

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product Name : TCEP hydrochloride (1 gram)  
Product Number : HR2-651  
CAS Number : 51805-45-9

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Manufacture of substances.

**1.3 Details of the supplier of the Safety Data Sheet**

Company : Hampton Research  
34 Journey  
Aliso Viejo, CA 92656-3317  
United States

Telephone : 949 425 1321  
Telephone technical support is available 8:00 a.m. to 4:30 p.m. USA Pacific Standard Time.

Fax : 949 425 1611  
Fax Technical Support is available 24 hours a day.

e-mail : tech@hrmail.com  
e-mail Technical Support is available 24 hours a day.

**1.4 Emergency telephone number**

Emergency phone : 949 425 1321  
For **CHEMTREC** Assistance : 800 424 9300  
For **CHEMTREC** Assistance : 703 527 3887 (International)

**SECTION 2: Hazards Identification****2.1 Classification of the substance or mixture**

**Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]**

Skin corrosion (Category 1B).

**Classification according to EU Directives 67/548/EEC or 1999/45/EC**

Causes burns.

**2.2 Label elements**

**Labelling according Regulation (EC) No 1272/2008 [CLP]**

Pictogram



Signal word : Danger

Hazard statement(s)

H314 : Causes severe skin burns and eye damage.

## (CONTINUED) - SECTION 2: Hazards Identification

Precautionary statement(s)

P280 : Wear protective gloves/ protective clothing/ eye protection / face protection.

P305 + P351 + P338 : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 : Immediately call a POISON CENTER or doctor / physician.

Supplemental Hazard Statements : none

**According to European Directive 67/548/EEC as amended.**

Hazard symbol(s)



R-phrase(s)

R34 : Causes burns.

S-phrase(s)

S26 : In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S27 : Take off immediately all contaminated clothing.

S36/37/39 : Wear suitable protective clothing, gloves and eye / face protection.

Caution - substance not yet tested completely.

**2.3 Other hazards** : none

## SECTION 3 - Composition/Information On Ingredients

SYNONYMS : Tris(2-carboxyethyl)phosphine hydrochloride

FORMULA : C<sub>9</sub>H<sub>15</sub>O<sub>6</sub>P · HCl

MOLECULAR WEIGHT : 286.65

Component	Concentration
<b>Tris(2-carboxyethyl)phosphine hydrochloride</b>	
CAS-No. 51805-45-9	-

RTECS	Merck	Beilstein	SARA	MDL #	PubChem Substance ID
N/A	N/A	3724376	N/A	MFCD00145469	24892716

## 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.

#### If inhaled

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

## (CONTINUED) - SECTION 4: First Aid Measures

### **In case of skin contact**

Take off contaminated clothing and shoes immediately.  
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 as a precaution and consult a physician.

### **If swallowed**

Do NOT induce vomiting.  
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**

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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

No data available

## SECTION 5: Fire Fighting Measures

### **5.1 Extinguishing media**

#### **Suitable extinguishing media**

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

#### **Unsuitable extinguishing media**

None known

### **5.2 Special hazards arising from the substance or mixture**

Thermal decomposition may produce toxic fumes of phosphorus oxides and/or phosphine, Carbon oxides, nitrogen oxides (NO<sub>x</sub>), Hydrogen chloride gas  
Carbon oxides, Oxides of phosphorus, Hydrogen chloride gas

### **5.3 Advice for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

### **5.4 Further information**

No data available

## SECTION 6: Accidental Release Measures

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

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas.  
Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

### **6.2 Environmental precautions**

Do not let product enter drains.

## **(CONTINUED) - SECTION 6: Accidental Release Measures**

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

Pick up and arrange disposal without creating dust.  
Sweep up and shovel. 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 Personal Precautions**

Avoid formation of dust and aerosols.  
Provide appropriate exhaust ventilation at places where dust is formed.  
See Section 8 for additional information on hygiene measures. Normal measures for preventive fire protection.

### **7.2 Conditions for safe storage, including any incompatibilities**

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.  
Recommended storage : Stable at room temperature for up to 2 years after receipt.

### **7.3 Specific end uses**

No data available

## **SECTION 8 - Exposure Controls/Personal Protection**

### **8.1 Control parameters**

**Components with workplace control parameters**

### **8.2 Exposure controls**

#### **Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### **Personal protective equipment**

##### **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 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.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

## (CONTINUED) - SECTION 8 - Exposure Controls/Personal Protection

### Body Protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. 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).

## SECTION 9: Physical And Chemical Properties

### 9.1 Information on basic physical and chemical properties

a) Appearance	Form: powder Color: white
b) Odor	no data available
c) Odor Threshold	no data available
d) pH	no data available
e) Melting point/freezing point	no data available
f) Initial boiling point and boiling range	no data available
g) Flash point	no data available
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	no data available
k) Vapor pressure	no data available
l) Vapor density	no data available
m) Relative density	no data available
n) Water solubility	soluble
o) Partition coefficient: octanol/water	no data available
p) Autoignition temperature	no data available
q) Decomposition temperature	no data available
r) Viscosity	no data available
s) Explosive properties	no data available
t) Oxidizing properties	no data available

### 9.2 Other safety information

no data available

## SECTION 10: Stability And Reactivity

### 10.1 Reactivity

no data available

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

no data available

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

Strong oxidizing agents

### 10.6 Hazardous decomposition products

Other decomposition products - no data available

## SECTION 11: Toxicological Information

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - rat - 3,500 mg/kg

LD50 Dermal - rat - > 3,000 mg/kg

#### Skin / irritation and corrosion

no data available

#### Serious eye damage/eye irritation

no data available

#### Respiratory or skin sensitization

no data available

#### Germ cell mutagenicity

no data available

#### Chronic exposure

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.

#### Reproductive toxicity

no data available

#### Specific target organ toxicity - single exposure

no data available

#### Specific target organ toxicity - repeated exposure

no data available

## (CONTINUED) - SECTION 11: Toxicological Information

### Aspiration hazard

no data available

### Potential health effects

#### Inhalation

May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

#### Ingestion

May be harmful if swallowed. Causes burns.

#### Skin

May be harmful if absorbed through skin. Causes skin burns.

#### Eyes

Causes eye burns.

### Signs and Symptoms of Exposure

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

### Additional information

RTECS: No data available

## SECTION 12: Ecological Information

### 12.1 Toxicity

no data available

### 12.2 Persistence and degradability

no data available

### 12.3 Bioaccumulative 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. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

#### Contaminated packaging

Dispose of as unused product.

## SECTION 14: Transportation Information

### 14.1 UN number

ADR/RID: 3261

IMDG: 3261

IATA: 3261

### 14.2 UN proper shipping name

ADR/RID: CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (Tris(2-carboxyethyl)phosphine hydrochloride)

IMDG: CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (Tris(2-carboxyethyl)phosphine hydrochloride)

IATA: Corrosive solid, acidic, organic, n.o.s. (Tris(2-carboxyethyl)phosphine hydrochloride)

### 14.3 Transport hazard class(es)

ADR/RID: 8

IMDG: 8

IATA: 8

### 14.4 Packaging group

ADR/RID: II

IMDG: II

IATA: II

### 14.5 Environmental hazards

ADR/RID: No

IMDG Marine pollutant: no

IATA: No

### 14.6 Special precautions for user

No data available

## SECTION 15: Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No 1907/2006.

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

No data available

### 15.2 Chemical Safety Assessment

No data available

## SECTION 16: Other Information

### DISCLAIMER

For research use only. Not for drug, household, or other use.

### WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of this product. Hampton Research Corp., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

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