Section 1 - Chemical Product and Company Identification

MSDS Name: Methylene Blue, Loeffler
Catalog Numbers: LC16960
Synonyms: None
Company Identification: LabChem Inc
200 William Pitt Way
Pittsburgh, PA 15238
Company Phone Number: (412) 826-5230
Emergency Phone Number: (800) 424-9300
CHEMTREC Phone Number: (800) 424-9300 or 011-703-527-3887

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1310-58-3</td>
<td>Potassium hydroxide</td>
<td>&lt;1</td>
</tr>
<tr>
<td>64-17-5</td>
<td>Ethanol</td>
<td>21</td>
</tr>
<tr>
<td>67-56-1</td>
<td>Methanol</td>
<td>1.1</td>
</tr>
<tr>
<td>67-63-0</td>
<td>Isopropanol</td>
<td>1.1</td>
</tr>
<tr>
<td>61-73-4</td>
<td>Methylene blue</td>
<td>0.39</td>
</tr>
<tr>
<td>7732-18-5</td>
<td>Water</td>
<td>&gt;75</td>
</tr>
</tbody>
</table>

Section 3 - Hazards Identification

Emergency Overview

Appearance: dark blue solution
Danger! Flammable liquid. May be fatal or cause blindness if swallowed. Causes severe eye irritation. May cause skin, respiratory and gastrointestinal irritation. May cause central nervous system depression. May cause liver and kidney damage. May cause reproductive and fetal effects.
Target Organs: kidneys, central nervous system, liver

Potential Health Effects
Eye:
Causes severe eye irritation. May cause visual disturbances.
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Skin:
May cause skin irritation.

Ingestion:
May cause irritation of the digestive tract with nausea and vomiting. May cause blindness if swallowed. May cause systemic toxicity with acidosis. May cause liver and kidney damage. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and stupor. Advanced stages may cause collapse, unconsciousness, coma, and possible death due to respiratory failure.

Inhalation:
Inhalation of high concentrations may cause central nervous system effects similar to those of ingestion.

Chronic:
Chronic inhalation and ingestion may cause effects similar to those of acute inhalation and ingestion. Prolonged or repeated skin contact may cause defatting and dermatitis. May cause permanent visual impairment, dermatitis, conjunctivitis, and sensory and motor impairment.

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Section 4 - First Aid Measures

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids until no evidence of chemical remains. Get medical aid at once.

Skin:
Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid at once.

Ingestion:
Do not induce vomiting. If vomiting occurs naturally, keep head below hips to prevent aspiration into lungs. Give conscious victim 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid at once.

Inhalation:
Move victim to fresh air immediately. If breathing is difficult, administer oxygen. Give artificial respiration if necessary. Get medical aid at once.

Notes to Physician:
Treat symptomatically and supportively.

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Section 5 - Fire Fighting Measures

General Information:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Containers may explode in the heat of a fire. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Extinguishing Media:
For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.

Autoignition Temperature:
Not available

Flash Point:
57°F (14°C)
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NFPA Rating:
Health- 3, Flammability- 1, Instability- 0

Explosion Limits:
Lower:  4.3   Upper:  19

Section 6 - Accidental Release Measures

General Information:
Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:
Remove all sources of ignition, and use spark-proof tools and equipment. Absorb spill with inert material such as sand, vermiculite, or diatomaceous earth, and transfer to a suitable container labeled for later disposal. Label reclaimed spill material as flammable.

Section 7 - Handling and Storage

Handling:
Wash thoroughly after handling. Do not ingest or inhale. Do not get in eyes, on skin, or on clothing. Use with adequate ventilation. Take precautionary measures against static discharges. Keep away from heat, sparks, and flame. Empty containers retain product residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage:
Store tightly capped in a cool, dry, well-ventilated area away from incompatible materials.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:
Facilities using or storing this material should be equipped with an eyewash and safety shower. Provide local exhaust or general dilution ventilation to keep airborne levels below the permissible exposure limits.

Exposure Limits:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide</td>
<td>2 mg/m³ Ceiling</td>
<td>2 mg/m³ TWA</td>
<td>None listed</td>
</tr>
<tr>
<td>Ethanol</td>
<td>1000 ppm TWA</td>
<td>1000 ppm TWA</td>
<td>1000 ppm TWA</td>
</tr>
<tr>
<td></td>
<td>1900 mg/m³ TWA</td>
<td>1900 mg/m³ TWA</td>
<td>1900 mg/m³ TWA</td>
</tr>
<tr>
<td></td>
<td>3300 ppm IDLH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methanol</td>
<td>200 ppm TWA</td>
<td>200 ppm TWA</td>
<td>200 ppm TWA</td>
</tr>
<tr>
<td></td>
<td>250 ppm STEL</td>
<td>260 mg/m³ TWA</td>
<td>260 mg/m³ TWA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6000 ppm IDLH</td>
<td></td>
</tr>
<tr>
<td>Isopropanol</td>
<td>200 ppm TWA</td>
<td>400 ppm TWA</td>
<td>400 ppm TWA</td>
</tr>
<tr>
<td></td>
<td>400 ppm STEL</td>
<td>980 mg/m³ TWA</td>
<td>980 mg/m³ TWA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2000 ppm IDLH</td>
<td></td>
</tr>
<tr>
<td>Methylene blue</td>
<td>None listed</td>
<td>None listed</td>
<td>None listed</td>
</tr>
</tbody>
</table>

OSHA Vacated PELs:
Ethanol: 1000 ppm TWA, 1900 mg/m³ TWA
Methanol: 200 ppm TWA, 260 mg/m³ TWA
Isopropanol: 400 ppm TWA, 980 mg/m³ TWA
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Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133. Do not wear contact lenses when working with chemicals.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134. Always use a NIOSH-approved respirator when necessary.

