Potassium Hydroxide
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 10/09/2004 Revision date: 06/26/2013 Supersedes: 10/09/2004 Version: 1.0

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

1.1. Product identifier
- **Product form**: Substance
- **Substance name**: Potassium Hydroxide
- **CAS No**: 1310-58-3
- **Product code**: LC19190
- **Formula**: KOH
- **Synonyms**: caustic potash / caustic potash dry / caustic potash, dry solid, flake, bead or granular / caustic potash, solid / caustic potash, solid / hydrate of potash / hydrate of potassium / hydrate of potash / hydrate of potassium / lye (=potassium hydroxide) / potash / potash hydrate / potash lye / potassium hydrate / potassium hydroxide (K(OH)) / potassium hydroxide dry / potassium hydroxide pellets / potassium hydroxide, dry solid, flake, bead or granular / potassium hydroxide, electrolytical, solid / potassium hydroxide, solid / Potassium hydroxide, solid / potassium lye
- **BIG no**: 10099

1.2. Relevant identified uses of the substance or mixture and uses advised against
- **Use of the substance/mixture**: For laboratory and manufacturing use only.

1.3. Details of the supplier of the safety data sheet
- **LabChem Inc**
- **Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court**
- **16063 Zelienople, PA - USA**
- **T 412-826-5230 - F 724-473-0647**
- **info@labchem.com - www.labchem.com**

1.4. Emergency telephone number
- **Emergency number**: CHEMTREC: 1-800-424-9300 or 011-703-527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
- **GHS-US classification**
  - Acute Tox. 4 (Oral) H302
  - Skin Corr. 1A H314
  - Eye Dam. 1 H318

2.2. Label elements
- **GHS-US labelling**
  - **Hazard pictograms (GHS-US)**: ![GHS05](image) ![GHS07](image)
  - **Signal word (GHS-US)**: Danger
  - **Hazard statements (GHS-US)**: H302 - Harmful if swallowed
  - H314 - Causes severe skin burns and eye damage
  - **Precautionary statements (GHS-US)**: P260 - Do not breathe dust
  - P264 - Wash exposed skin thoroughly after handling
  - P267 - Do no eat, drink or smoke when using this product
  - P280 - Wear protective gloves, protective clothing, eye protection, face protection
  - P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
  - P303+P361+P335 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
  - P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
  - 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/…
  - P330 - If swallowed, rinse mouth
  - P363 - Wash contaminated clothing before reuse
  - P405 - Store locked up
  - P501 - Dispose of contents/container to comply with local, state and federal regulations

2.3. Other hazards
- **Other hazards not contributing to the classification**: None under normal conditions.

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2.4. Unknown acute toxicity (GHS US)
No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Hydroxide</td>
<td>(CAS No) 1310-58-3</td>
<td>100</td>
<td>Acute Tox. 4 (Oral), H302</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Corr. 1A, H314</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Dam. 1, H318</td>
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</tbody>
</table>

Full text of H-phrases: see section 16

3.2. Mixture
Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures


First-aid measures after inhalation : Remove the victim into fresh air. Doctor: administration of corticoid spray. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.

First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Cover eyes aseptically. Do not apply neutralizing agents. Take victim to an ophthalmologist.


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


Symptoms/injuries after skin contact : Caustic burns/corrosion of the skin. Slow-healing wounds.

Symptoms/injuries after eye contact : Corrosion of the eye tissue. Permanent eye damage. Blindness.


Chronic symptoms : No effects known.

4.3. Indication of any immediate medical attention and special treatment needed
No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : EXTINGUISHING MEDIA FOR SURROUNDING FIRES: Adapt extinguishing media to the environment.

Unsuitable extinguishing media : No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : DIRECT FIRE HAZARD. Non combustible. INDIRECT FIRE HAZARD. Reactions involving a fire hazard: see "Reactivity Hazard".

Explosion hazard : INDIRECT EXPLOSION HAZARD. Reactions with explosion hazards: see "Reactivity Hazard".

Reactivity : Violent exothermic reaction with water (moisture). Reacts on exposure to water (moisture) with combustible materials: risk of spontaneous ignition. Reacts on exposure to water (moisture) with (some) metals: release of highly flammable gases/vapours (hydrogen). 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.
5.3. Advice for firefighters

Firefighting instructions: 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.


SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel


Measures in case of dust release: In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

6.1.2. For emergency responders

Protective equipment: Equip cleanup crew with proper protection.

Emergency procedures: Ventilate area. Stop release.

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment: Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray. Take account of toxic/corrosive precipitation water. Hazardous reaction: measure explosive gas-air mixture. Reaction: dilute combustible gas/vapour with water curtain.

