

# Trichloroethylene

## SECTION 1. IDENTIFICATION

<b>Product Identifier</b>	Trichloroethylene
<b>Other Means of Identification</b>	Acetylene Trichloride, 1,1,2-Trichloroethylene, TCE
<b>Product Code(s)</b>	TR3010, TR3020, TR3040
<b>Product Family</b>	Organic
<b>Recommended Use</b>	Laboratory and industrial use.
<b>Restrictions on Use</b>	None known.
<b>Supplier Identifier</b>	Alphachem Limited, 2485 Milltower Court, Mississauga, Ontario, L5N 5Z6, (905) 821-2995
<b>Emergency Phone No.</b>	CANUTEC CANADA, 613-996-6666, 24 Hours
<b>SDS No.</b>	0159

## SECTION 2. HAZARD IDENTIFICATION

Classified according to Canada's Hazardous Products Regulations (WHMIS 2015) and the US Hazard Communication Standard (HCS 2012).

### Classification

Acute toxicity (Oral) - Category 5; Acute toxicity (Dermal) - Category 5; Acute toxicity (Inhalation) - Category 4; Skin irritation - Category 2; Eye irritation - Category 2B; Germ cell mutagenicity - Category 2; Carcinogenicity - Category 1B; Specific target organ toxicity (single exposure) - Category 1; Specific target organ toxicity (repeated exposure) - Category 2

### Label Elements



Signal Word:  
Danger

### Hazard Statement(s):

Causes skin irritation.  
Causes eye irritation.  
Suspected of causing genetic defects.  
May cause cancer.  
Causes severe skin burns and eye damage.  
Harmful if swallowed, in contact with skin or if inhaled.  
May cause respiratory irritation.  
May cause drowsiness or dizziness.

### Precautionary Statement(s):

Obtain special instructions before use.  
Wash hands and skin thoroughly after handling.

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Wear protective gloves.  
Do not spray on an open flame or other ignition source.  
Use only outdoors or in a well-ventilated area.  
Avoid release to the environment.  
Wear protective gloves/protective clothing.  
IF exposed or concerned: Get medical advice/attention.  
Call a POISON CENTRE or doctor if you feel unwell.

#### Other Hazards

May be a health hazard in confined spaces. Hazardous to the environment.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance:

Chemical Name	CAS No.	%	Other Identifiers
Trichloroethylene	79-01-6	>99	Acetylene Trichloride, 1,1,2-Trichloroethylene, TCE

### SECTION 4. FIRST-AID MEASURES

#### First-aid Measures

##### Inhalation

Take precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment). Remove source of exposure or move to fresh air. Keep at rest in a position comfortable for breathing. Immediately call a Poison Centre or doctor.

##### Skin Contact

Avoid direct contact. Wear chemical protective clothing if necessary. Immediately rinse with lukewarm, gently flowing water for 15-20 minutes. If skin irritation occurs, get medical advice or attention.

##### Eye Contact

Immediately rinse the contaminated eye(s) with lukewarm, gently flowing water for 15-20 minutes, while holding the eyelid(s) open. Immediately call a Poison Centre or doctor. Specific treatment is required.

##### Ingestion

Never give anything by mouth if person is rapidly losing consciousness, or is unconscious or convulsing. Do not induce vomiting. Rinse mouth with water. If breathing has stopped, trained personnel should immediately begin rescue breathing.

##### First-aid Comments

Some of the first-aid procedures recommended here require advanced first-aid training. If exposed or concerned, get medical advice or attention.

#### Most Important Symptoms and Effects, Acute and Delayed

If inhaled: can cause severe irritation of the nose and throat. If swallowed: can harm the nervous system. Can harm the kidneys. Can harm the liver. If on skin: contact can cause pain, redness, burns, and blistering. Permanent scarring can result. If in eyes: may cause serious eye damage. May irritate or burn the eyes. Permanent damage including blindness may result.

#### Immediate Medical Attention and Special Treatment

##### Special Instructions

General advice

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

### SECTION 5. FIRE-FIGHTING MEASURES

#### Extinguishing Media

##### Suitable Extinguishing Media

Not combustible. Use extinguishing agent suitable for surrounding fire. Carbon dioxide, dry chemical powder, appropriate foam, water spray or fog.

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## Unsuitable Extinguishing Media

None known.

## Specific Hazards Arising from the Product

Heating increases the release of toxic vapour. Closed containers may rupture violently when heated releasing contents. May accumulate in hazardous amounts in low-lying areas especially inside confined spaces, resulting in a fire and/or health hazard.

Very toxic carbon monoxide, carbon dioxide; corrosive hydrogen chloride; corrosive phosgene.

## Special Protective Equipment and Precautions for Fire-fighters

Fight fire from a safe distance or a protected location. Approach fire from upwind to avoid hazardous vapours or gases. Knock down vapours or gases with water fog or fine water spray. Stop leak before attempting to put out the fire. Product could form an explosive mixture and reignite. For a massive fire, immediately evacuate the area and use unmanned hose holder or monitor nozzles. Before entry, especially into confined areas, use an appropriate monitor to check for: toxic gases or vapours, sufficient oxygen, flammable or explosive atmosphere. Dike and recover contaminated water for appropriate disposal.

