SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Name of the product: **POTASSIUM HYDROXIDE PELLETS**

Product identifier: Potassium hydroxide.

Registration Number of the substance: 01-2119487136-33-0005

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

Identified uses: Manufacturing of liquid KOH (ES01)
Manufacturing of solid KOH (ES02)
Industrial and professional use of solid and liquid KOH (ES1)
Consumer use of solid and liquid KOH (excl. batteries) (ES2)
Consumer use, service life and waste stage of KOH in batteries (ES3)

Uses advised against: There are no uses advised against identified.

1.3. Details of the supplier of the safety data sheet

Company/undertaking:

Spolek pro chemickou a hutní výrobu, akciová společnost
Revoluční 1930/86, Ústí nad Labem 400 32, Czech Republic
Tel: +420 477 161 111 Fax.: +420 477 163 333
Responsible person: msds@spolchemie.cz

1.4. Emergency telephone number

CZ: +420 477 162 094/ EN: +420 476 709 826 non-stop service
Listing of national helpdesks at: http://echa.europa.eu/help/nationalhelp_contact_en.asp.

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Met.Corr.1: H290
Acute Tox.4: H302
Skin Corr.1A: H314

Hazards to man and the environment: Harmful if swallowed. Causes severe skin burns and eye damage.
Full text of classification and text of H, EUH and P - Phrases is listed in section 16 this MSDS.

2.2. Label elements

DANGER

May be corrosive to metals. Harmful if swallowed. Causes severe skin burns and eye damage.
Do not breathe dust. Wear protective gloves/protective clothing/eye protection/face protection. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

CAS: 1310-58-3 **Index:** 019-002-00-8
Contents: potassium hydroxide
Obligatory phrasing: Not determined.

2.3. Other hazards

PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulative non toxic (PBT).

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Identifier	CAS/ EINECS/ Registration number	Classification 1272/2008/ES	Content %	Note
potassium hydroxide	1310-58-3/ 215-181-3/ 01-2119487136-33-0005	Met.Corr.1: H290, Acute Tox.4: H302, Skin Corr.1A: H314	> 82	OEL

Full text of classification and text of H, EUH and P - Phrases is listed in section 16 this MSDS.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
In a life threatening condition soon carry out resuscitation affected and seek medical advice.
Respiratory arrest: immediately administer artificial respiration.
Cardiac arrest: immediately perform indirect heart massage.
Unconsciousness: place patient in recovery position.

After inhalation: Remove the victim quickly and considering own safety to fresh air, do not let the victim walk! Depending on situation, it is recommended to rinse oral cavity and, if necessary, nose with water. If the victim's clothing is contaminated, change it and protect the victim against cold. Depending on situation, call the rescue service or get medical attention due to the frequent need for further follow-up for at least 24 hours.

After skin contact: Remove contaminated clothing immediately; before washing or during washing, remove any rings, watches, bracelets that are in places of contact of the substance with skin. Rinse affected areas with stream of lukewarm water, if possible, for 10 to 30 minutes; do not use a brush, soap or neutralising agents! Cover burned areas of skin with a sterile dressing, do not use any ointments or other medical and pharmaceutical products. Cover the victim to protect him against cold. Depending on situation, call the rescue service or ensure medical attention.

After eye contact: Rinse eyes immediately under running water, open eyelids (even by force); if the victim wears contact lenses, remove them immediately. Do never neutralise! Rinse for 10 to 30 minutes from the inner to the outer ocular angle to prevent running of water in the other eye. Depending on the situation, call an ambulance or medical attention as quickly as possible, if possible professional treatment.The victim needs to get medical attention even with in the case of a small injuries.

After ingestion: DO NOT INDUCE VOMITING - risk of further damage to the digestive tract !!! There is a risk of perforation of the esophagus and the stomach! RINSE MOUTH IMMEDIATELY WITH WATER AND GIVE TO DRINK 2-5 dl of cold water to reduce the thermal effect of the caustics! Do not force the victim to drink, especially if he/she feels pain in mouth or throat. In this case, make the victim rinse his/her mouth. DO NOT ADMINISTER ACTIVATED CARBON! (blackening will make examination of the mucous membranes of more difficult and activated charcoal has not positive effect in case of acids and lyes). Do not give anything by mouth if the victim is unconscious or has convulsions. Depending on situation, call the rescue service or get medical attention as quickly as possible.