Methods for cleaning up: Collect the spill only if it is in a dry state. Wetted substance: cover with dry sand/earth. Scoop solid spill into closing containers. See "Material-handling" for suitable container materials. Carefully collect the spill/leftovers. Take collected spill to manufacturer/competent authority. Small quantities of liquid spill: neutralize with dilute acid solution. Wash away neutralized product with plentiful water. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Use corrosionproof equipment. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Avoid raising dust. Avoid contact of substance with water. Observe very strict hygiene - avoid contact. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

Hygiene measures: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse. Do no eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Storage temperature: 20 °C

Heat and ignition sources: KEEP SUBSTANCE AWAY FROM: heat sources.


Storage area: Store in a dry area. Keep container in a well-ventilated place. Keep locked up. Provide for a tub to collect spills. Unauthorized persons are not admitted. Meet the legal requirements.

Special rules on packaging: SPECIAL REQUIREMENTS: hermetical, watertight, corrosion-proof. dry, clean, correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.


7.3. Specific end use(s)

No additional information available
SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Potassium Hydroxide (1310-58-3)</th>
<th>USA ACGIH</th>
<th>ACGIH Ceiling (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2 mg/m³</td>
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</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate general and local exhaust ventilation.


Materials for protective clothing: GIVE EXCELLENT RESISTANCE: butyl rubber. natural rubber. neoprene. nitrile rubber. PVC. viton. GIVE LESS RESISTANCE: No data available. GIVE POOR RESISTANCE: leather. natural fibres. PVA.

Hand protection: Gloves.

Eye protection: Face shield.

Skin and body protection: Corrosion-proof clothing. In case of dust production: head/neck protection.

Respiratory protection: Dust production: dust mask with filter type P3. Self-contained breathing apparatus if conc. in air > 1 vol %.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| Physical state | Solid |
| Appearance     | Solid in various shapes. Powder. |
| Molecular mass | 56.11 g/mol |
| Colour         | White to light yellow. |
| Odour          | Odourless. |
| Odour threshold| No data available |
| pH             | 13.5 (0.60 %) |
| pH solution    | 0.60 % |
| Relative evaporation rate (butylacetate=1) | No data available |
| Melting point  | 360 °C |
| Freezing point | No data available |
| Boiling point  | No data available |
| Flash point    | Not applicable |
| Self ignition temperature | Not applicable |
| Decomposition temperature | No data available |
| Flammability (solid, gas) | No data available |
| Vapour pressure | < 0.1 hPa |
| Relative vapour density at 20 °C | No data available |
| Relative density | 2.0 (20 °C) |
| Density | 2044 kg/m³ (20 °C) |
| Solubility     | Exothermically soluble in water. Soluble in ethanol. Soluble in glycerol. Water: 112 g/100ml |
| Log Pow        | No data available |
| Log Kow        | No data available |
| Viscosity, kinematic | No data available |
| Viscosity, dynamic | No data available |
| Explosive properties | Not applicable. |
| Oxidising properties | None. |
| Explosive limits | No data available |

9.2. Other information

Minimum ignition energy: Not applicable
SADT: Not applicable
VOC content: Not applicable
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Other properties: Translucent. Hygroscopic. Substance has basic reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity
Violent exothermic reaction with water (moisture). Reacts on exposure to water (moisture) with combustible materials: risk of spontaneous ignition. Reacts on exposure to water (moisture) with (some) metals: release of highly flammable gases/vapours (hydrogen). 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.

10.2. Chemical stability
Hygroscopic. Absorbs the atmospheric CO2.

10.3. Possibility of hazardous reactions
Reacts violently with water. Reacts violently with acids.

10.4. Conditions to avoid

10.5. Incompatible materials

10.6. Hazardous decomposition products
Potassium oxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Potassium Hydroxide (1310-58-3)

| LD50 oral rat | 333 mg/kg (Rat; Experimental value, Rat; Experimental value) |

| Skin corrosion/irritation | Causes severe skin burns and eye damage. pH: 13.5 (0.60 %) |
| Serious eye damage/irritation | Causes serious eye damage. pH: 13.5 (0.60 %) |
| Respiratory or skin sensitisation | Not classified |
| Germ cell mutagenicity | Not classified |
| Carcinogenicity | Not classified |
| Reproductive toxicity | Not classified |
| Specific target organ toxicity (single exposure) | Not classified |
| Specific target organ toxicity (repeated exposure) | Not classified |
| Aspiration hazard | Not classified |

Symptoms/injuries after inhalation:

Symptoms/injuries after skin contact:
- Caustic burns/corrosion of the skin. Slow-healing wounds.

Symptoms/injuries after eye contact:
- Corrosion of the eye tissue. Permanent eye damage. Blindness.

Symptoms/injuries after ingestion:

Chronic symptoms:
- No effects known.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water:
- Ground water pollutant. Harmful to fishes. Highly toxic to plankton. pH shift. Insufficient data available on ecotoxicity.

