

**Section 1: Identification of the substance/ mixture and of the company/ undertaking**

<b>1.1</b>	<b>Product identifiers</b>	
	Product name:	TCEP-HCl
	Product number:	TBS5082
<b>1.2</b>	<b>Relevant identified uses of the substance or mixture and uses advised against</b>	
	Identified uses:	Laboratory chemicals, Synthesis of substances.
<b>1.3</b>	<b>Details of the Supplier of the Safety Data Sheet</b>	
	Company:	Tribioscience 365 San Aleso Ave Sunnyvale, CA 94085
	Phone:	408-498-0197
	Email:	order@tribioscience.com

**Section 2: Hazards identification**

<b>2.1</b>	<b>Classification of the substance or mixture</b>	
	GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):	Skin irritation (Category 2), H315 Eye irritation (Category 2A), H319 Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335 For the full text of the H-Statements mentioned in this Section, see Section 16.
<b>2.2</b>	<b>GHS Label elements, including precautionary statements:</b>	
	Signal word:	<b>Warning</b>
	Hazard statement(s)	
	H315	Causes skin irritation.
	H319	Causes serious eye irritation.
	H335	May cause respiratory irritation.
	Precautionary statement(s)	
	P261	Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
	P264	Wash skin thoroughly after handling.
	P271	Use only outdoors or in a well-ventilated area.
	P280	Wear protective gloves/ eye protection/ face protection.
	P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
	P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
	P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact

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lenses, if present and easy to do.  
Continue rinsing.

**P332 + P313**

If skin irritation occurs: Get medical advice/ attention.

**P337 + P313**

If eye irritation persists: Get medical advice/ attention.

**P362**

Take off contaminated clothing and wash before reuse.

**P403 + P233**

Store in a well-ventilated place. Keep container tightly closed.

**P405**

**P501**

Store locked up.

Dispose of contents/ container to an approved waste disposal plant.

**2.3 Hazards not otherwise classified (HNOC) or not covered by GHS:**

None

**Section 3: Composition/ information on ingredients**

**3.2 Mixtures**

**Synonyms:**

TCEP

**Formula:**

$C_9H_{15}O_6P \cdot HCl$

**Molecular weight:**

286.65 g/mol

Component	Classification	Concentration
<b>Tris(2-carboxyethyl) phosphine hydrochloride</b>		
CAS-No: 51805-45-9	Skin Corr. 1B; Eye Dam. 1; H314, H318	>= 10 - < 20 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

**Section 4: First aid measures**

**4.1 Description of first aid measures:**

**General advice:**

Consult a physician. Show this safety data sheet to the doctor in attendance.  
Move out of dangerous area.

**If inhaled:**

If breathed in, move person into fresh air.  
If not breathing, give artificial respiration.  
Consult a physician.

**In case of skin contact:**

Wash off with soap and plenty of water.  
Consult a physician.

**In case of eye contact:**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed:**

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

- 4.2 **Most important symptoms and effects, both acute and delayed:** The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
- No data available

- 4.3 **Indication of any immediate medical attention and special treatment needed:**

#### Section 5: Firefighting measures

- 5.1 **Extinguishing media**
- Suitable extinguishing media:** Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.
- Unsuitable extinguishing media:** For this substance/mixture no limitations of extinguishing agents are given.
- 5.2 **Special hazards arising from the substance or mixture:** Carbon oxides, Oxides of phosphorus, Hydrogen chloride gas.
- 5.3 **Advice for firefighters:** Wear self-contained breathing apparatus for firefighting if necessary.
- 5.4 **Further information:** No data available.

#### Section 6. Accidental Release Measures

- 6.1 **Protective precautions, protective equipment, and emergency procedures:** Use personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. For personal protection see section 8.
- 6.2 **Environmental precautions:** Do not let product enter drains.
- 6.3 **Methods and material for containment and cleaning up:** Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.
- 6.4 **Reference to other sections:** For disposal see section 13.

#### Section 7. Handling and Storage

- 7.1 **Precautions for safe handling:** For precautions see section 2.2.
- 7.2 **Conditions for safe storage, including any incompatibilities:** Keep container tightly closed in a dry and well-ventilated place. Air sensitive. Store under inert gas. Stench. Storage class (TRGS 510): 10: Combustible liquids
- 7.3 **Specific end use(s):** Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

#### Section 8. Exposure Controls/Personal Protection

- 8.1 **Control parameters**
- Components with workplace control parameters:** Contains no substances with occupational exposure limit values.

