Section 1. Product and Company Identification
Supplier
CovaChem, LLC.
6260 East Riverside Blvd, STE 119
Loves Park, IL 61111
Phone: +1.815.315.1271 x3
Fax: +1.815.315.1272
Emergency Phone #:
+1.815.714.8421
Product Number
11303-1, 11303-5, 11303-25, 11303-custom
Product Name
TCEP, TCEP-HCl, Tris(2-carboxyethyl)phosphine hydrochloride

Section 2. Composition / Information on Ingredients
OSHA Hazards
Corrosive
Corrosive
HMIS Classification
Health Hazard 3
Flammability 0
Physical Hazard 0
NFPA Rating
Health Hazard 3
Flammability 0
Physical Hazard 0
Potential Health Effects
Inhalation May be harmful if inhaled. May cause respiratory irritation.
Skin May be harmful if absorbed through the skin.
Eyes May cause irritation to the eyes.
Ingestion May be harmful if ingested.

Section 3. Hazards Identification
Synonyms
TCEP, TCEP-HCl, Tris(2-carboxyethyl)phosphine hydrochloride
Molecular Weight
51805-45-9
Formula
C9ClH16O6P

Section 4. First Aid Measures
If Inhaled
Move to fresh air. Give artificial respiration if breathing has ceased.
In case of Skin Contact
Remove affected clothes immediately. Wash with soap and water.
In Case of Eye Contact
Flush with plenty of water. Seek medical attention promptly.
If Swallowed
Rinse mouth with water and seek medical attention promptly.

Section 5. Fire-Fighting Measures
Suitable Extinguishing Media
Water, dry chemical, alcohol resistant foam are all suitable.
Protective Equipment
If needed, wear self contained breathing apparatus.
Hazardous Combustion Products
Carbon oxides, Phosphorus oxides, and chlorine gas may form upon combustion

Section 6. Accidental Release Measures
Personal Precautions
Avoid breathing dust or vapors. Use in well ventilated area.
Environmental precautions
Prevent environmental release. Do not pour down drain.

Section 7. Handling and Storage
Conditions for Safe Storage
Store container in a well ventilated, dry location. Store at 4 °C.
Precautions regarding safe handling
Provide adequate ventilation and standard fire prevention measures.

Section 8. Exposure Controls / Personal Protection
Respiratory Protection
Use of an air purifying respirator is recommended, type N100 or type P3 (EN 143).
Hand Protection
Handle with nitrile rubber gloves.
Eye Protection
Use of a face shield and safety glasses.
Body and Skin Protection
Complete chemical protective suit is recommended. The personal protective equipment should be selected depending upon the concentration and amount of chemical at work station.
Hygiene
Wash hands and arms after use, prior to eating, and before breaks. Always use good industrial hygiene and safety practices.

Section 9. Physical and Chemical Properties
Form
white solid
Melting Point
175 - 179 °C
Boiling Point
unavailable
Flash Point
unavailable
Ignition Temperature
unavailable
Autoignition Temperature
unavailable
Density
unavailable
Water Solubility
unavailable
Partition Coeff: n-octanol/water
unavailable

Section 10. Stability and Reactivity
Chemical Stability
Stable under recommended storage conditions.
Possibility of hazardous reactions
unavailable
Conditions to Avoid
Do not expose to moisture
Materials to Avoid
Strong Oxidizers, Acid anhydrides, Acid chlorides, Strong bases
Hazardous decomposition products
Phosphorus oxides, chlorine gas, hydrogen chloride, and carbon oxides formed under fire conditions.
### Section 11. Toxicology