Potassium Hydroxide (1310-58-3)

| LC50 fishes 1 | > 28.6 mg/l (96 h; Pisces; LETHAL) |
| LC50 fish 2 | 80 mg/l (Gambusia affinis) |
| TLM fish 1 | 80 ppm (24 h; Gambusia affinis) |
12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Potassium Hydroxide (1310-58-3)</th>
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</thead>
<tbody>
<tr>
<td><strong>Persistence and degradability</strong></td>
<td>Biodegradability: not applicable.</td>
</tr>
<tr>
<td><strong>Biochemical oxygen demand (BOD)</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Chemical oxygen demand (COD)</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>ThOD</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>BOD (% of ThOD)</strong></td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Potassium Hydroxide (1310-58-3)</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Log Pow</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Bioaccumulative potential</strong></td>
<td>Bioaccumulation: not applicable.</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations: 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. Should not be landfilled with household waste. Recycle/reuse. Immobilize the toxic or harmful components. Precipitate/make insoluble. Remove to an authorized dump (Class I). Treat using the best available techniques before discharge into drains or the aquatic environment.

Additional information: LWCA (the Netherlands): KGA category 05. Hazardous waste according to Directive 2008/98/EC.

SECTION 14: Transport information

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

14.1. UN number

| UN-No.(DOT) | 1813 |
| DOT NA no. | UN1813 |

14.2. UN proper shipping name

DOT Proper Shipping Name: Potassium hydroxide, solid

Department of Transportation (DOT) Hazard Classes: 8 - Class 8 - Corrosive material

Hazard labels (DOT): 8 - Corrosive substances

Packing group (DOT): II - Medium Danger
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DOT Special Provisions (49 CFR 172.102)
IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).
IP2 - When IBCs other than metal or rigid plastics IBCs are used, they must be offered for transportation in a closed freight container or a closed transport vehicle.
IP4 - Flexible, fiberboard or wooden IBCs must be sift-proof and water-resistant or be fitted with a sift-proof and water-resistant liner.
T3 - 2.65 178.274(d)(2) Normal......... 178.275(d)(2)
TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) : 154
DOT Packaging Non Bulk (49 CFR 173.xxx) : 212
DOT Packaging Bulk (49 CFR 173.xxx) : 240

14.3. Additional information
Other information : No supplementary information available.
State during transport (ADR-RID) : as solid.

Overland transport
Packing group (ADR) : II
Class (ADR) : 8 - Corrosive substances
Hazard identification number (Kemler No.) : 80
Classification code (ADR) : C6
Danger labels (ADR) : 8 - Corrosive substances

Orange plates : 80
Tunnel restriction code : E

Transport by sea
DOT Vessel Stowage Location : A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other : 52 - Stow “separated from” acids
EmS-No. (1) : F-A
EmS-No. (2) : S-B

Air transport
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 15 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 50 kg

SECTION 15: Regulatory information
15.1. US Federal regulations
Potassium Hydroxide (1310-58-3)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
RQ (Reportable quantity, section 304 of EPA’s List of Lists) : 1000 lb
SARA Section 311/312 Hazard Classes : Immediate (acute) health hazard

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### 15.2. International regulations

#### CANADA

Potassium Hydroxide (1310-58-3)

Listed on the Canadian DSL (Domestic Substances List) inventory.

| WHMIS Classification | Class E - Corrosive Material |

**EU-Regulations**

No additional information available

**Classification according to Regulation (EC) No. 1272/2008 [CLP]**

- Acute Tox. 4 (Oral) H302
- Skin Corr. 1A H314

Full text of H-phrases: see section 16

**Classification according to Directive 67/548/EEC or 1999/45/EC**

- Xn; R22
- C; R35

Full text of R-phrases: see section 16

#### 15.2.2. National regulations

Potassium Hydroxide (1310-58-3)

Listed on the Canadian Ingredient Disclosure List

#### 15.3. US State regulations

Potassium Hydroxide(1310-58-3)

<table>
<thead>
<tr>
<th>State or local regulations</th>
<th>U.S. - Massachusetts - Right To Know List</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>U.S. - New Jersey - Right to Know Hazardous Substance List</td>
</tr>
<tr>
<td></td>
<td>U.S. - Pennsylvania - RTK (Right to Know) List</td>
</tr>
</tbody>
</table>

### SECTION 16: Other information

Full text of H-phrases: see section 16:

- **Acute Tox. 4 (Oral)**: Acute toxicity (oral), Category 4
- **Eye Dam. 1**: Serious eye damage/eye irritation, Category 1
- **Skin Corr. 1A**: Skin corrosion/irritation, Category 1A
- **H302**: Harmful if swallowed
- **H314**: Causes severe skin burns and eye damage
- **H318**: Causes serious eye damage

**NFPA health hazard**: 3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

**NFPA fire hazard**: 0 - Materials that will not burn.

**NFPA reactivity**: 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.

**NFPA specific hazard**: W - Unusual reactivity with water. This indicates a potential hazard using water to fight a fire involving this material. When a compound is both water-reactive and an oxidizer, the W/bar symbol should go in this quadrant and the OX warning is placed immediately below the NFPA diamond.

**HMIS III Rating**

- Health: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
- Flammability: 0 Minimal Hazard
- Physical: 1 Slight Hazard
- Personal Protection: F

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SDS US (GHS HazCom 2012)

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