1. Identification

Product identifier: POTASSIUM HYDROXIDE

Other means of identification
Synonyms: Caustic Potash, Potassium Hydrate
Product No.: 3116, 7815, 3152, 3141, 3150, 3146, 3140, 6984, 6976, 6598

Recommended use and restriction on use
Recommended use: Not available.
Restrictions on use: Not known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer
Company Name: Avantor Performance Materials, Inc.
Address: 3477 Corporate Parkway, Suite 200
Center Valley, PA 18034
Telephone: Customer Service: 855-282-6867
Fax: Contact Person: Environmental Health & Safety
e-mail: info@avantormaterials.com

Emergency telephone number:
24 Hour Emergency: 908-859-2151
Chemtrec: 800-424-9300

2. Hazard(s) identification

Hazard classification

Physical hazards
Corrosive to metals Category 1

Health hazards
Skin corrosion/irritation Category 1
Serious eye damage/eye irritation Category 1
Specific target organ toxicity - single exposure Category 3

Unknown toxicity
Acute toxicity, inhalation, dust or mist 100 %

Environmental hazards
Acute hazards to the aquatic environment Category 3

Unknown toxicity
Chronic hazards to the aquatic environment 85 %

Label elements
Hazard symbol:
Signal word: Danger

Hazard statement: May be corrosive to metals. Causes severe skin burns and eye damage. May cause respiratory irritation. Harmful to aquatic life.

Precautionary statement

Prevention: Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Keep only in original container. Wash hands thoroughly after handling. Avoid release to the environment.

Response: 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/doctor. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Get immediate medical advice/attention. Wash contaminated clothing before reuse. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Storage: Store in corrosive resistant container with a resistant inner liner. Store locked up. Store in a well-ventilated place. Keep container tightly closed.

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in GHS classification: None.

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical identity</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>Content in percent (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>POTASSIUM HYDROXIDE</td>
<td>1310-58-3</td>
<td>80 - 90%</td>
<td></td>
</tr>
</tbody>
</table>

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

Ingestion: Call a physician or poison control center immediately. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn’t get into the lungs.
Inhalation: Move to fresh air. Call a physician or poison control center immediately. Apply artificial respiration if victim is not breathing. If breathing is difficult, give oxygen.

Skin contact: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or poison control center immediately. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately. In case of irritation from airborne exposure, move to fresh air. Get medical attention immediately.

Most important symptoms/effects, acute and delayed

Symptoms: Causes severe skin and eye burns. Causes digestive tract burns.

Indication of immediate medical attention and special treatment needed

Treatment: Treat symptomatically. Symptoms may be delayed.

5. Fire-fighting measures

General fire hazards: In case of fire and/or explosion do not breathe fumes.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical: Fire may produce irritating, corrosive and/or toxic gases.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Keep unauthorized personnel away. Ventilate closed spaces before entering them. Use personal protective equipment. See Section 8 of the MSDS for Personal Protective Equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Methods and material for containment and cleaning up: Sweep up and place in a clearly labeled container for chemical waste. Clean surface thoroughly to remove residual contamination. Neutralize spill area and washings with dilute acetic acid.

Notification Procedures: Dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Inform authorities if large amounts are involved.
Environmental precautions:  Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling:  Avoid inhalation of dust and vapors. Do not get in eyes, on skin, on clothing. Do not taste or swallow. Wash hands thoroughly after handling. Do not eat, drink or smoke when using the product.

Conditions for safe storage, including any incompatibilities:  Do not store in metal containers. Keep containers tightly closed. Store in cool, dry place. Store in a well-ventilated place.

8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Chemical identity</th>
<th>Type</th>
<th>Exposure Limit values</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>POTASSIUM HYDROXIDE</td>
<td>Ceiling</td>
<td>2 mg/m3</td>
<td>US. ACGIH Threshold Limit Values (2011)</td>
</tr>
<tr>
<td></td>
<td>REL</td>
<td>2 mg/m3</td>
<td>US. NIOSH: Pocket Guide to Chemical Hazards (2010)</td>
</tr>
<tr>
<td></td>
<td>Ceiling</td>
<td>2 mg/m3</td>
<td>US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)</td>
</tr>
</tbody>
</table>

Appropriate engineering controls  No data available.

Individual protection measures, such as personal protective equipment

General information:  Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.

Eye/face protection:  Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection

Hand protection:  Chemical resistant gloves

Other:  Wear appropriate clothing to prevent reasonably probable skin contact.

Respiratory protection:  In case of inadequate ventilation use suitable respirator. High-efficiency particulate respirator with full facepiece.

Hygiene measures:  Provide eyewash station and safety shower. Observe good industrial hygiene practices. Wash hands before breaks and immediately after handling the product. Wash contaminated clothing before reuse. Avoid contact with eyes, skin, and clothing.

9. Physical and chemical properties

Appearance

Physical state:  Solid
Form:  Solid
Color:  White
Odor:  Odorless
Odor threshold: No data available.

pH: 13.5 0.1 N Aqueous solution

Melting point/freezing point: 360 °C

Initial boiling point and boiling range: 1,320 °C

Flash Point: No data available.

Evaporation rate: No data available.

Flammability (solid, gas): No data available.

Upper/lower limit on flammability or explosive limits
  Flammability limit - upper (%): No data available.
  Flammability limit - lower (%): No data available.
  Explosive limit - upper (%): No data available.
  Explosive limit - lower (%): No data available.

Vapor pressure: 0.1 kPa (714 °C)

Vapor density: No data available.

Relative density: 2.04 (20 °C)

Solubility(ies)
  Solubility in water: Soluble
  Solubility (other): No data available.