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Section 9 - Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Physical State:</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color:</td>
<td>Dark blue</td>
</tr>
<tr>
<td>Odor:</td>
<td>Alcohol-like</td>
</tr>
<tr>
<td>pH:</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor Pressure:</td>
<td>40 mm Hg @ 20°C</td>
</tr>
<tr>
<td>Vapor Density:</td>
<td>1.6</td>
</tr>
<tr>
<td>Evaporation Rate:</td>
<td>Not available</td>
</tr>
<tr>
<td>Viscosity:</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>78°C (172°F)</td>
</tr>
<tr>
<td>Freezing/Melting Point:</td>
<td>-113°C (-172°F)</td>
</tr>
<tr>
<td>Decomposition Temperature:</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility in water:</td>
<td>Soluble</td>
</tr>
<tr>
<td>Specific Gravity/Density:</td>
<td>0.8</td>
</tr>
<tr>
<td>Molecular Formula:</td>
<td>Not available</td>
</tr>
<tr>
<td>Molecular Weight:</td>
<td>Not available</td>
</tr>
</tbody>
</table>

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Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials, excess heat.

Incompatibilities with Other Materials: Hydrogen peroxide, chloroform, strong acids, bromine, chromium trioxide, silver nitrate, strong oxidizing agents, alkali metals.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, formaldehyde

Hazardous Polymerization: Has not been reported.

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Section 11 - Toxicological Information
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RTECS:
CAS# 1310-58-3: TT2100000
CAS# 64-17-5: KQ6300000
CAS# 67-56-1: PC1400000
CAS# 67-63-0: NT8050000
CAS# 61-73-4: SOS600000
CAS# 7732-18-5: ZC0110000

LD50/LC50:
CAS# 1310-58-3:
  Oral, rat: LD50 = 273 mg/kg
CAS# 64-17-5:
  Inhalation, rat: LC50 = 20000 ppm/10H
  Oral, rat: LD50 = 7060 mg/kg
CAS# 67-56-1:
  Inhalation, rat: LC50 = 64000 ppm/4H
  Oral, rat: LD50 = 5628 mg/kg
  Dermal, rabbit: LD50 = 15800 mg/kg
CAS# 67-63-0:
  Oral, mouse: LD50 = 3600 mg/kg
  Oral, rat: LD50 = 5045 mg/kg
CAS# 61-73-4:
  Not available
CAS# 7732-18-5:
  Oral, rat: LD50 = >90 mL/kg

Carcinogenicity:
None of the chemicals in this product are listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or California Proposition 65.

Epidemiology:
Central nervous system depressant.

Teratogenicity:
Prenatal exposure to ethanol is associated with a distinct pattern of congenital malformations that have collectively been termed the “fetal alcohol syndrome”.

Reproductive:
Not available

Mutagenicity:
Not available

Neurotoxicity:
Not available

Section 12 - Ecological Information
No information found.

Section 13 - Disposal Considerations
Dispose of in accordance with Federal, State, and local regulations.
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Section 14 - Transport Information

US DOT
Shipping Name: Not regulated
Hazard Class: UN Number:
Packing Group:

Section 15 - Regulatory Information

US Federal
TSCA:
All chemicals in this product are listed on the TSCA Inventory.
SARA Reportable Quantities (RQ):
CAS# 1310-58-3: final RQ = 1000 lb. (454 kg)
CAS# 67-56-1: final RQ = 5000 lb. (2270 kg)
CERCLA/SARA Section 313:
This material contains methanol (CAS# 67-56-1, 1.1%), and isopropanol (CAS# 67-63-0, 1.1%), which are subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

OSHA - Highly Hazardous:
None of the components of this product are listed.

US State
State Right to Know:
CAS# 1310-58-3, 64-17-5, 67-56-1, and 67-63-0 are listed on the following state Right-to-Know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, and Massachusetts.

California Regulations:
WARNING: This product contains Ethyl alcohol, a chemical known to the state of California to cause birth defects or other reproductive harm.

European/International Regulations
Canadian DSL/NDSL:
All of the components of this product are listed.
Canada Ingredient Disclosure List:
CAS# 1310-58-3 is listed on Canada's Ingredient Disclosure List.
CAS# 64-17-5 is listed on Canada's Ingredient Disclosure List.
CAS# 67-56-1 is listed on Canada's Ingredient Disclosure List.
CAS# 67-63-0 is listed on Canada's Ingredient Disclosure List.
CAS# 61-73-4 is listed on Canada's Ingredient Disclosure List.
CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.

Section 16 - Other Information

MSDS Creation Date: October 1, 1998
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Revision Date: December 12, 2011

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