

SAFETY DATA SHEET

Trichloroethylene

This MSDS is valid for all grades that start with catalog number 348

1. IDENTIFICATION OF SUBSTANCE / MIXTURE AND OF SUPPLIER

Product Identifier: High Purity Chemicals
Synonyms: Trichloroethene Ethylene trichloride Acetylene trichloride, TCE
Other means of identification: CAS No. 79-01-6
EINECS No. 201-167-4

Recommended use of the chemical and restrictions on use:
General solvent use.

Supplier Details:

Pharmco Products, Inc.
1101 Isaac Shelby Drive, Shelbyville,
KY 40065, USA.
Tel: 502.232.7600
Fax: 502.633.6100
CCN17213

Pharmco Products, Inc.
58 Vale Road, Brookfield,
CT 06804, USA.
Tel: 203.740.3471
Fax: 203.740.3481
CCN17213

Emergency Contact: CHEMTREC: 1.800.424.9300 (USA) / +1.703.527.3887 (International)

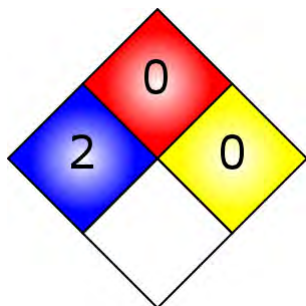


2. HAZARDS IDENTIFICATION

OSHA Hazards:

Carcinogen, Irritant, Mutagen

NFPA



**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
+1.703.527.3887 (INT)**

GHS label elements, including precautionary statements



Signal Word:

DANGER!

Hazard statement(s)

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P261	Avoid breathing dust/fumes/gas/mist/vapors.
P273	Avoid release to the environment.
P391	Collect spillage.
P202	Do not handle until all safety precautions have been read and understood.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P405	Store locked up.
P281	Use personal protective equipment as required.

GHS Classification(s)

Carcinogenicity (Category 1B)
Chronic aquatic toxicity (Category 3)
Eye irritation (Category 2)
Germ cell mutagenicity (Category 2)
Skin irritation (Category 2)
Specific target organ toxicity - single exposure (Category 3)

**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
+1.703.527.3887 (INT)**

Other hazards which do not result in classification:

Potential Health Effects:

Organ	Description
Eyes	Causes eye irritation.
Ingestion	Harmful if swallowed.
Inhalation	Can cause respiratory tract irritation.
Skin	Harmful if absorbed through skin. Causes skin irritation.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical identity:	Trichloroethylene
Common name / Synonym:	TCE; 1,1,2-Trichloroethylene Trichloroethene Ethylene trichloride Acetylene trichloride
CAS number:	79-01-6
EINECS number:	201-167-4
ICSC number:	0081
RTECS #:	KX4550000
UN #:	1710
EC #:	602-027-00-9

% Weight	Material	CAS
100	Trichloroethylene	79-01-6

4. FIRST AID MEASURES

Skin

Wash skin with soap and copious amounts of water.

Inhalation

Remove person to fresh air. If signs/symptoms continue, get medical attention. Give oxygen or artificial respiration as needed.

Eyes

Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation persists, seek medical attention.

Ingestion

DO NOT induce vomiting. If vomiting does occur, have victim lean forward to prevent aspiration. Rinse mouth with water. Seek medical attention. Never give anything by mouth to an unconscious individual.

**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
+1.703.527.3887 (INT)**

5. FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media:

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

Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products):

Carbon oxides, hydrogen chloride gas are expected to be the primary hazardous products.

Special protective equipment and precautions for firefighters:

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Keep unopened containers cool by spraying with water.

Flammable Properties

Autoignition temperature

410 °C (770 °F)

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Use personal protective equipment. Do not inhale vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions:

Stop leak. Contain spill if possible and safe to do so. Prevent product from entering drains.

Methods and materials for containment and cleaning up:

Absorb with an inert dry material and place in an appropriate waste disposal container. Keep disposal containers closed when finished.

7. HANDLING AND STORAGE

Precautions for safe handling:

Use proper personal protective equipment when handling material to prevent contact with skin and eyes. Do not inhale vapor or mist.

Conditions for safe storage, including any incompatibilities:

Keep container closed in a dry, well ventilated location. Handle under inert gas. Light sensitive.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters, e.g., occupational exposure limit values or biological limit values:

Occupational Exposure Limits

Component	Source	Type	Value	Note
-----------	--------	------	-------	------

**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
+1.703.527.3887 (INT)**

Trichloroethylene	US (OSHA)	TWA	100 ppm	OSHA Occupational Exposure Limits (Table Z2)
Trichloroethylene	US (OSHA)	TWA	50 ppm / 270 mg/m ³	29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants.
Trichloroethylene	US (ACGIH)	TWA	10 ppm	ACGIH Hreshold Exposure Limit Values

Appropriate engineering controls:

General room or local exhaust ventilation is usually required to meet exposure limit(s). Electrical equipment should be grounded and conform to applicable electrical code.

Individual protection measures, such as personal protective equipment:

Respiratory protection:

Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand 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.

Eye protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Use equipment approved by appropriate government standards, such as NIOSH (US) or EN166 (EU) Maintain eye wash fountain and quick-drench facilities in work area.