<table>
<thead>
<tr>
<th>Toxicology</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD₅₀</td>
<td>LD₅₀ Oral - rat - 3,500 mg/kg</td>
</tr>
<tr>
<td>Inhalation LC₅₀</td>
<td>data unavailable</td>
</tr>
<tr>
<td>Dermal LD₅₀</td>
<td>LD₅₀ Dermal - rat - 3,000 mg/kg</td>
</tr>
<tr>
<td>Skin corrosion / irritation</td>
<td>data unavailable</td>
</tr>
<tr>
<td>Eye Damage or Irrigation</td>
<td>data unavailable</td>
</tr>
<tr>
<td>Skin and Respiratory Sensitization</td>
<td>data unavailable</td>
</tr>
<tr>
<td>Germ Cell Mutagenicity</td>
<td>data unavailable</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>No component present at greater than 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC.</td>
</tr>
<tr>
<td>IARC</td>
<td>No component present at greater than 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC.</td>
</tr>
<tr>
<td>ACGIH</td>
<td>No component present at greater than 0.1% is identified as a probable, possible or confirmed human carcinogen by ACGIH.</td>
</tr>
<tr>
<td>NTP</td>
<td>No component present at greater than 0.1% is identified as a probable, possible or confirmed human carcinogen by NTP.</td>
</tr>
<tr>
<td>OSHA</td>
<td>No component present at greater than 0.1% is identified as a probable, possible or confirmed human carcinogen by OSHA.</td>
</tr>
<tr>
<td>Reproductive Toxicity</td>
<td>data unavailable</td>
</tr>
<tr>
<td>Teratogenicity</td>
<td>data unavailable</td>
</tr>
<tr>
<td>Aspiration Hazard</td>
<td>data unavailable</td>
</tr>
<tr>
<td>Potential Health Effects</td>
<td>May be harmful if inhaled. Material is damaging to mucous membranes and upper respiratory tract.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>May cause eye irritation and burns.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>May cause harm if swallowed.</td>
</tr>
<tr>
<td>Skin</td>
<td>May cause harm if absorbed through skin.</td>
</tr>
<tr>
<td>Eyes</td>
<td>May cause eye irritation and burns.</td>
</tr>
</tbody>
</table>

### Section 12. Ecological Information

<table>
<thead>
<tr>
<th>Toxicology</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
<td>data unavailable</td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
<td>data unavailable</td>
</tr>
<tr>
<td>Mobility in soil</td>
<td>data unavailable</td>
</tr>
<tr>
<td>PBT and vPvB assessment</td>
<td>data unavailable</td>
</tr>
<tr>
<td>Other Adverse effects</td>
<td>data unavailable</td>
</tr>
</tbody>
</table>

### Section 13. Disposal Consideration

Disposal Considerations: Generation of waste should be kept to a minimum when possible. Any waste generated should be recycled when possible. Please dispose any unused or used materials in accordance with applicable national, regional and local laws and regulations.

### Section 14. Transportation Information

**DOT (USA)**
- UN Number: 3261
- Packing Group: II
- Class: 8
- Shipping Name: Corrosive solid, acidic, organic, n.o.s. (Tris(2-carboxyethyl)phosphine hydrochloride)
- Poison Inhalation Hazard: No
- Marine Pollutant: No

**IMDG**
- UN Number: 3261
- Packing Group: II
- Class: 8
- Shipping Name: Corrosive solid, acidic, organic, n.o.s. (Tris(2-carboxyethyl)phosphine hydrochloride)
- Marine Pollutant: No

**IATA**
- UN Number: 3261
- Packing Group: II
- Class: 8
- Shipping Name: Corrosive solid, acidic, organic, n.o.s. [A1]

### Section 15. Regulatory Information

- OSHA Hazards
  - None known
- SARA 302 Components
  - No chemicals in this material are subject to reporting requirements of SARA Title III, Section 302.
- SARA 311/312
  - No SARA Hazards
- Californial Prop. 65 Components
  - This material does not contain any chemicals known to the State of California to cause reproductive harm or birth defects.
- Right to Know Components
  - Tris(2-carboxyethyl)phosphine hydrochloride (CAS# 51805-45-9)

### Section 16. Other Information

Other Information: The information represented in this MSDS is believed to be correct and is based on the current state of our knowledge. This document or any other document does not represent or suggest any type of warranty or guarantee of the product properties or characteristics of this material. CovaChem, LLC and its affiliates shall not be held liable for any damages that result from contact.