Material Safety Data Sheet

Section 1. Product and Company Identification

Product Name: Potassium Hydroxide 20%
Manufacturer: EMD Chemicals Inc.
P.O. Box 70
480 Democrat Road
Gibbstown, NJ 08027
Prior to January 1, 2003 EMD Chemicals Inc. was EM Industries, Inc. or EM Science, Division of EM Industries, Inc.

Product Code: VW3808
Effective Date: 3/4/2003
Print Date: 5/3/2004

For More Information Call
856-423-6300 Technical Service
Monday-Friday: 8:00 AM - 5:00 PM

In Case of Emergency Call
800-424-9300 CHEMTREC (USA)
613-996-6666 CANUTEC (Canada)
24 Hours/Day: 7 Days/Week

Synonym: None.
Material Uses: Laboratory Reagent

Chemical Family: Alkali Solution

Section 2. Composition and Information on Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Hydroxide</td>
<td>1310-58-3</td>
<td>20</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>80</td>
</tr>
</tbody>
</table>

Section 3. Hazards Identification

Physical State and Appearance: Liquid.

Emergency Overview:
DANGER!
MAY BE FATAL IF SWALLOWED.
CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS.
HARMFUL IF ABSORBED THROUGH SKIN.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:
LUNGS, RESPIRATORY TRACT, SKIN, EYE, LENS OR CORNEA.

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Potential Acute Health Effects

**Eyes**: Hazardous in case of eye contact (corrosive). Causes eye burns.

**Skin**: Hazardous in case of skin contact (permeator, corrosive). Skin contact produces burns.

**Inhalation**: Hazardous in case of inhalation (lung corrosive).

**Ingestion**: Extremely hazardous in case of ingestion. May be fatal if swallowed.

Potential Chronic Health Effects

**Carcinogenic Effects**: This material is not known to cause cancer in animals or humans.

Additional information: See Toxicological Information (section 11)

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Potassium Hydroxide 20%  

Medical Conditions Aggravated by Overexposure: Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4. First Aid Measures

Eye Contact Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Inhalation If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Section 5. Fire Fighting Measures

Flammability of the Product Non-flammable.

Auto-ignition Temperature Not applicable.

Flash Points Not applicable.

Flammable Limits Not applicable.

Products of Combustion Not applicable.

Fire Hazards in Presence of Various Substances Not applicable.

Explosion Hazards in Presence of Various Substances Risks of explosion of the product in presence of static discharge: No.

Risks of explosion of the product in presence of mechanical impact: No.

Fire Fighting Media and Instructions Not applicable.

Protective Clothing (Fire) Be sure to use a MSHA/NIOSH approved respirator or equivalent.

Special Remarks on Fire Hazards When heated to decomposition it emits toxic fumes.

Special Remarks on Explosion Hazards Not available.

Section 6. Accidental Release Measures

Small Spill and Leak Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid.

Large Spill and Leak Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of acetic acid. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

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Section 7. Handling and Storage

Handling
Avoid contact with eyes, skin and clothing. Do not ingest. Do not breathe vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

Storage
Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8. Exposure Controls/Personal Protection

Engineering Controls
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection

<table>
<thead>
<tr>
<th>Eyes</th>
<th>Face shield.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body</td>
<td>Full suit.</td>
</tr>
<tr>
<td>Respiratory</td>
<td>Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.</td>
</tr>
<tr>
<td>Hands</td>
<td>Gloves.</td>
</tr>
<tr>
<td>Feet</td>
<td>Boots.</td>
</tr>
</tbody>
</table>

Protective Clothing (Pictograms)

Personal Protection in Case of a Large Spill
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Product Name
Potassium Hydroxide

Exposure Limits

- **AUVA (Austria, 1995).**
  - MAK: 2 mg/m³
- **NOHSC (Australia, 1995).**
  - AMP: 2 mg/m³ Period: 15 minute(s).
- **Lijst Grenswaarden (Belgium, 1998).**
  - CEIL: 2 mg/m³
- **SUVA (Switzerland, 1997).**
  - MAK: 2 mg/m³
- **Ministry of Health (CL, 1992).**
  - CEIL: 2 mg/m³
  - TWA: 1.6 mg/m³
- **Arbejdstilsynet (Denmark, 1996).**
  - Loftvaerd: 2 mg/m³
- **INRS (France, 1999).**
  - VLE: 2 mg/m³
- **EH40-OES (United Kingdom (UK), 2000).**
  - STEL: 2 mg/m³
- **NAOSH (Ireland, 1999).**
  - STEL: 2 mg/m³
- **JISOH (Japan, 1996).**
  - CEIL: 2 mg/m³
- **Ministry of Labour (KR, 1997).**
  - CEIL: 2 mg/m³
- **Nationale MAC-lijs (Netherlands, 2000).**
  - MAC-C: 2 mg/m³
- **Arbeidstilsynet (Norway, 1996).**
  - Takverdi: 2 mg/m³

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Section 9. Physical and Chemical Properties

Odor Odorless.