Skin and body protection:

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures:

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.)	Clear colorless liquid
Odor	Specific data not available
Odor threshold	Specific data not available
pH	Specific data not available
Freezing point	-84.8 °C (-120.6 °F)
Initial boiling point and boiling range	86.7 °C (188.1 °F)
Flash point	Specific data not available
Evaporation rate	Specific data not available
Flammability (solid, gas)	Not flammable or combustible

**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
+1.703.527.3887 (INT)**

Upper / Lower flammability or explosive limits	10.5%(V) / 8%(V)
Vapor pressure	81.3 hPa (61.0 mmHg) at 20.0 °C (68.0 °F)
Vapor Density	Specific data not available
Relative Density	1.463 g/mL at 25 °C (77 °F)
Solubility(ies)	Slightly soluble in water.
Partition coefficient n-octanol/water(ies)	log Pow: 2.29
Auto-ignition temperature	410 °C (770 °F)
Decomposition temperature	Specific data not available
Formula (Trichloroethylene)	C ₂ HCL ₃
Molecular Weight (Trichloroethylene)	131.39 g/mol

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No data available
Conditions to avoid (e.g., static discharge, shock or vibration)	Open Flame, Ignition Sources, Hot Surfaces.
Incompatible materials	Oxidizing agents, Strong bases, Magnesium
Hazardous decomposition products	Carbon oxides and Hydrogen chloride gas are expected to be, under fire conditions, the primary hazardous decomposition products.

11. TOXICOLOGICAL INFORMATION

- Trichloroethylene 79-01-6

Product Summary:

No data available for the teratogenic or reproductive toxicity effects of this product. No data available to designate the product as causing specific target organ toxicity through repeated exposure. No data available to designate product as an aspiration hazard. Laboratory analysis and in vitro testing has displayed mutagenic effects.

Acute Toxicity:

LC50 (Inhalation)	Mouse	8450 ppm	4 hours
LD50 (Dermal)	Rabbit	> 20,000 mg/kg	
LD50 (Oral)	Rat	4920 mg/kg	

Irritation:

Eyes

Rabbit - eye irritation - 24 hours

Respiratory or Skin Sensitization

No data available

**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
+1.703.527.3887 (INT)**

Skin

Rabbit - Severe skin irritation - 24 hours

Specific target organ toxicity - single exposure (Globally Harmonized System)

May cause damage to organs

Carcinogenicity

IARC: Group 2A: Probably carcinogenic to humans

ACGIH: No data is available.

NTP: Reasonably anticipated to be a human carcinogen

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.

Other Hazards

Organ	Description
Eyes	Causes eye irritation.
Ingestion	Harmful if swallowed.
Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Skin	Harmful if absorbed through skin. Causes skin irritation.

12. ECOLOGICAL INFORMATION

- Trichloroethylene 79-01-6
-

Ecotoxicity (aquatic and terrestrial, where available):

Acute algae toxicity (Trichloroethylene)

IC50 / 96h / green algae - 175.00 mg/l

Acute daphnia toxicity (Trichloroethylene)

EC50 / 48h / Water flea - 18.00 mg/l

Acute Fish Toxicity (Trichloroethylene)

LC50 / 96h / Fathead minnow - 41mg/l

Persistence and degradability:

No data available

Bioaccumulative potential:

Does not bioaccumulate.

**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
+1.703.527.3887 (INT)**

Other adverse effects:
no data available

13. DISPOSAL CONSIDERATIONS

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging:

Offer surplus and non-recyclable solutions to a licensed disposal company.

14. TRANSPORT INFORMATION

Description of waste residues and information on their safe handling and methods of disposal:

UN number	1710
UN proper shipping name	Trichloroethylene
Transport hazard class(es)	6.1
Packing group (if applicable)	III

Reportable Quantity

100

IMDG

UN-Number: 1710 Class: 6.1 Packing Group: III

EMS-No: F-A, S-A

Proper shipping name: TRICHLOROETHYLENE

Marine pollutant: No

IATA

UN-Number: 1710 Class: 6.1 Packing Group: III

Proper shipping name: Trichloroethylene

15. REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question:

OSHA Hazards

Carcinogen, Irritant, Mutagen

All ingredients are on the following inventories or are exempted from listing

Country	Notification
Australia	AICS
Canada	DSL
China	IECS
European Union	EINECS
Japan	ENCS/ISHL

**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
+1.703.527.3887 (INT)**

Korea	ECL
New Zealand	NZIoC
Philippines	PICCS
United States of America	TSCA

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

The following components are subject to reporting levels established by SARA Title III, Section 313:
Trichloroethylene CAS-No. 79-01-6 Revision Date 2007-07-01

SARA 311/312 Hazards

Acute Health Hazard
Chronic Health Hazard

CERCLA

No chemicals in this material with known CAS numbers are subject to the reporting requirements of CERCLA

Trichloroethylene CAS-No. 79-01-6 RQ: 100 lbs

Massachusetts Right To Know Components

Trichloroethylene CAS-No. 79-01-6 Revision Date 2007-07-01

Pennsylvania Right To Know Components

Trichloroethylene CAS-No. 79-01-6 Revision Date 2007-07-01

New Jersey Right To Know Components

Trichloroethylene CAS-No. 79-01-6 Revision Date 2007-07-01

California Prop 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Trichloroethylene
CAS-No. 79-01-6 Revision Date 2008-10-10

16. OTHER INFORMATION: INCLUDING INFORMATION ON PREPARATION AND REVISION OF THE SDS

Disclaimer

**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
+1.703.527.3887 (INT)**

PHARMCO-AAPER believes that the information on this MSDS was obtained from reliable sources. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, PHARMCO-AAPER does not assume responsibility and expressly disclaims liability for loss, damage, or expense arising out of or in any way connected with handling, storage, use, or disposal of this product. If the product is used as a component in another product, this MSDS information may not be applicable. Information is correct to the best of our knowledge at the date of the MSDS publication.