

# Safety Data Sheet

Revision Date: 4/1/2019

## Section 1: Chemical Identification

### 1.1 Chemical Identification

Product Name: TCEP - HCl  
 Alternative Name: Tris (2-Carboxyethyl)phosphine Hydrochloride  
 Catalog Number: TCEP

### 1.2 Relevant Uses and Uses Advised Against

Recommended use: A reducing agent suitable for protein applications. This product is not for use in humans. It is for research purposes only.

### 1.3 Supplier Contact Information

Distributed by: Gold Biotechnology, Inc.  
 1328 Ashby Rd.  
 St. Louis, MO 63132  
 Phone: (314) 890-8778  
 Fax: (314) 890-0503  
 Email: [contactgoldbio86@goldbio.com](mailto:contactgoldbio86@goldbio.com)

### 1.4 Emergency Contact Information

Emergency Phone: (800)248-7609 (Monday-Friday, 9:00 a.m. – 5:00 p.m. CST)

## Section 2: Hazardous Information

### 2.1 GHS Classification

Acute Toxicity, Dermal (Category 5)  
 Acute Toxicity, Oral (Category 5)  
 Skin Corrosion (Category 1B)  
 Serious Eye Damage (Category 1)

### 2.2 GHS Label Elements, Including Precautionary statements



**DANGER!**

### 2.3 Hazard Statements

H303: May be harmful if swallowed  
 H314: Causes severe skin burns and eye damage  
 H318: Causes serious eye damage

### 2.4 Precautionary Statements

Gold Biotechnology  
 St. Louis, MO  
 Ph: (314)890-8778  
 Web: [www.goldbio.com](http://www.goldbio.com)  
 Email: [contactgoldbio86@goldbio.com](mailto:contactgoldbio86@goldbio.com)

- P260: Do not breathe dust/fume/gas/mist/vapours/spray
- P264: Wash skin thoroughly after handling
- P280: Wear protective gloves/protective clothing/eye protection/face protection
- P301+330+331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
- P303+361+353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
- P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- P304+312: IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell
- P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
- P312: Call a POISON CENTER or doctor/physician if you feel unwell
- P363: Wash contaminated clothing before reuse
- P405: Store locked up
- P501: Dispose of contents/container to an approved waste disposal plant

### **2.8 HMIS Classification**

|                        |   |
|------------------------|---|
| Health Hazard:         | 3 |
| Chronic Health Hazard: | * |
| Flammability:          | 0 |
| Physical Hazards:      | 0 |

### **2.9 NFPA Rating**

|                    |   |
|--------------------|---|
| Health Hazard:     | 3 |
| Fire:              | 0 |
| Reactivity Hazard: | 0 |

## **Section 3: Composition/Information on Ingredients**

### **3.1 Composition**

|                    |   |
|--------------------|---|
| Identity:          | TCEP - HCl  |
| IUPAC:             | 3-[bis(2-carboxyethyl)phosphanyl]propanoic acid;hydrochloride |
| Synonyms:          | Tris (2-Carboxyethyl)phosphine Hydrochloride                  |
| CAS Number:        | 51805-45-9  |
| Molecular Formula: | C <sub>9</sub> H <sub>15</sub> O <sub>6</sub> P · HCl         |
| Molecular Weight:  | 286.65 g/mol  |

## **Section 4: First Aid Measures**

### **4.1 Detailed First Aid Measures**

|             |  |
|-------------|--|
| Inhalation: | If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.                      |
| Skin:       | Immediately wash skin copiously with soap and water. Take victim immediately to hospital. Consult a physician.                       |
| Eye:        | Immediately rinse out with water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Consult a |

physician.  
**Ingestion:** Wash out mouth with water. Drink plenty of water. Consult a physician. Never give anything by mouth to an unconscious person.  
**Notes to Physician:** Treat symptomatically and supportively.

#### **4.2 Most Important Symptoms And Effects, Either Acute Or Delayed**

The most important known symptoms and effects are described in the labeling (see section 2). And /or in section 11.

#### **4.3 Indication of immediate medical attention and special treatment needed**

Not available

## **Section 5: Fire Fighting Measures**

### **5.1 Conditions of flammability:**

Not flammable or combustible.

### **5.2 Suitable extinguishing media:**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### **5.3 Specific hazards arising from the chemical**

Hazardous decomposition products formed under fire conditions. - Carbon Oxides, Oxides of Phosphorus, Hydrogen Chloride Gas

### **5.4 Specific protective actions for fire-fighters:**

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

## **Section 6: Accidental Release Measures**

### **6.1 Personal precautions, protective equipment and emergency procedures:**

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

### **6.2 Environmental precautions:**

Do not let product enter drains.

### **6.3 Methods and materials for containment and cleaning up:**

Soak up with absorbent material, discard.

## **Section 7: Handling and Storage**

### **7.1 Precautions for safe handling:**

Always wear personal protective equipment (PPE, see section 8).

### **7.2 Conditions for safe storage, including and incompatibilities:**

Keep container tightly closed.

Store desiccated at -20°C.

## **Section 8: Exposure Controls / Personal Protection**

### **8.1 Control Parameters:**

Contains no substances with occupational exposure limit values.

