ChemicalBook

Chemical Safety Data Sheet MSDS / SDS

Trichloroethylene

Revision Date:2025-01-11 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name	: Trichloroethylene
CBnumber	: CB5406573
CAS	: 79-01-6
EINECS Number	: 201-167-4
Synonyms	: Trichloroethylene,TCE

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

Relevant identified uses	: For R&D use only. Not for medicinal, household or other use.
Uses advised against	: none

Company Identification

Company	: Chemicalbook
Address	: Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone	: 400-158-6606

SECTION 2: Hazards identification

GHS Label elements, including precautionary statements

Symbol(GHS)

Precautionary statements

P201 Obtain special instructions before use.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

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.

Continuerinsing.

P405 Store locked up.

Hazard statements

H315 Causes skin irritation

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

Disposal

WARNING.Cancer - https://oehha.ca.gov/proposition-65/chemicals/trichloroethylene

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SECTION 3: Composition/information on ingredients

Substance

Product name	: Trichloroethylene
Synonyms	: Trichloroethylene,TCE
CAS	: 79-01-6
EC number	: 201-167-4
MF	: C2HCl3
MW	: 131.39

SECTION 4: First aid measures

Description of first aid measures

General advice

Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air. Call in physician.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

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

Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media

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

Special hazards arising from the substance or mixture

Carbon oxides Hydrogen chloride gas Combustible.

Risk of dust explosion.

Development of hazardous combustion gases or vapours possible in the event of fire.

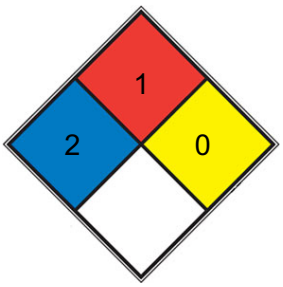
Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

NFPA 704



■	HEALTH	2	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. diethyl ether, ammonium phosphate, iodine)
■	FIRE	1	Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur. Includes some finely divided suspended solids that do not require heating before ignition can occur. Flash point at or above 93.3 °C (200 °F). (e.g. mineral oil, ammonia)
■	REACT	0	Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,N2)
□	SPEC. HAZ.		

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

Environmental precautions

Do not let product enter drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g.

Chemizorb?). Dispose of properly. Clean up affected area.

Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Light sensitive. Handle and store under inert gas.

Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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SECTION 8: Exposure controls/personal protection

control parameter

Hazard composition and occupational exposure limits

Does not contain substances with occupational exposure limits.

Exposure controls

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact Material: Viton?

Minimum layer thickness: 0,7 mm Break through time: 480 min

Material tested:Vitoject? (KCL 890 / Aldrich Z677698, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact Material: Nitrile rubber

Minimum layer thickness: 0,4 mm Break through time: 10 min

Material tested:Camatril? (KCL 730 / Aldrich Z677442, Size M)

Body Protection

protective clothing

Respiratory protection

Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains.

Exposure limits

TLV-TWA 50 ppm (～270 mg/m^3) (ACGIH), 100 ppm (MSHA and OSHA); TLV-STEL 200 ppm (ACGIH); ceiling 200 ppm (OSHA); carcinogenicity: Animal Lim ited Evidence, Human Inadequate Evidence (IARC).

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Appearance	colorless liquid, clear
Odour	characteristic
Odour Threshold	28 ppm
pH	No data available
Melting point/freezing point	Melting point/range: -84,8 °C - lit.
Initial boiling point and boiling range	86,7 °C - lit.
Flash point	- closed cupdoes not flash
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	Upper explosion limit: >99 %(V) - (Saturation - at high volume fractions, explosion turns into a decomposition reaction) Lower explosion limit: 7,9 %(V)
Vapour pressure	81,3 hPa at 20,0 °C
Vapour density	4.5 (vs air)
Relative density	1,463 g/mL at 25 °C - lit. 1,46 at 20 °C
Water solubility	1,1 g/l at 20 °C
Partition coefficient: n-octanol/water	log Pow: 2,53 at 20 °C - Bioaccumulation is not expected.
Autoignition temperature	410,0 °C
Decomposition temperature	No data available
Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: 0,58 mPa.s at 20 °C
Explosive properties	No data available

Oxidizing properties	No data available
Henry's Law Constant	3.14 at 1.8 °C, 8.47 at 21.6 °C, 19.0 at 40.0 °C, 26.5 at 50 °C, 35.8 at 60 °C, 56.6 at 70 °C (EPICS-GC, Shimotori and Arnold, 2003)

Other safety information

No data available

SECTION 10: Stability and reactivity

Reactivity

No data available

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions

Violent reactions possible with:

Oxygen

(as liquefied gas) Alkaline earth metals alkali amides

semimetallic hydrogen compounds perchloric acid

Light metals aluminium chloride

Strong oxidizing agents potassium nitrate

Risk of explosion with:

