Section 1. Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product Code: 10009200
Product Name: TBA Acetic Acid

1.2 Relevant identified uses of the substance or mixture and uses advised against:
Relevant identified uses: For research use only, not for human or veterinary use.

1.3 Details of the Supplier of the Safety Data Sheet:
Company Name: Cayman Chemical Company
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108
Web site address: www.caymanchem.com
Information: Cayman Chemical Company  +1 (734)971-3335

1.4 Emergency telephone number:
Emergency Contact: CHEMTREC Within USA and Canada: +1 (800)424-9300
CHEMTREC Outside USA and Canada: +1 (703)527-3887

Section 2. Hazards Identification

2.1 Classification of the Substance or Mixture:
2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]:
- Flammable Liquids, Category 3
- Skin Corrosion/Irritation, Category 1A

2.1.2 Classification according to Directive 1999/45/EC:
- C: Corrosive
Risk Phrases: R10, R35
For full text of R-phrases: see SECTION 15.

2.2 Label Elements:
2.2.1 Labeling according to Regulation (EC) No 1272/2008 [CLP]:

GHS Signal Word: Danger

GHS Hazard Phrases:
H226: Flammable liquid and vapor.
H314: Causes severe skin burns and eye damage.

GHS Precaution Phrases:
P210: Keep away from {heat/sparks/open flames/hot surfaces}. - No smoking.
P280: Wear {protective gloves/protective clothing/eye protection/face protection}.
P260: Do not breathe {dust/fume/gas/mist/vapours/spray}.
P264: Wash {hands} thoroughly after handling.

GHS Response Phrases:
P303+361+353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
P363: Wash contaminated clothing before reuse.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P301+330+331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310: Immediately call a {POISON CENTER/doctor/...}.

GHS Storage and Disposal Phrases:
Please refer to Section 7 for Storage and Section 13 for Disposal information.

2.2.2 Labeling according to Directive 1999/45/EC:

2.3 Adverse Human Health: Causes severe skin burns and eye damage.

**Effects and Symptoms:** Harmful by inhalation.

- Lachrymator.
- Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract, eyes, and skin.
- May be fatal if swallowed.
- May cause respiratory system irritation.

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

### Section 3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>CAS # / RTECS #</th>
<th>Hazardous Components (Chemical Name)/REACH Registration No.</th>
<th>Concentration</th>
<th>EC No./EC Index No.</th>
<th>Risk Phrases/GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-19-7 AF1225000</td>
<td>Acetic acid 100.0 %</td>
<td></td>
<td>200-580-7 607-002-00-6</td>
<td>C; Xi; R10-35 Flam. Liq. 3: H226 Skin Corr. 1A: H314</td>
</tr>
</tbody>
</table>

### Section 4. First Aid Measures

4.1 **Description of First Aid**

**Measures:**

- **In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
- **In Case of Skin Contact:** Immediately wash skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.
- **In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel.
- **In Case of Ingestion:** Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

4.2 **Important Symptoms and Effects, Both Acute and Delayed:**

- Exposure can cause: burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.
- Exposure may cause black skin.
- Exposure may cause sensitization.
- Eye contact may result in severe eye damage and loss of sight.
- Ingestion may cause: Sore throat, vomiting, and diarrhea.
- Inhalation may result in spasm, inflammation, and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema.
- May cause perforation of the esophagus.
- Repeated or prolonged exposure may cause chronic inflammation of the nose, throat, and bronchial tubes.
- Repeated or prolonged exposure may cause erosion of exposed front teeth.
- Skin contact may result in redness, pain and burns.
Section 5. Fire Fighting Measures

5.1 Suitable Extinguishing Media: Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. Use water spray to cool fire-exposed containers.

Unsuitable Extinguishing Media: A solid water stream may be inefficient.

5.2 Flammable Properties and Hazards: Can release vapors that form explosive mixtures at temperatures at or above the flash point.

- Container explosion may occur under fire conditions.
- Emits toxic and corrosive fumes under fire conditions.
- Sensitive to static discharge.
- Vapors can travel to source of ignition and flash back.

Flash Pt: 40.00 C
Explosive Limits:
  - LEL: 4.0%
  - UEL: 16.0%
Autoignition Pt: 427.00 C

5.3 Fire Fighting Instructions: As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

Section 6. Accidental Release Measures

6.1 Protective Precautions, Protective Equipment and Emergency Procedures: Avoid breathing vapors and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).

6.2 Environmental Precautions: Take steps to avoid release into the environment, if safe to do so.

6.3 Methods and Material For Containment and Cleaning Up: Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

Section 7. Handling and Storage

7.1 Precautions To Be Taken in Handling: Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid prolonged or repeated exposure. Keep away from sources of ignition. Prevent the build up of electrostatic charge.

7.2 Precautions To Be Taken in Storing: Keep away from heat, sparks and flame. Keep container tightly closed. Store in accordance with information listed on the product insert.

Other Precautions: Moisture sensitive.

Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Partial Chemical Name</th>
<th>Britain EH40</th>
<th>France VL</th>
<th>Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-19-7</td>
<td>Acetic acid</td>
<td>No data.</td>
<td>STEL: 25 mg/m³ (10 ppm)</td>
<td>TWA: 25 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Partial Chemical Name</th>
<th>OSHA TWA</th>
<th>ACGIH TWA</th>
<th>Other Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-19-7</td>
<td>Acetic acid</td>
<td>PEL: 10 ppm</td>
<td>TLV: 10 ppm</td>
<td>STEL: 15 ppm</td>
</tr>
</tbody>
</table>
8.2 Exposure Controls:

8.2.1 Engineering Controls Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

8.2.2 Personal protection equipment:
- Eye Protection: Safety glasses
- Protective Gloves: Compatible chemical-resistant gloves
- Other Protective Clothing: Lab coat
- Respiratory Equipment: NIOSH approved respirator, as conditions warrant.
- Work/Hygiene/Maintenance Practices: Do not take internally.

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Wash thoroughly after handling.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties
- Physical States: [ ] Gas [X] Liquid [ ] Solid
- Appearance and Odor: Solution
- pH: 2.4
- Melting Point: 16.60 °C
- Boiling Point: 118.00 °C
- Flash Pt: 40.00 °C Method Used: Closed Cup
- Evaporation Rate: No data.
- Explosive Limits: LEL: 4.0% UEL: 16.0%
- Vapor Pressure (vs. Air or mm Hg): 11 MM_HG at 20.0 °C
- Vapor Density (vs. Air = 1): 2.1
- Specific Gravity (Water = 1): 1.05
- Solubility in Water: No data.
- Autoignition Pt: 427.00 °C

9.2 Other Information
- Percent Volatile: No data.

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.
10.2 Stability: Unstable [ ] Stable [X]
10.3 Stability Note(s): Stable if stored in accordance with information listed on the product insert.
- Polymerization: Will occur [ ] Will not occur [X]
10.4 Conditions To Avoid: heat, flames and sparks freezing
10.5 Incompatibility - Materials To Avoid: acids
- alcohols
- amines
- carbonates
- ethylene glycol
- hydroxides
- metals
- oxides
- oxidizing agents
perchloric acid
permanganates
peroxides
phosphates
phosphorous trichloride
sodium peroxide
strong caustics

10.6 Hazardous
Decomposition Or Byproducts:
carbon dioxide
carbon monoxide
reacts with metals to form hydrogen chloride gas

Section 11. Toxicological Information

11.1 Information on Toxicological Effects:
The toxicological effects of this product have not been thoroughly studied.
Acetic Acid - Toxicity Data:
Oral LD50 (rat): 3,310 mg/kg; Skin LD50 (rabbit): 1.06 mL/kg;
Inhalation LC50 (mouse): 5620 ppm (1h);
Acetic Acid - Irritation Data:
Skin (human): 50 mg (24H) mild; Skin (rabbit): 525 mg severe;
Skin (rabbit): 50 mg (24H) mild; Eye (rabbit): 5 mg (30s) mild;

Chronic Toxicological Effects:
Acetic acid - Investigated as a mutagen, reproductive effector, and tumorigen.
Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information.
Acetic acid RTECS Number: AF1225000

Carcinogenicity:
NTP? No IARC Monographs? No OSHA Regulated? No

Section 12. Ecological Information

12.1 Toxicity:
Avoid release into the environment.
Runoff from fire control or dilution water may cause pollution.

Section 13. Disposal Considerations

13.1 Waste Disposal Method:
Dispose in accordance with local, state, and federal regulations.

Section 14. Transport Information

14.1 LAND TRANSPORT (US DOT):
DOT Proper Shipping Name: Acetic acid, glacial
DOT Hazard Class: 8 (3) CORROSIONVE, FLAMMABLE LIQUID
UN/NA Number: 2789 Packing Group: II

14.1 LAND TRANSPORT (European ADR/RID):
ADR/RID Shipping Name: Acetic acid, glacial
UN Number: 2789 Packing Group: II
Hazard Class: 8 (3) - CORROSIONVE, FLAMMABLE LIQUID

14.3 AIR TRANSPORT (ICAO/IATA):
ICAO/IATA Shipping Name: Acetic acid, glacial
UN Number: 2789 Packing Group: II
Hazard Class: 8 (3) - CORROSIONVE, FLAMMABLE LIQUID
IATA Classification: 8 (3)
Section 15. Regulatory Information

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>S. 302 (EHS)</th>
<th>S. 304 RQ</th>
<th>S. 313 (TRI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-19-7</td>
<td>Acetic acid</td>
<td>Yes 5000 LB</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>Other US EPA or State Lists</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-19-7</td>
<td>Acetic acid</td>
<td>CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No</td>
</tr>
</tbody>
</table>

European Community Hazard Symbol codes:

C

European Community Risk and Safety Phrases:

R10 Flammable.
R35 Causes severe burns.
S23 Do not breathe vapour.
S24/25 Avoid contact with skin and eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible.)

Regulatory Information

Statement: This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

Section 16. Other Information

Revision Date: 04/14/2014

Additional Information About This Product: No data available.

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