### **8.2: Appropriate engineering controls:**

Contains no substances with occupational exposure limit values.

### **8.3 Personal Protective Equipment (PPE):**

**Eye/Face Protection:** Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin Protection:** Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique - without touching outer surface of glove - to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory Protection:** Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Other Protective Clothing or Equipment:** Wear appropriate protective clothing to prevent exposure.

## **Section 9: Physical and Chemical Properties**

### **9.1 General chemical and physical properties**

|                               |               |
|-------------------------------|---------------|
| <b>Appearance:</b>            | White Powder  |
| <b>Odor:</b>                  | Not Available |
| <b>Odor Threshold:</b>        | Not Available |
| <b>pH:</b>                    | Not Available |
| <b>Melting Point:</b>         | Not Available |
| <b>Freezing Point:</b>        | Not Available |
| <b>Boiling Point/Range:</b>   | Not Available |
| <b>Flash Point:</b>           | Not Available |
| <b>Evaporation Rate:</b>      | Not Available |
| <b>Lower Explosion Limit:</b> | Not Available |

**Upper Explosion Limit:** Not Available  
**Vapor Pressure:** Not Available  
**Vapor Density:** Not Available  
**Relative Density:** Not Available  
**Solubility:** Water Soluble  
**Partition Coefficient  
n-octanol/water:** Not Available  
**Auto-Ignition  
Temperature:** Not Available  
**Decomposition  
Temperature:** Not Available  
**Viscosity:** Not Available

## **Section 10: Stability and Reactivity Data**

### **10.1 Reactivity:**

Not available

### **10.2 Chemical Stability:**

Stable under recommended storage conditions.

### **10.3 Possibility of hazardous reactions:**

Not available.

### **10.4 Conditions to avoid:**

Incompatible materials.

### **10.5 Incompatible materials:**

Strong oxidizing agents.

### **10.6 Hazardous decomposition products:**

Hazardous decomposition products formed under fire conditions. - Carbon Oxides, Oxides of Phosphorus, Hydrogen Chloride Gas

## **Section 11: Toxicological Information**

### **11.1 Toxicological effects**

#### **Acute toxicity:**

TCEP - HCl Oral: LD<sub>50</sub> (Rat) = 3,500 mg/kg

TCEP - HCl Skin: LD<sub>50</sub> (Rat) = 3,000 mg/kg

TCEP - HCl Inhalation: Not available.

#### **Skin corrosion/irritation:**

**Gold Biotechnology**  
St. Louis, MO  
Ph: (314)890-8778  
Web: [www.goldbio.com](http://www.goldbio.com)  
Email: [contactgoldbio86@goldbio.com](mailto:contactgoldbio86@goldbio.com)

Not available.

**Respiratory or skin sensitization:**

Not available.

**Germ cell mutagenicity:**

Not available.

**Carcinogenicity:**

**IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**ACGIH:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

**NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

**OSHA:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:**

Not available.

**STOT-single exposure:**

Not available.

**STOT-repeated exposure:**

Not available.

**Aspiration hazard:**

Not available.

**Likely routes of exposure:**

Respiratory organs, mouth, skin, and eyes.

**Symptoms of exposure:**

Destructive to tissues of the mucous membranes and upper respiratory tract, eyes, and skin.

**Additional Information:**

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

## **Section 12: Ecological Information**

**12.1 Toxicity:**

Not available.

**12.2 Persistence and degradability:**

Not available.

**12.3 Bioaccumulative potential:**

Not available.

**12.4 Mobility in soil:**

Not available.

**12.5 Other adverse effects:**

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

## **Section 13 Disposal Considerations**

Dispose of product in accordance with local rules and regulations.

## **Section 14: Transport Information**

### **14.1 US Department of Transportation (DOT)**

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

### **14.2 International Maritime Dangerous Goods (IMDG):**

**UN Number:** 3261  
**Proper shipping name:** CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.(Tris(2-carboxyethyl)phosphine hydrochloride)  
**Class:** 8  
**Packing Group:** II  
**Marine Pollutant:** No

### **14.2 International Air Transportation Association (IATA)**

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

## **Section 15: Regulatory Information**

**SARA 302 Components:**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components:**

SARA 313: This material does not contain any chemical components with known CAS

numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards:**

Acute Health Hazard

**Massachusetts Right To Know Components:**

TCEP - HCI

CAS - No.

51805-45-9

**Pennsylvania Right To Know Components:**

TCEP - HCI

CAS - No.

51805-45-9

**New Jersey Right To Know Components:**

TCEP - HCI

CAS - No.

51805-45-9

**California Prop. 65 Components:**

This product does not contain any chemical known to the State of California to cause cancer, birth, or any other reproductive defects.

## **Section 16: Other Information**

While Gold Biotechnology, Inc. believes the information contained herein to be true and accurate, it has relied on information provided by others. Gold Biotechnology, INC. makes no warranties, express or implied, as to the accuracy or adequacy of the information contained herein or with respect to the results to be obtained from the use of the product. Gold Biotechnology, Inc. disclaims all liability with respect to the use of this product, including without limitation, liability for injury to the user or third-party persons.

**Preparation Information**

Gold Biotechnology  
Content/Marketing Department  
(800) 248-7609  
Last updated: 4/1/2019