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

Possible risk of corrosion on reaction with acids due high heat release and spray out of reaction mixture. Ingestion may produce burning of the gastrointestinal system. Small quantities may develop burning pain, feeling of constriction in the throat. Large quantities may cause an extensive destruction, and perforation of the stomach.

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

Not determined.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media: Not flammable substance.
Extinguishing media to be avoided: High pressure water jet.

5.2. Special hazards arising from the substance or mixture

Not determined.

5.3. Advice for firefighters

Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Twilled fabric clothing (or working suit with rubber apron), rubber boots, rubber gloves, face shield or goggles.

6.2. Environmental precautions

Avoid release of product or components to the environment, sewers and surface water or soil.

6.3. Methods and material for containment and cleaning up

Pick up spilled hydroxide and place into impervious containers. Neutralise residues with diluted sulphuric acid or hydrochloric acid and after that flush area with water. In case of large spills call fire emergency service.

6.4. Reference to other sections

Additional advice : Refer to section 8, 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Do not eat, drink or smoke during work, observe working instructions. Wash your hands and exposed parts of body thoroughly with soap and water after work and before meal and possibly treat with suitable reparation lotion. Store in original packaging, storage tanks and containers should be placed into containment basins of corresponding content and construction.

7.2. Conditions for safe storage, including any incompatibilities

Store in closed storerooms. Keep away from sources of ignition and other kinds of substances. Store in the original containers kept tightly closed. Storerooms should be well- ventilated, dry, provided with a first aid box and a source of drinking water supply. Prevent access of unauthorised personnel. Storage tanks and containers should be placed into containment basins of corresponding content and construction.

7.3. Specific end use(s)

Not determined.

SECTION 8: EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1. Control parameters

Potassium hydroxide -STEL: 2 mg/m³ (EH40/2005 Workplace exposure limits).

Potassium hydroxide:
DNEL- workers:
Long term (local effects): Inhalat: 1 mg/m³
DNEL- general population:
Long term (local effects): Inhalat: 1 mg/m³

Potassium hydroxide:
PNECs : Not determined.

8.2. Exposure controls

8.2.1 Appropriate engineering controls

Local exhaustion recommended.

8.2.2 Occupational exposure controls

Respiratory protection: Respirator.
Hand protection: Chemically resistant gloves (tested to EN374).
Eye / face protection: Safety goggles or safety shield.
Skin protection: Twilled fabric clothing, footwear.

8.2.3 Environmental exposure controls

Prevent entry into sewers, follow the plan of action in case of emergency. Cover with an absorbent material (Vapex) .Used material to store

in barrels and in cooperation with the department of environmental protection then defuse it.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State:	Solid.
Colour:	White.
Odour:	Odourless.
pH:	14 (20°C)
Boiling point / boiling range (ºC):	1327
Melting point / freezing point (°C):	360°C (100% KOH)
Flash point (°C):	Inorganic substance.
Flammability (solid, gas):	Not flammable.
Explosive properties:	Not explosive.
Oxidising properties:	No.
Vapour pressure:	Not applicable.
Density (g/cm³):	2,044 (20°C) (100% KOH)
Solubility:	
Water solubility (g/l):	Unlimited.
Partition coefficient: n-octanol/water:	Inorganic substance.
Auto-ignition temperature (°C):	Not self-igniting.
Viscosity:	Not applicable.
Vapour density:	Not applicable.
Evaporation rate:	Not applicable.
Other information:	Not determined.

9.2. Other information

Miscibility:	Not determined.
Fat solubility (oil to be specified):	Not determined.
Conductivity:	Not determined.
Gas group:	Not determined.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Highly reactive with acids. Reactive with organic materials, metals, moisture.

10.2. Chemical stability

Stable under recommended conditions of storage and handling of the product.