Color Clear. Colorless.

Physical State and Appearance Liquid.

Molecular Weight Not applicable.

Molecular Formula Not applicable.

pH Basic.

Boiling/Condensation Point The lowest known value is 99.9°C (211.8°F) (Water).

Melting/Freezing Point May start to solidify at -0.1°C (31.8°F) based on data for Water.

Specific Gravity The only known value is 2.05 (Water = 1) (Potassium Hydroxide).

Vapor Pressure Not available.

Vapor Density Not available.

Odor Threshold Not available.

Evaporation Rate 0.36 (Water) compared to (n-BUTYL ACETATE=1)

LogKow Not available.

Solubility Soluble in water.

Section 10. Stability and Reactivity

Stability and Reactivity The product is stable.

Conditions of Instability Not available.

Incompatibility with Various Substances Highly reactive with oxidizing agents, reducing agents, organic materials, metals, acids.

Rem/Incompatibility Incompatible with potassium, acetic anhydride, carbonates and hydroxides. Incompatible with magnesium, zinc, sodium, potassium and aluminum.

Hazardous Decomposition Products H2

Hazardous Polymerization Will not occur.

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Section 11. Toxicological Information

**RTECS Number:**
- Potassium Hydroxide: TT2100000
- Water: ZC0110000

**Toxicity**
Acute oral toxicity (LD₅₀): 1365 mg/kg (Rat) (Calculated value for the mixture).

**Chronic Effects on Humans**
Not available.

**Acute Effects on Humans**

**Synergistic Products (Toxicologically)**
Not available.

**Irritancy**
Draize Test: Not available.

**Sensitization**
Slightly hazardous in case of inhalation (lung sensitizer).

**Carcinogenic Effects**
This material is not known to cause cancer in animals or humans.

**Toxicity to Reproductive System**
Not available.

**Teratogenic Effects**
Not available.

**Mutagenic Effects**
Not available.

Section 12. Ecological Information

**Ecotoxicity**
Not available.

**BOD₅ and COD**
Not available.

**Toxicity of the Products of Biodegradation**
The products of degradation are less toxic than the product itself.

Section 13. Disposal Considerations

**EPA Waste Number**
D002

**Treatment**
Specified technology- Neutralize to pH 6-9. Contact your local permitted waste disposal site (TSD) for permissible treatments sites. ALWAYS CONTACT PERMITTED WASTE DISPOSER (TSD) TO ASSURE COMPLIANCE WITH ALL CURRENT LOCAL, STATE AND FEDERAL REGULATIONS.

Section 14. Transport Information

**DOT Classification**
Proper Shipping Name: POTASSIUM HYDROXIDE, SOLUTION
Hazard Class: 8
UN number: UN1814
Packing Group: II
RQ: 1000 lbs. (453.6 kg)

**TDG Classification**
Not available.

**IMO/IMDG Classification**
Not available.

**ICAO/IATA Classification**
Not available.
Section 15. Regulatory Information

U.S. Federal Regulations
- TSCA 8(b) inventory: Potassium Hydroxide; Water
- SARA 302/304/311/312 extremely hazardous substances: No products were found.
- SARA 302/304 emergency planning and notification: No products were found.
- SARA 302/304/311/312 hazardous chemicals: Potassium Hydroxide
- SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Potassium Hydroxide: Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard
- SARA 313 toxic chemical notification and release reporting: No products were found.
- Clean Water Act (CWA) 307: No products were found.
- Clean Water Act (CWA) 311: Potassium Hydroxide
- Clean air act (CAA) 112 accidental release prevention: No products were found.
- Clean air act (CAA) 112 regulated flammable substances: No products were found.
- Clean air act (CAA) 112 regulated toxic substances: No products were found.

WHMIS (Canada)
- Class D-1B: Material causing immediate and serious toxic effects (TOXIC).
- CLASS E: Corrosive liquid.

CEPA DSL: Potassium Hydroxide; Water
This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations and the MSDS contains all required information.

International Regulations

EINECS
- Potassium Hydroxide: 215-181-3
- Water: 231-791-2

DSCL (EEC) R35- Causes severe burns.

International Lists
- Australia (NICNAS): Potassium Hydroxide; Water
- Germany water class: Potassium Hydroxide
- Japan (MITI): Potassium Hydroxide; Water
- Korea (TCCL): Potassium Hydroxide; Water
- Philippines (RA6969): Potassium Hydroxide; Water
- China: No products were found.

State Regulations
- Pennsylvania RTK: Potassium Hydroxide: (environmental hazard, generic environmental hazard)
- Massachusetts RTK: Potassium Hydroxide
- New Jersey: Potassium Hydroxide 20%
- California prop. 65: No products were found.

Section 16. Other Information

National Fire Protection Association (U.S.A.)

Changed Since Last Revision +

Notice to Reader
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The statements contained herein are based upon technical data that EMD Chemicals Inc. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD CHEMICALS INC. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.