Alkali metals Aluminum Barium

alkali hydroxides Lithium magnesium Powdered metals sodium amide

Strong oxidizing agents nitrogen dioxide Boranes

Oxygen with

alkali hydroxides Oxygen

with Pressure

Risk of ignition or formation of inflammable gases or vapours with: Titanium

Beryllium

Epoxy constituents

Conditions to avoid

no information available

Incompatible materials

various plastics

Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Oral

LC50 Inhalation - Rat - male - 4 h - 67,41 mg/l Remarks: (ECHA)

LD50 Dermal - Rabbit - > 20.000 mg/kg

Skin corrosion/irritation

Skin - Rabbit

Result: Skin irritation (OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Eye irritation - 24 h Remarks: (RTECS)

Respiratory or skin sensitization

(OECD Test Guideline 429)

Germ cell mutagenicity

In vitro tests showed mutagenic effects Test Type: Ames test

Test system: S. typhimurium Method: OECD Test Guideline 471 Result: negative

Test Type: In vitro mammalian cell gene mutation test Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476

Result: negative

Test Type: Chromosome aberration test in vitro Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation Result: negative

Remarks: (ECHA)

Test Type: in vivo assay Species: Mouse

Result: negative Remarks: (ECHA)

Carcinogenicity

No data available

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

Toxicity

LD50 orally in rats: 4.92 ml/kg; LC (4 hrs) in rats: 8000 ppm (Smyth)

SECTION 12: Ecological information

Toxicity

Toxicity to fish

flow-through test LC50 - Jordanella floridae - 28,3 mg/l - 96 h (US-EPA)

Toxicity to daphnia and other aquatic invertebrates

Remarks: No data available (trichloroethylene)

Toxicity to algae

ErC50 - Chlamydomonas reinhardtii (green algae) - 36,5 mg/l - 72 h Remarks: (ECHA)

(trichloroethylene)

Toxicity to bacteria

Persistence and degradability

Biodegradability aerobic - Exposure time 28 d

Result: 19 % - Not readily biodegradable. (OECD Test Guideline 301D)

Bioaccumulative potential

Bioaccumulation Lepomis macrochirus - 14 d

(trichloroethylene)

Bioconcentration factor (BCF): 17

Mobility in soil

No data available

Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Toxics Screening Level

The screening levels for trichloroethylene (TCE) are:

? Initial Threshold Screening Level (ITSL) = 2 micrograms per cubic meter (µg/m3) with 24-hr averaging time

? Initial Secondary Risk Screening Level (IRSL) = 0.2 µg/m3 with annual averaging time

? Secondary Risk Screening Level (SRSL) = 2 µg/m3 with annual averaging time

Other adverse effects

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SECTION 13: Disposal considerations

Waste treatment methods

Incompatibilities

Contact with strong caustics causes decomposition and the production of highly toxic and flammable dichloroacetylene. Violent reaction with chemically active metals; powders, or shavings, such as aluminum, barium, lithium, sodium, magnesium, and titanium.

Product

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

Waste Disposal

Incineration, preferably after mixing with another combustible fuel. Care must be exercised to assure complete combustion to prevent the formation of phosgene. An acid scrubber is necessary to remove the halo acids produced. An alternative to disposal for TCE is recovery and recycling.

SECTION 14: Transport information

UN number

ADR/RID: 1710 IMDG: 1710 IATA: 1710

UN proper shipping name

ADR/RID: TRICHLOROETHYLENE IMDG: TRICHLOROETHYLENE

IATA: Trichloroethylene

14.3	Transport hazard class(es)	
	ADR/RID: 6.1 IMDG: 6.1	IATA: 6.1
14.4	Packaging group	
	ADR/RID: III IMDG: III	IATA: III
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

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

Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015:Listed. website: https://www.mem.gov.cn/

Measures for Environmental Management of New Chemical Substances

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: https://www.mee.gov.cn/

EC Inventory:Listed.

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: https://echa.europa.eu/

Korea Existing Chemicals List (KECL):Listed. website: http://ncis.nier.go.kr

New Zealand Inventory of Chemicals (NZIoC):Listed. website: https://www.epa.govt.nz/

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: https://emb.gov.ph/

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: https://www.epa.gov/

Vietnam National Chemical Inventory:Listed. website: https://chemicaldata.gov.vn/

SECTION 16: Other information

Abbreviations and acronyms

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

CAS: Chemical Abstracts Service

EC50: Effective Concentration 50%

IATA: International Air Transportation Association

IMDG: International Maritime Dangerous Goods

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

STEL: Short term exposure limit

TWA: Time Weighted Average

References

【1】CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

【2】ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

【3】ECHA - European Chemicals Agency, website: https://echa.europa.eu/

【4】eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

【5】ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

【6】Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

【7】HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

【8】IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

【9】IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

【10】Sigma-Aldrich, website: https://www.sigmaaldrich.com/

Other Information

Combustible vapour/air mixtures difficult to ignite, may be developed under certain conditions.Use of alcoholic beverages enhances the harmful effect.Depending on the degree of exposure, periodic medical examination is suggested.The odour warning when the exposure limit value is exceeded is insufficient.Do NOT use in the vicinity of a fire or a hot surface, or during welding.