10.3. Possibility of hazardous reactions

The product is highly reactive. The water forms a strong caustic solutions.
It reacts with metals to produce hydrogen. Risk of explosion.
Reacts with: acid, water (exothermic reaction).

10.4. Conditions to avoid

Extremes of temperature and direct sunlight. Exposure to moisture - hygroscopic substance.

10.5. Incompatible materials

The product is highly reactive. The water forms a strong caustic solutions.
It reacts with metals to produce hydrogen. Risk of explosion.
Reacts with: acid, water (exothermic reaction).

10.6. Hazardous decomposition products

Hydrogen.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity: LD50oral.: 333 mg/kg bw (CSR) (solid KOH)
Skin corrosion/irritation: Causes severe burns.
Serious eye damage/irritation: Causes serious eye damage.
Respiratory or skin sensitisation: Based on available data, the classification criteria are not met.
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.

Other information
If affected skin is not treated promptly, badly healing blisters are formed which leave scars. Affection of hands and fingers with the weak solution may be dangerous, because of painful irritation with delayed appearance (even after some hours), where it may be too late to provide an effective aid.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Not determined.
Other hazards: No effect known.

12.2. Persistence and degradability

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

12.3. Bioaccumulative potential

Considering its high water solubility, potassium hydroxide is not expected to bioconcentrate in organisms. Log Pow is not applicable for an inorganic compound which dissociates (OECD SIAR potassium hydroxide, 2002).

12.4. Mobility in soil

Potassium hydroxide is readily soluble in water and dissociates completely to K+ and OH-. If emitted to surface water, sorption to particulate matter and sediment will be negligible.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulative non toxic (PBT).

12.6. Other adverse effects

No effect known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Neutralise with diluted sulphuric acid or hydrochloric acid and then rinse with plenty of water.

Properly emptied metal packagings may be used like secondary raw material, remaining packagings should be buried in a landfill or disposed of by incineration in suitable incinerator units for hazardous waste.

Handling with wastes is regulated by Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.

SECTION 14: TRANSPORT INFORMATION

14.1. UN number: 1813

14.2. UN proper shipping name:

ADR/RID: POTASSIUM HYDROXIDE, SOLID

IMDG: POTASSIUM HYDROXIDE, SOLID

14.3. Transport hazard class(es): 8

14.4. Packing group: II

14.5. Environmental hazards

ADR/RID: No.
IMDG: No.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

Other information

Shipping Name: Potassium hydroxide
Classification code: C6
Note: -
Tunnel restriction codes: (E)
EmS: F-A/S-B

SECTION 15: REGULATORY INFORMATION

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

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration,Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of theCouncil on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC)No 1907/2006.

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.

Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods.

Council Directive 1999/13/EC of 11 March 1999 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations.

Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work.

Other regulatory information:

Not determined

Not determined.

15.2. Chemical safety assessment

The chemical safety report has been prepared.

SECTION 16: OTHER INFORMATION

Full wording of H, EUH, P - Phrases

H290 May be corrosive to metals.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
P260A Do not breathe dust.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/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 or doctor/physician.

Used abbreviations

Met. Corr. 1: Substance or mixture corrosive to metals, category 1
Acute Tox. 4: Acute toxicity, hazard category 4
Skin Corr. 1A: Skin corrosion, hazard category 1A
OEL: Substance with Occupational Exposure Limits
STEL: Short-Term Exposure Limit
TWA: Time weighted average
PNEC: Predicted no-effect concentration
DNEL: Derived no-effect level
WGK: Wassergefährdungsklasse (water hazard class)
PBT: Persistent, bioaccumulative and toxic substance
vPvB: Very persistent and very bioaccumulative substance

bw: Body weight

Classification methods

Not relevant - substance.

Sources of data

The registration dossier.

Additional information

Not determined.

Training guidelines

Those who manipulate with the product must be demonstrably informed of its dangerous properties, principles of protecting the environment and health from its harmful effects and principles of first aid.

Revision data

16.11.2010 Changes made in accordance with Regulation (EC) No 1272/2008 and Regulation (EC) No 453/2010 .
8.8.2013 e-SDS
16.09.2015 Removed classification according to Directive 67/548 / EEC (DSD). Adding information in section 4.

