

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)
Issue date: 1/2/2024



SECTION 1: Identification

1.1. Identification

Product form : Substance
Trade name : Tris (2-carboxyethyl) phosphine hydrochloride (TCEP)
Product code : QBD-10014

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Laboratory chemicals, manufacture of substances

1.3. Supplier

Manufacturer

Vector Laboratories, Inc.
7470 Montgomery Drive
Plain City, Ohio 43064
U.S.A
T (614) 792-2958
customerservice@vectorlabs.com

1.4. Emergency telephone number

Emergency number : US only (800) 227-6666 or outside of the US +1 (650) 697-3600 (7:15 AM - 5:00 PM PST)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Not a hazardous substance or mixture.

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Not a hazardous substance or mixture.

2.3. Other hazards which do not result in classification

Not a hazardous substance or mixture.

2.4. Unknown acute toxicity (GHS US)

There is no evidence available indicating acute toxicity

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name	Product identifier	%
Tris (2-carboxyethyl) phosphine hydrochloride (TCEP)	Cas No.: 51805-45-9	100

The specific chemical component identities and/or the exact component percentages of this material may be withheld as trade secrets.

This information is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of 29 CFR 1910.1200 (I)(1). Trace ingredients (if any) are present in < 1% concentration, (< 0.1% for potential carcinogens, mutagen, and reproductive toxicant, respiratory tract and skin sensitizers in addition to oral/ inhalation acute toxicant in category 1 and 2). None of the trace ingredients contribute significant additional hazards at the concentrations that may be present in this product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalents.

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)
Issue date: 1/2/2024



3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

Inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur
Eye contact	: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Ingestion	: Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

4.2. Most important symptoms and effects (acute and delayed)

Not Applicable

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

5.2. Specific hazards arising from the chemical

In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : No specific data.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting	: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

6.1.2. For emergency responders

Protective equipment : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel."

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)
Issue date: 1/2/2024



6.2. Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3. Methods and material for containment and cleaning up

- Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of vial in a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

6.4. Reference to other sections

See Section 8 for additional information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Protective measures : Put on appropriate personal protective equipment (see Section 8).
- Hygiene measures : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Do not store above the following temperature: -20°C (-4°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Tris (2-carboxyethyl) phosphine hydrochloride (TCEP)

No additional information available

8.2. Appropriate engineering controls

- Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)
Issue date: 1/2/2024

8.3. Individual protection measures/Personal protective equipment

Hygiene measures:
Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Eye/face protection:
Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
Hand protection:
Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary
Body protection:
Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection:
Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection:
Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Color	: White to Amber
Odor	: No data available
Odor threshold	: No data available
pH	: Not Applicable
Melting point	: °C and °F Mixture has not been tested
Boiling point	: °C and °F Mixture has not been tested
Flash point	: °C and °F Mixture has not been tested
Burning time	: No data available
Burning rate	: No data available
Evaporation rate	: No data available
Flammability (solid, gas)	: No data available
Lower and upper explosive (flammable) limits	: No data available
Vapor pressure	: No data available
Vapor density	: No data available
Relative density	: No data available
Solubility	: Cold water and hot water
Solubility in water	: No data available

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)
Issue date: 1/2/2024



Partition coefficient: n-octanol/water	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
SADT	: No data available
Viscosity	: No data available

9.2. Other information

No data available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No specific test data related to reactivity available for this product or its ingredients

10.2. Chemical stability

Stable under normal conditions

10.3. Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur

10.4. Conditions to avoid

No specific data

10.5. Incompatible materials

No specific data

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: No data available
Irritation/Corrosion	: No data available
Sensitization	: No data available
Mutagenicity	: No data available
Carcinogenicity	: No data available
Reproductive toxicity	: No data available
Teratogenicity	: No data available
STOT-single exposure	: No data available
STOT-repeated exposure	: No data available
Aspiration hazard	: No data available

Conclusion/Summary: To the best of our knowledge, the toxicological properties of this substance have not been thoroughly investigated

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)
Issue date: 1/2/2024

11.2. Information on the likely routes of exposure

Routes of entry anticipated	: Oral, Dermal, Inhalation
Potential acute health effects	
Eye contact	: No known significant effects or critical hazards
Inhalation	: No known significant effects or critical hazards
Skin contact	: No known significant effects or critical hazards
Ingestion	: No known significant effects or critical hazards