<b>8.2 Exposure controls</b>	
<b>Appropriate engineering controls:</b>	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
<b>8.2 Personal protection equipment</b>	
<b>Eye/face protection:</b>	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).
<b>Skin protection:</b>	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) 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.
<b>Body protection:</b>	Impervious clothing, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
<b>Respiratory protection:</b>	Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) 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).
<b>Control of environmental exposure:</b>	Do not let product enter drains.

## Section 9. Physical and Chemical Properties

### 9.1 Information on basic physical and chemical properties

<b>Appearance:</b>	Form: liquid
<b>Odor:</b>	Stench.
<b>Odor threshold:</b>	No data available.
<b>pH:</b>	6.0 - 8.0
<b>Melting point/ freezing point:</b>	No data available.
<b>Initial boiling point and boiling range:</b>	No data available.
<b>Flash point:</b>	No data available.

<b>Evaporation rate:</b>	No data available.
<b>Flammability (solid, gas):</b>	No data available.
<b>Upper/ lower flammability or explosive limits:</b>	No data available.
<b>Vapor pressure:</b>	No data available.
<b>Vapor density:</b>	No data available.
<b>Relative density:</b>	1.041 g/cm <sup>3</sup> at 25 °C (77 °F)
<b>Water solubility:</b>	No data available.
<b>Partition coefficient: n-octanol/ water</b>	No data available.
<b>Auto-ignition temperature:</b>	No data available.
<b>Decomposition temperature:</b>	No data available.
<b>Viscosity:</b>	No data available.
<b>Explosive properties:</b>	No data available.
<b>Oxidizing properties:</b>	No data available.
<b>9.2 Other safety information:</b>	No data available.
<b>Section 10. Stability and Reactivity</b>	
<b>10.1 Reactivity:</b>	No data available.
<b>10.2 Chemical stability:</b>	Stable under recommended storage conditions.
<b>10.3 Possibility of hazardous reactions:</b>	No data available.
<b>10.4 Conditions to avoid:</b>	No data available.
<b>10.5 Incompatible materials:</b>	Strong oxidizing agents.
<b>10.6 Hazardous decomposition products:</b>	Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas, Sodium oxides Other decomposition products - No data available in the event of fire: see section 5.
<b>Section 11. Toxicological Information</b>	
<b>11.1 Information on Toxicological Effects</b>	
<b>Acute toxicity:</b>	No data available.
<b>Inhalation:</b>	No data available.
<b>Dermal:</b>	No data available.
<b>Skin corrosion/ irritation:</b>	No data available.
<b>Serious eye damage/ eye irritation:</b>	No data available.
<b>Respiratory or skin sensitization:</b>	No data available.
<b>Germ cell mutagenicity:</b>	No data available.
<b>Carcinogenicity</b>	
<b>IARC:</b>	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.
<b>ACGIH:</b>	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

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

**OSHA:** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**Reproductive toxicity:** No data available.

**Specific target organ toxicity - single exposure:** No data available.

**Specific target organ toxicity - repeated exposure:** No data available.

**Aspiration hazard:** No data available.

**Additional information:** RTECTS: Not available.

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

### Section 12. Ecological Information

**12.1 Toxicity:** No data available.

**12.2 Persistence and degradability:** No data available.

**12.3 Bio accumulative potential:** No data available.

**12.4 Mobility in soil:** No data available.

**12.5 Results of PBT and vPvB assessment:** No data available.

**12.6 Other adverse effects:** No data available.

### Section 13. Disposal Considerations

**13.1 Waste treatment methods**  
**Product:** Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging:** Dispose of as unused product.

### Section 14. Transport Information

**14.1 DOT (US):** Not dangerous goods.

**IMDG:** Not dangerous goods.

**IATA:** Not dangerous goods.

### Section 15. Regulatory Information

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

**SARA 313 Components:** 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:** No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right to know components**

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	CAS-No	Revision Date
Water	7732-18-5	
TCEP	51805-45-9	

**New Jersey Right to know components**

	CAS-No	Revision Date
Water	7732-18-5	
TCEP	51805-45-9	

**Section 16. Other Information**

Date of preparation:

08/19/2020