Chemical protective clothing (e.g. chemical splash suit) and positive pressure SCBA may be necessary.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

### Personal Precautions, Protective Equipment, and Emergency Procedures

Emergency responders: evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Evacuate downwind locations. Use the personal protective equipment recommended in Section 8 of this safety data sheet. Increase ventilation to area or move leaking container to a well-ventilated and secure area. Eliminate all ignition sources if safe to do so. Do not touch damaged containers or spilled product unless wearing appropriate protective equipment.

### Environmental Precautions

Do not allow into any sewer, on the ground or into any waterway.

### Methods and Materials for Containment and Cleaning Up

Small spills or leaks: stop or reduce leak if safe to do so. Ventilate the area to prevent the gas from accumulating, especially in confined spaces. Contain and soak up spill with absorbent that does not react with spilled product. Collect using shovel/scoop or approved HEPA vacuum and place in a suitable container for disposal. Place used absorbent into suitable, covered, labelled containers for disposal. Dike spilled product to prevent runoff. Large spills or leaks: contact emergency services and manufacturer/supplier for advice.

## SECTION 7. HANDLING AND STORAGE

### Precautions for Safe Handling

Wear personal protective equipment to avoid direct contact with this chemical. If used in a confined space: obtain special instructions before use.

Do not get in eyes, on skin or on clothing. Only use where there is adequate ventilation. Avoid release to the environment. Immediately report leaks, spills or failures of the safety equipment (e.g. ventilation system). Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Prevent accidental contact with flammable and combustible materials. Keep dry. Prevent accidental contact with water and humidity. Never return unused or contaminated product to its original container.

### Conditions for Safe Storage

Store in an area that is: dry, well-ventilated, out of direct sunlight and away from heat and ignition sources, an approved, fire-resistant area, secure and separate from work areas. Restrict access to authorized personnel only. Store in the original, labelled, shipping container. Store in a closed container. Protect from conditions listed in Conditions to Avoid in Section 10 (Stability and Reactivity). Separate from incompatible materials (see Section 10: Stability and Reactivity). Keep amount in storage to a minimum. Comply with all applicable health and safety regulations, fire and building codes.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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## Control Parameters

Chemical Name	ACGIH TLV®		OSHA PEL		AIHA WEEL	
	TWA	STEL	TWA	Ceiling	8-hr TWA	TWA
Trichloroethylene	10 ppm A2	25 ppm A2	50 ppm			

ACGIH® = American Conference of Governmental Industrial Hygienists. TLV® = Threshold Limit Value. TWA = Time-Weighted Average. STEL = Short-term Exposure Limit. A2 = Suspected human carcinogen.

OSHA = US Occupational Safety and Health Administration. PEL = Permissible Exposure Limits.

### Appropriate Engineering Controls

Use local exhaust ventilation and enclosure, if necessary, to control amount in the air. Do not allow product to accumulate in the air in work or storage areas, or in confined spaces. Use backup controls (e.g. double mechanical pump seals) to prevent the release of this material due to equipment failure. Use non-sparking ventilation systems, approved explosion-proof equipment and intrinsically safe electrical systems in areas where this product is used and stored. Exhaust directly to the outside, taking any necessary precautions for environmental protection. Provide safety shower in work area, if contact or splash hazard exists.

### Individual Protection Measures

#### Eye/Face Protection

Wear chemical safety goggles and face shield when contact is possible.

#### Skin Protection

Wear chemical protective clothing e.g. gloves, aprons, boots.

Suitable materials are: polyvinyl alcohol, Viton®, Barrier® (PE/PA/PE), Silver Shield/4H® (PE/EVAL/PE), Trelchem® HPS, Trelchem® VPS, Tychem® BR/LV, Tychem® Responder, Tychem® TK.

The following materials should NOT be used: butyl rubber, natural rubber, neoprene rubber, nitrile rubber, polyethylene, polyvinyl chloride, Tychem® SL (Saranex™).

#### Respiratory Protection

Wear a NIOSH approved air-purifying respirator with an organic vapour cartridge, wear a NIOSH approved air-purifying respirator with an appropriate cartridge.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### Basic Physical and Chemical Properties

Appearance	Colourless liquid.
Odour	Pungent
Odour Threshold	Not available
pH	Not available
Melting Point/Freezing Point	-86.4 °C (-123.5 °F) (melting); -73 °C (-99 °F) (freezing)
Initial Boiling Point/Range	86.7 °C (188.1 °F)
Flash Point	11 °C (52 °F) (closed cup)
Evaporation Rate	4.9 (n-butyl acetate = 1)
Flammability (solid, gas)	Not available
Upper/Lower Flammability or Explosive Limit	10.5% (upper); 8.0% (lower)
Vapour Pressure	7.7 kPa (57.8 mm Hg)
Vapour Density (air = 1)	4.53 (calculated)
Relative Density (water = 1)	1.46 at 20 °C
Solubility	0.11 g/100 mL (Slightly soluble) in water; Soluble in all proportions in alcohols (e.g. ethanol).
Partition Coefficient, n-Octanol/Water (Log Kow)	2.42
Auto-ignition Temperature	420 °C (788 °F)
Decomposition Temperature	Not available
Viscosity	0.39 mm <sup>2</sup> /s at 20 °C (kinematic); 0.57 mPa.s at 20 °C (dynamic)

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## Other Information

### Physical State

Liquid

## SECTION 10. STABILITY AND REACTIVITY

### Reactivity

Not reactive under normal conditions of use.

