No test data available

Results of PBT and vPvB assessment: The criteria of PBT and vPvB as listed in Annex XIII of Regulation (EC) No. 1907/2006 do not apply to inorganic substances.

Other adverse effects: Greenhouse gases
None of the known components is included in the list of fluorinated greenhouse gases (Regulation (EU) No 17/2014) Ozone-depleting potential (ODP)
Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009)

Potassium hydroxide:

Groundwater: Groundwater pollutant

Water ecotoxicity pH: pH shift

13. DISPOSAL CONSIDERATIONS

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

Waste treatment method: Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997. Waste material code (Directive 2008/98/EC, Decision 2000/0532/EC). 06 02 04*
(wastes from the MFSU of bases: sodium and potassium hydroxide). Depending on branch of industry and production process, also other waste codes may be applicable.

Disposal methods: Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste.
Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Do not discharge into drains or the environment. Dispose of at authorized waste collection point.

Packaging/container: Waste material code packaging (Directive 2008/98/EC).
15 01 10* (packaging containing residues of or contaminated by dangerous substances).

[cont…]

14. TRANSPORT INFORMATION

Land Transport ADR/RID:

UN Number: 1814

Proper Shipping Name: Potassium hydroxide solution

Hazard Identification Number: 80

Hazard Class: 8

Classification Code: C5

Packing Group: II

Labels: 8

Environmentally Hazardous Substance Mark Special Precautions for User: No

Limited Quantities: Combination packaging: Not more than 1 litre per inner packaging for liquids.
A package shall not weigh more than 30 kg. (gross mass)

Sea Transport IMDG:

UN Number: 1814

Proper Shipping Name: Potassium hydroxide solution

Hazard Class: 8

Packing Group: II

Labels: 8

Marine Pollutant: -

Environmentally Hazardous Substance Mark Special Precautions for User: No

Limited Quantities: Combination packaging: Not more than 1 litre per inner packaging for liquids
A package shall not weigh more than 30 kg. (gross mass)

Air Transport ICAO/IATA:

UN Number: 1814

Proper Shipping Name: Potassium hydroxide solution

Hazard Class: 8

Packaging Group: II

Labels: 8

Environmentally Hazardous Substance Mark Special Precautions for User: No

Special Provisions: A3
A803

Passenger and cargo transport: limited quantities: maximum net quantity per packaging: 0.5L

Transport in bulk according to Annex II of Marpol and the IBC Code: Not applicable, based on available data

15. REGULATORY INFORMATION

Note: The regulatory information given above only indicates the principal regulations specifically Applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

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

[cont…]

16. OTHER INFORMATION

Full text of any H-statements referred to under headings 2 and 3:

H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes severe eye damage.
H335	May cause respiratory irritation.

Legal disclaimer: The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Nexchem Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.