11.3. Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: No specific data
Inhalation	: No specific data
Skin contact	: No specific data
Ingestion	: No specific data

11.4. Delayed and immediate effects.

Short term exposure	
Potential immediate effects	: No data available
Potential delayed effects	: No data available

Long term exposure	
Potential immediate effects	: No data available
Potential delayed effects	: No data available

11.5. Potential chronic health effects

General	: No known significant effects or critical hazards
Carcinogenicity	: No known significant effects or critical hazards
Mutagenicity	: No known significant effects or critical hazards
Teratogenicity	: No known significant effects or critical hazards
Developmental effects	: No known significant effects or critical hazards
Fertility effects	: No known significant effects or critical hazards

11.6. Numerical measures of toxicity

Acute toxicity estimates	: No data available
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SECTION 12: Ecological information

12.1. Toxicity

No information available

12.2. Persistence and degradability

No information available

12.3. Bioaccumulative potential

No information available

12.4. Mobility in soil

Soil/water partition coefficient (KOC): Not available

12.5. Other adverse effects

No known significant effects or critical hazards

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)
Issue date: 1/2/2024



SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods

: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction

Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way.

Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

14.1. Land Transport (ADR/RID)

Not a dangerous good in sense of this transport regulation

14.2. Inland Water Ways Transport (ADN)

Not a dangerous good in sense of this transport regulation

14.3. Sea Transport (IMDG)

Not a dangerous good in sense of this transport regulation

14.4. Air Transport (ICAQ-TP/IATA-DGR)

Not a dangerous good in sense of this transport regulation

14.5. DOT Classification

Not a DOT controlled material (United States)

SECTION 15: Regulatory information

15.1. US Federal regulations

This substance is listed on the TSCA Inventory. It is for research and development use only. This substance is not SARA listed.

Tris (2-carboxyethyl) phosphine hydrochloride (TCEP)	CAS-No. 51805-45-9	100%
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- Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Not listed
- Clean Air Act Section 602 Class I Substances: Not listed
- Clean Air Act Section 602 Class II Substances: Not listed
- DEA List I Chemicals (Precursor Chemicals) : Not listed
- DEA List II Chemicals (Essential Chemicals) : Not listed

15.2. SARA 302/304

Composition/ information on ingredients: No products were found

SARA 304 RQ: Not applicable

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)
Issue date: 1/2/2024

15.3. SARA 311/312

Classification: Not applicable

Composition/ information on ingredients: No products were found

15.4. State regulations

- Massachusetts: This material is not listed
- New York: This material is not listed
- New Jersey: This material is not listed
- Pennsylvania: This material is not listed
- Canada inventory: Not determined

15.5. International regulations

- Australia inventory (AICS): Not determined.
- China inventory (IECSC): Not determined.
- Japan inventory: Not determined.
- Korea inventory: Not determined.
- Malaysia Inventory (EHS Register): Not determined.
- New Zealand Inventory of Chemicals (NZIoC): Not determined.
- Philippines inventory (PICCS): Not determined.
- Taiwan inventory (CSNN): Not determined

15.6. EU regulatory information

Information according to 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SERVESO III)

15.7. Additional information

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

Chemical Weapons Convention List Schedule I Chemicals: Not listed

Chemical Weapons Convention List Schedule II Chemicals: Not listed

Chemical Weapons Convention List Schedule III Chemicals: Not listed

SECTION 16: Other information

Hazardous Material Information System (U.S.A.)

- Health 0
- Chronic Health 0
- Flammability 0
- Physical hazards 0

National Fire Protection Association (U.S.A.)

- Health 0
- Flammability 0
- Instability/Reactivity 0
- Special

The customer is responsible for determining the PPE code for this material.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

- Date of issue/Date of revision: 1/2/2024
- Date of previous issue version: No previous validation
- Prepared by: Regulatory Specialist
- Key to abbreviations:
 - ATE = Acute Toxicity Estimate
 - BCF = Bioconcentration Factor
 - GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 - IATA = International Air Transport Association
 - IBC = Intermediate Bulk Container
 - IMDG = International Maritime Dangerous Goods
 - LogPow = logarithm of the octanol/water partition coefficient
 - MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 - UN = United Nations

References: Not available

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.