### Chemical Stability

Normally stable.

### Possibility of Hazardous Reactions

None known.

### Conditions to Avoid

Heat. Open flames, sparks, static discharge, heat and other ignition sources. Sunlight. Water, moisture or humidity.

### Incompatible Materials

Strong bases (e.g. sodium hydroxide), strong oxidizing agents (e.g. perchloric acid), metals (e.g. aluminum), epoxides (e.g. ethylene oxide).

Corrosive to: aluminum alloys, nickel, cast iron, lead, copper, zinc, zinc alloys.

### Hazardous Decomposition Products

Very toxic carbon monoxide, carbon dioxide; corrosive hydrogen chloride; corrosive chlorine; corrosive phosgene.

## SECTION 11. TOXICOLOGICAL INFORMATION

### Likely Routes of Exposure

Inhalation; skin contact; eye contact; ingestion.

### Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Trichloroethylene	7250 ppm (rat) (4-hour exposure)	5620 mg/kg (rat)	> 29,000 mg/kg (rabbit)

### Skin Corrosion/Irritation

Animal tests show moderate or severe irritation following repeated applications.

### Serious Eye Damage/Irritation

May cause serious eye irritation based on information for closely related materials.

### STOT (Specific Target Organ Toxicity) - Single Exposure

#### Inhalation

At high concentrations causes nose and throat irritation, depression of the central nervous system. Symptoms may include headache, nausea, dizziness, drowsiness and confusion.

#### Skin Absorption

Causes thermal burns. Symptoms may include redness, rash, swelling and itching. Causes harmful effects on the liver.

#### Ingestion

Causes irritation of the mouth, throat and stomach, depression of the central nervous system, harmful effects on the kidneys, harmful effects on the liver.

### Aspiration Hazard

No information was located.

### STOT (Specific Target Organ Toxicity) - Repeated Exposure

If inhaled: may cause effects on the central nervous system. Symptoms may include headaches, fatigue, memory loss, irritability, depression and reduced ability to think or reason. "organic solvent syndrome", effects on the nervous system and impaired vision including permanent blindness. Conclusions cannot be drawn from the limited studies available.

Following skin contact: may cause dermatitis. Symptoms may include dry, red, cracked skin (dermatitis). Harmful effects on the kidneys, harmful effects on the liver.

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## Respiratory and/or Skin Sensitization

Not known to be a respiratory sensitizer. Not known to be a skin sensitizer.

## Carcinogenicity

Chemical Name	IARC	ACGIH®	NTP	OSHA
Trichloroethylene	Group 1	A2	Reasonably anticipated	

Key to Abbreviations

IARC = International Agency for Research on Cancer. Group 1 = Carcinogenic to humans.

ACGIH® = American Conference of Governmental Industrial Hygienists. A2 = Suspected human carcinogen.

NTP = National Toxicology Program.

## Reproductive Toxicity

### Development of Offspring

Conclusions cannot be drawn from the limited studies available.

### Sexual Function and Fertility

Conclusions cannot be drawn from the limited studies available.

### Effects on or via Lactation

No information was located.

## Germ Cell Mutagenicity

Animal studies show evidence of mutagenicity in reproductive cells (sperm or eggs).

## Interactive Effects

No information was located.

## SECTION 12. ECOLOGICAL INFORMATION

This section is not required by WHMIS. This section is not required by OSHA HCS 2012.

## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal Methods

Dispose of contents and container in accordance with local, regional, national and international regulations.

## SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
Canadian TDG	UN1710	Trichloroethylene	6.1	III
US DOT	UN1710	Trichloroethylene	6.1	III

**Environmental Hazards** Environmentally Hazardous Substance

**Special Precautions** Not applicable

**Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable

## SECTION 15. REGULATORY INFORMATION

### Safety, Health and Environmental Regulations

#### Canada

#### Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

Listed on the DSL.

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USA

**Toxic Substances Control Act (TSCA) Section 8(b)**

Listed on the TSCA Inventory.

**SECTION 16. OTHER INFORMATION**

<b>NFPA Rating</b>	<b>Health - 2</b>	<b>Flammability - 1</b>	<b>Instability - 0</b>
<b>SDS Prepared By</b>	Alphachem Limited		
<b>Phone No.</b>	(905)-821-2995		
<b>Date of Preparation</b>	October 06, 2015		
<b>Date of Last Revision</b>	March 16, 2016		
<b>References</b>	CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS).		
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