1.TITLE OF THE EXPOSURE SCENARIO: ES1: Industrial and Professional Use of KOH

Sector of use: SU1-23
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: PC0-40
Potassium hydroxide can be used in many different chemical product categories (PC): Coatings and Paints, Fillers, Putties, Thinners (PC 9), Fertilizers (PC12), Intermediate (PC19), Products such as pH-regulators, flocculants, precipitants, neutralization agents (PC20), Washing and Cleaning Products (PC35), Water treatment chemicals (PC37), Cosmetics (PC39), Extraction agents (PC40). However, it could potentially also be used in other chemical product categories (PC 0 – 40).

Process category: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a,PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15, PROC19, PROC23, PROC24, PROC26
The process categories mentioned above are assumed to be the most important ones but other process categories could also be possible (PROC 1 – 27).

Article category: Not applicable.

Environmental relase category: ERC2, ERC4, ERC5, ERC6, ERC7, ERC8a
The environmental release categories mentioned above are assumed to be the most important ones but other industrial environmental release categories could also be possible (ERC 1 – 11b).

Processes, task, activities covered: Industrial and Professional Use of KOH

2. OPERATIONAL CONDITIONS AND RISK MAMAGEMENT MESURES

2.1. Control of worker exposure

Product characteristics:

Solid or liquid KOH, all concentrations (0-100%), if solid: low dustiness class.
Frequency and duration of use/exposure: 8 hours/day, 200 days/year

Operational conditions:

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

Replacing, where appropriated, 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)”

Contributing scenario:

CONTROLLING WORKER EXPOSURE

Risk management measures:

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

ORGANIZATIONAL
- Workers in the risky process/areas identified should be trained:
  a) to avoid to work without respiratory protection,
  b) to understand the corrosive properties and, especially, the respiratory inhalation effects of KOH and
  c) to follow the safer procedures instructed by the employer.
- The employer has also to ascertain that the required PPE is available and used according to instructions.
- Where possible for professional use, use of specific dispensers and pumps specifically designed to prevent splashes/spills/exposure to occur.

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

PERSONAL PROTECTIVE EQUIPMENT
- Respiratory protection: In case of dust or aerosol formation (e.g. spraying): use respiratory protection with approved filter (P2).
- Hand protection: impervious chemical resistant protective gloves.
  material: butyl-rubber, PVC, polychloroprene with natural latex liner, material thickness: 0.5 mm, breakthrough time: > 480 min.
  material: nitrile-rubber, fluorinated rubber, material thickness: 0.35-0.4 mm, breakthrough time: > 480 min.
- If splashes are likely to occur, wear tightly fitting chemical resistant safety goggles, face –shield.
- If splashes are likely to occur, wear suitable protective clothing, aprons, shield and suits, rubber or plastic boots, rubber or plastic boots.

2.2. Control of environmental exposure

Product characteristics:
Solid or liquid NaOH, all concentrations (0-100%), if solid: low dustiness class.
Frequency and duration of use: Continuous

Operational conditions:

Not applicable.

Contributing scenario:
CONTROLLING ENVIRONMENTAL EXPOSURE

Risk management measures:

Risk management measures related to the environment aim to avoid discharging KOH solutions into municipal wastewater or to sur-face water, in case such discharges are expected to cause significant and undesired pH changes. Adequate 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 de-scription of standard OECD tests with aquatic organisms.

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 re-quirements 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.

There is no solid waste of KOH. Liquid KOH waste should be reused or discharged to the industrial wastewater and further neutralized if needed.

3. EXPOSURE ESTIMATION

Worker exposure:
KOH is a corrosive substance. 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 KOH 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.
The ECETOC TRA tool has been used to estimate the inhalation exposure (see Table below). 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.

