1. Product Identification

**Synonyms:** (Beta-hydroxyethyl) trimethylammonium hydroxide in solution; Choline solution; Trimethyl(2-hydroxyethyl)ammonium hydroxide

**CAS No.:** Not applicable to mixtures.

**Molecular Weight:** Not applicable to mixtures.

**Chemical Formula:** Not applicable to mixtures.

**Product Codes:** 8006

2. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No</th>
<th>Percent</th>
<th>Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline</td>
<td>62-49-7</td>
<td>0.4 - 0.6</td>
<td>Yes</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>&gt; 98.5%</td>
<td>No</td>
</tr>
</tbody>
</table>

3. Hazards Identification

**Emergency Overview**

**CAUTION! MAY CAUSE IRRITATION TO SKIN AND EYES.**

**Potential Health Effects**

**Inhalation:**
No adverse health effects expected from inhalation.

**Ingestion:**
Large oral doses may cause irritation to the gastrointestinal tract.

**Skin Contact:**
May cause irritation with redness and pain.

**Eye Contact:**
Effects are expected to be less severe than exposure to higher concentrations where symptoms may include eye irritation, redness and pain.

**Chronic Exposure:**
No information found.
Aggravation of Pre-existing Conditions:
No information found.

4. First Aid Measures

**Inhalation:**
Remove to fresh air. Get medical attention for any breathing difficulty.

**Ingestion:**
If swallowed, give several glasses of water to drink to dilute. If large amounts were swallowed or symptoms occur, get medical advice. Never give anything by mouth to an unconscious person.

**Skin Contact:**
Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

**Eye Contact:**
Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

5. Fire Fighting Measures

**Fire:**
Not considered to be a fire hazard. High dilution of methanol component reduces the likelihood of fire hazards.

**Explosion:**
Not considered to be an explosion hazard.

**Fire Extinguishing Media:**
Use any means suitable for extinguishing surrounding fire.

**Special Information:**
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Contain and recover liquid when possible. Collect liquid in an appropriate container or absorb with an inert material (e.g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer!
7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
None established.

Ventilation System:
In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Personal Respirators (NIOSH Approved):
For conditions of use where exposure to the substance is apparent, consult an industrial hygienist. For emergencies, or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:
Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:
Colorless to yellowish liquid.

Odor:
Weakly amine.

Solubility:
Soluble in water.

Specific Gravity:
ca. 1.0

pH:
12

% Volatiles by volume @ 21C (70F):
No information found.

Boiling Point:
ca. 100C (ca. 212F)

Melting Point:
10. Stability and Reactivity

**Stability:**
Stable under ordinary conditions of use and storage.

**Hazardous Decomposition Products:**
Thermal decomposition may produce oxides of carbon and nitrogen, and trimethylamine.

**Hazardous Polymerization:**
Will not occur.

**Incompatibilities:**
Acids and strong oxidizing agents.

**Conditions to Avoid:**
Incompatibles.

11. Toxicological Information

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>NTP Carcinogen - Known</th>
<th>Anticipated</th>
<th>IARC Category</th>
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<tbody>
<tr>
<td>Choline (62-49-7)</td>
<td>No</td>
<td>No</td>
<td>None</td>
</tr>
<tr>
<td>Water (7732-18-5)</td>
<td>No</td>
<td>No</td>
<td>None</td>
</tr>
</tbody>
</table>

12. Ecological Information

**Environmental Fate:**
No information found.

**Environmental Toxicity:**
No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal.
disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

--- Chemical Inventory Status - Part 1 ---

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>TSCA</th>
<th>EC</th>
<th>Japan</th>
<th>Australia</th>
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</thead>
<tbody>
<tr>
<td>Choline (62-49-7)</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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</table>

--- Chemical Inventory Status - Part 2 ---

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Korea</th>
<th>DSL</th>
<th>NDSL</th>
<th>Phil.</th>
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<tbody>
<tr>
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<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Water (7732-18-5)</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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</table>

--- Federal, State & International Regulations - Part 1 ---

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>SARA 302</th>
<th>TPQ</th>
<th>List</th>
<th>Chemical Catg.</th>
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</thead>
<tbody>
<tr>
<td>Choline (62-49-7)</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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</table>

--- Federal, State & International Regulations - Part 2 ---

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CERCLA</th>
<th>RCRA 261.33</th>
<th>TSCA 8(d)</th>
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</thead>
<tbody>
<tr>
<td>Choline (62-49-7)</td>
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<td>Water (7732-18-5)</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Chemical Weapons Convention: No  TSCA 12(b): No  CDTA: No  SARA 311/312: Acute: Yes  Chronic: No  Fire: No  Pressure: No  Reactivity: No  (Mixture / Liquid)

Australian Hazchem Code: None allocated.
Poison Schedule: None allocated.
WHMIS: This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.
16. Other Information

NFPA Ratings: Health: 1 Flammability: 0 Reactivity: 0

Label Hazard Warning: CAUTION! MAY CAUSE IRRITATION TO SKIN AND EYES.

Label Precautions: Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Keep container closed.

Label First Aid: In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

Product Use: Laboratory Reagent.

Revision Information: No changes.

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