Partition coefficient (n-octanol/water): No data available.

Auto-ignition temperature: No data available.

Decomposition temperature: No data available.

Viscosity: No data available.

Other information
  Molecular weight: 56.11 g/mol

10. Stability and reactivity

Reactivity: Reacts violently with strong acids.

Chemical stability: Material is stable under normal conditions.

Possibility of hazardous reactions: Hazardous polymerization does not occur. The substance is hygroscopic and will absorb water by contact with the moisture in the air.


Hazardous decomposition products: Oxides of potassium.

11. Toxicological information

Information on likely routes of exposure
  Ingestion: May cause burns of the gastrointestinal tract if swallowed.
  Inhalation: Causes severe burns.
  Skin contact: Causes severe skin burns.
  Eye contact: Causes serious eye damage.
Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral
Product: ATEmix (Rat): 303.3 mg/kg

Dermal
Product: No data available.

Inhalation
Product: No data available.

Repeated dose toxicity
Product: No data available.

Skin corrosion/irritation
Product: Causes severe skin burns.

Serious eye damage/eye irritation
Product: Causes serious eye damage.

Respiratory or skin sensitization
Product: Not a skin nor a respiratory sensitizer.

Carcinogenicity
Product: This substance has no evidence of carcinogenic properties.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:
No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:
No carcinogenic components identified

No carcinogenic components identified

Germ cell mutagenicity

In vitro
Product: No mutagenic components identified

In vivo
Product: No mutagenic components identified

Reproductive toxicity
Product: No components toxic to reproduction

Specific target organ toxicity - single exposure
Product: Respiratory tract irritation.

Specific target organ toxicity - repeated exposure
Product: None known.

Aspiration hazard
Product: Not classified

Other effects: None known.
12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish
Product: No data available.

Specified substance(s):
POTASSIUM HYDROXIDE
LC 50 (Western mosquitofish (Gambusia affinis), 96 h): 80 mg/l Mortality

Aquatic invertebrates
Product: No data available.

Chronic hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic invertebrates
Product: No data available.

Toxicity to Aquatic Plants
Product: No data available.

Persistence and degradability

Biodegradation
Product: Expected to be readily biodegradable.

BOD/COD ratio
Product: No data available.

Bioaccumulative potential

Bioconcentration factor (BCF)
Product: No data available on bioaccumulation.

Partition coefficient n-octanol / water (log Kow)
Product: No data available.

Mobility in soil:
The product is water soluble and may spread in water systems.

Other adverse effects:
Harmful to aquatic organisms. The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

13. Disposal considerations

Disposal instructions:
Discharge, treatment, or disposal may be subject to national, state, or local laws.

Contaminated packaging:
Since emptied containers retain product residue, follow label warnings even after container is emptied.
14. Transport information

DOT

<table>
<thead>
<tr>
<th>UN number:</th>
<th>UN 1813</th>
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<tr>
<td>UN proper shipping name:</td>
<td>Potassium hydroxide, solid</td>
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<tr>
<td>Transport hazard class(es):</td>
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<td>Label(s):</td>
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<td>Packing group:</td>
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<tr>
<td>Marine Pollutant:</td>
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IMDG

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<td>EmS No.:</td>
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IATA

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15. Regulatory information

US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):
POTASSIUM HYDROXIDE Reportable quantity: 1000 lbs.

Superfund amendments and reauthorization act of 1986 (SARA)

- Hazard categories
  - X Acute (Immediate)
  - X Chronic (Delayed)
  - ☐ Fire
  - ☐ Reactive
  - ☐ Pressure Generating

- SARA 302 Extremely hazardous substance
  None present or none present in regulated quantities.

- SARA 304 Emergency release notification

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<td>POTASSIUM HYDROXIDE</td>
<td>1000 lbs.</td>
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</table>
SARA 311/312 Hazardous chemical

Chemical identity  Threshold Planning Quantity
POTASSIUM HYDROXIDE  500 lbs

SARA 313 (TRI reporting)
None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)
POTASSIUM HYDROXIDE  Reportable quantity: 1000 lbs.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):
None present or none present in regulated quantities.

US state regulations

US. California Proposition 65
No ingredient regulated by CA Prop 65 present.

US. New Jersey Worker and Community Right-to-Know Act
POTASSIUM HYDROXIDE  Listed

US. Massachusetts RTK - Substance List
POTASSIUM HYDROXIDE  Listed

US. Pennsylvania RTK - Hazardous Substances
POTASSIUM HYDROXIDE  Listed

US. Rhode Island RTK
POTASSIUM HYDROXIDE  Listed

Inventory Status:

Australia AICS: On or in compliance with the inventory
Canada DSL Inventory List: On or in compliance with the inventory
EINECS, ELINCS or NLP: On or in compliance with the inventory
Japan (ENCS) List: On or in compliance with the inventory
China Inv. Existing Chemical Substances: Not in compliance with the inventory.
Korea Existing Chemicals Inv. (KECI):
  On or in compliance with the inventory
Canada NDSL Inventory:
  Not in compliance with the inventory.
Philippines PICCS:
  On or in compliance with the inventory
US TSCA Inventory:
  On or in compliance with the inventory
New Zealand Inventory of Chemicals:
  On or in compliance with the inventory
Japan ISHL Listing:
  Not in compliance with the inventory.
Japan Pharmacopoeia Listing:
  Not in compliance with the inventory.

16. Other information, including date of preparation or last revision

NFPA Hazard ID

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe
COR: Corrosive
Issue date: 07-25-2014
Revision date: No data available.
Version #: 1.0
Further information: No data available.

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