PROC1 liq.(mg/m3) 0,23 solid(mg/m3) 0,01
PROC2 liq.(mg/m3) 0,23 solid(mg/m3) 0,01
PROC3 liq.(mg/m3) 0,23 solid(mg/m3) 0,10
PROC4 liq.(mg/m3) 0,23 solid(mg/m3) 0,20 (with LEV)

PROC5 liq.(mg/m3) 0,23 solid(mg/m3) 0,20 (with LEV)
PROC7 liq.(mg/m3) 0,23 solid(mg/m3) not applicable
PROC8a/b liq.(mg/m3) 0,23 solid(mg/m3) 0,50
PROC9 liq.(mg/m3) 0,23 solid(mg/m3) 0,50
PROC10 liq.(mg/m3) 0,23 solid(mg/m3) 0,50
PROC11 liq.(mg/m3) 0,23 solid(mg/m3) 0,20 (with LEV)
PROC13 liq.(mg/m3) 0,23 solid(mg/m3) 0,50
PROC14 liq.(mg/m3) 0,23 solid(mg/m3) 0,20 (with LEV)
PROC15 liq.(mg/m3) 0,23 solid(mg/m3) 0,10
PROC19 liq.(mg/m3) 0,23 solid(mg/m3) 0,50
PROC23 liq.(mg/m3) 0,23 solid(mg/m3) 0,40 (with LEV and RPE(90%))
PROC24 liq.(mg/m3) 0,23 solid(mg/m3) 0,50 (with LEV and 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.

Environmental exposure:
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 emis-sion to agricultural soil, as no sorption of KOH to particulate matter will occur in STPs/WWTPs. If emitted to soil, sorption to soil parti-cles will be negligible. Depending on the buffer capacity of the soil, OH- will be neutralised in the soil pore water or the pH may in-crease.
Bioaccumulation will not occur.

4. GUIDANCE OF COMPLIANCE CHECK WITH REQUIREMENTS OF EXPOSURE SCENARIO

Combination of Risk management measures and Operational conditions stated in that exposure scenario guarantees Risk characterization Ratio (RCR) value < 1.
Downstream users could asses their own measures using model ECETOC TRA v2 or EUSES. They could calculate RCR as DEL/DNEL or PEC/PNEC (DNELs , PNECs in MSDS).

1.TITLE OF THE EXPOSURE SCENARIO: ES2: Consumer Use of solid and liquid KOH (excl. batteries)

Sector of use:	SU21
Product category:	PC9, PC12,PC20, PC28, PC35, PC39 However, it could potentially also be used in other chemical product categories (PC0–40).
Process category:	Not applicable.
Article category:	Not applicable.
Environmental relase category:	ERC8a, ERC8 b, ERC8d, ERC9a The environmental release categories mentioned above are assumed to be the most important ones but other wide dispersive environmental release categories could also be possible (ERC8 – 11b).

Processes, task, activities covered: Consumer Use of solid and liquid KOH (excl. batteries)

2. OPERATIONAL CONDITIONS AND RISK MAMAGEMENT MESURES

2.1. Control of worker exposure

Product characteristics:

Solid or liquid KOH, all concentrations (0-100%), if solid: low dustiness class.
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.

Operational conditions:

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.

Contributing scenario:

CONTROLLING CONSUMER EXPOSURE

Risk management measures:

ORGANISATIONAL
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.

Instructions addressed to consumers:·
- Keep out of reach of children.
- Do not apply product into ventilator openings or slots.

PERSONAL PROTECTIVE EQUIPMENT
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

2.2. Control of environmental exposure

Product characteristics:
Solid or liquid NaOH, all concentrations (0-100%), if solid: low dustiness class.

Operational conditions:
Not applicable.

Contributing scenario:
CONTROLLING ENVIRONMENTAL EXPOSURE

Risk management measures:
This material and its container must be disposed of in a safe way (e.g. by returning to a public recycling facility). If container is empty, trash as regular municipal waste.

3. EXPOSURE ESTIMATION

Worker exposure:
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.

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

4. GUIDANCE OF COMPLIANCE CHECK WITH REQUIREMENTS OF EXPOSURE SCENARIO

Combination of Risk management measures and Operational conditions stated in that exposure scenario guarantees Risk characterization Ratio (RCR) value < 1.
Downstream users could asses their own measures using model ECETOC TRA v2 or EUSES. They could calculate RCR as DEL/DNEL or PEC/PNEC (DNELs , PNECs in MSDS).

1.TITLE OF THE EXPOSURE SCENARIO: ES3: Consumer use, service life and waste stage of KOH in batteries.

Sector of use: SU21

Product category: Not applicable.

Process category: Not applicable.

Article category: AC3

Environmental relase category: ERC9a, ERC9b

Processes, task, activities covered: Consumer use, service life and waste stage of KOH in batteries.

2. OPERATIONAL CONDITIONS AND RISK MAMAGEMENT MESURES

2.1. Control of worker exposure

Product characteristics:

liquid KOH

Operational conditions:

Not applicable.

Contributing scenario:

CONTROLLING CONSUMER EXPOSURE

Risk management measures:

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

2.2. Control of environmental exposure

Product characteristics:

liquid KOH

Operational conditions:

Not applicable.

Contributing scenario:

CONTROLLING ENVIRONMENTAL EXPOSURE

Risk management measures:

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

3. EXPOSURE ESTIMATION

Worker exposure:

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.

Environmental exposure:

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.

4. GUIDANCE OF COMPLIANCE CHECK WITH REQUIREMENTS OF EXPOSURE SCENARIO

Combination of Risk management measures and Operational conditions stated in that exposure scenario guarantees Risk characterization

Ratio (RCR) value < 1.
Downstream users could asses their own measures using model ECETOC TRA v2 or EUSES. They could calculate RCR as DEL/DNEL or PEC/PNEC (DNELs , PNECs in MSDS).

List of Abbreviations:

SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites.
SU21 Consumer uses: Private households (= general public = consumers)
SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
PC9A Coatings and paints, thinners, paint removers
PC9B Fillers, putties, plasters, modelling clay
PC12 Fertilizers
PC19 Intermediate
PC20 Products such as ph-regulators, flocculants, pre-cipitants, neutralization agents
PC28 Perfumes, fragrances
PC35 Washing and cleaning products (including solvent based products)
PC37 Water treatment chemicals
PC39 Cosmetics, personal care products
PC40 Extraction agents
PROC1 Use in closed process, no likelihood of exposure
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation)
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5 Mixing or blending in batch processes (multistage and/or significant contact)
PROC7 Industrial spraying
PROC8a Transfer of substance or preparation (charging/discharging) from/to ves-sels/large containers at non-dedicated facilities
PROC8b Transfer of substance or preparation (charging/discharging) from/to ves-sels/large containers at dedicated facili-ties
PROC9 Transfer of chemicals into small containers (dedicated filling line)
PROC10 Roller application or brushing
PROC11 Non industrial spraying
PROC13 Treatment of articles by dipping and pouring
PROC14 Production of preparations* or articles by tabletting, compression, extrusion, pelletisation
PROC15 Use of laboratory reagents in small scale laboratories
PROC19 Hand-mixing with intimate contact and only PPE available.
PROC23 Open processing and transfer opera-tions with minerals/metals at elevated temperature.
PROC24 High (mechanical) energy work-up of substances bound in materials and/or articles.
PROC26 Handling of solid inorganic substances at ambient temperature
AC3 Electrical batteries and accumulators
ERC2 Formulation of preparations
ERC4 Industrial use of processing aids in processes and products, not becoming part of articles
ERC5 Industrial use resulting in inclusion into or onto a ma-trix
ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b Industrial use of reactive processing aids
ERC7 Industrial use of substances in closed systems
ERC8a Wide dispersive indoor use of processing aids in open systems
ERC8b Wide dispersive indoor use of reactive substances in open systems
ERC8d Wide dispersive outdoor use of processing aids in open systems
ERC9a Wide dispersive indoor use of substances in closed systems
odkaz other descriptors can be found at:
http://echa.europa.eu/documents/10162/13632/information_requirements_r12_en.pdf

LEV Local Exhaust Ventilation
RPE Respiratory protective equipment
DNEL Derived no-effect level
PNEC Predicted no-effect concentration
RCR Risk characterisation ratio