

ACR15831

## Trichloroethylene, stabilized

### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

**产品说明:**  
**Product Description:** 三氯乙烯  
Trichloroethylene, stabilized

**Cat No. :** 158310000; 158310010; 158310025; 158310250  
**Synonyms** Triclene; Trichloroethene; Ethylene trichloride  
**CAS No** 79-01-6  
**Molecular Formula** C<sub>2</sub> H Cl<sub>3</sub>

**Supplier** **UK entity/business name**  
Fisher Scientific UK  
Bishop Meadow Road,  
Loughborough, Leicestershire LE11 5RG, United Kingdom

**EU entity/business name**  
Thermo Fisher Scientific  
Janssen Pharmaceuticaaan 3a, 2440 Geel, Belgium

**Emergency Telephone Number** For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

**E-mail address** begel.sdsdesk@thermofisher.com

**Recommended Use** Laboratory chemicals.  
**Uses advised against**

### SECTION 2. HAZARD IDENTIFICATION

**Physical State**  
Liquid

**Appearance**  
Colorless

**Odor**  
Characteristic

#### Emergency Overview

Causes skin irritation. Causes serious eye irritation. Suspected of causing genetic defects. May cause cancer. May cause drowsiness and dizziness. Harmful to aquatic life with long lasting effects. May be harmful if swallowed. May cause an allergic skin reaction. Sensitivity to light.

#### Classification of the substance or mixture

Acute Oral Toxicity	Category 5
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 1B
Specific target organ toxicity - (single exposure)	Category 3
Chronic aquatic toxicity	Category 3

#### Label Elements

## Trichloroethylene, stabilized



## Signal Word

Danger

## Hazard Statements

H315 - Causes skin irritation  
H319 - Causes serious eye irritation  
H341 - Suspected of causing genetic defects  
H350 - May cause cancer  
H336 - May cause drowsiness or dizziness  
H412 - Harmful to aquatic life with long lasting effects  
H303 - May be harmful if swallowed  
H317 - May cause an allergic skin reaction

## Precautionary Statements

## Prevention

P201 - Obtain special instructions before use  
P202 - Do not handle until all safety precautions have been read and understood  
P264 - Wash face, hands and any exposed skin thoroughly after handling  
P270 - Do not eat, drink or smoke when using this product  
P271 - Use only outdoors or in a well-ventilated area  
P272 - Contaminated work clothing should not be allowed out of the workplace  
P280 - Wear protective gloves/protective clothing/eye protection/face protection

## Response

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell  
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water  
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P308 + P313 - IF exposed or concerned: Get medical advice/attention  
P362 + P364 - Take off contaminated clothing and wash it before reuse

## Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

## Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

## Physical and Chemical Hazards

None identified.

## Health Hazards

Causes skin irritation. Causes serious eye irritation. Suspected of causing genetic defects. May cause cancer. May cause drowsiness or dizziness. May be harmful if swallowed. May cause an allergic skin reaction.

## Environmental hazards

Harmful to aquatic life with long lasting effects. Will likely be mobile in the environment due to its volatility. The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces.

## Other Hazards

This product does not contain any known or suspected endocrine disruptors.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
Trichloroethylene	79-01-6	<=100

**SECTION 4. FIRST AID MEASURES****General Advice**

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

**Eye Contact**

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

**Skin Contact**

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

**Inhalation**

Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

**Ingestion**

Do NOT induce vomiting. Call a physician or poison control center immediately.

**Most important symptoms and effects**

May cause allergic skin reaction. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

**Self-Protection of the First Aider**

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

**Notes to Physician**

Treat symptomatically. Symptoms may be delayed.

**SECTION 5. FIRE-FIGHTING MEASURES****Suitable Extinguishing Media**

Water spray, carbon dioxide (CO<sub>2</sub>), dry chemical, alcohol-resistant foam.

**Extinguishing media which must not be used for safety reasons**

No information available.

**Specific Hazards Arising from the Chemical**

Thermal decomposition can lead to release of irritating gases and vapors. Containers may explode when heated. Keep product and empty container away from heat and sources of ignition.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

**SECTION 6. ACCIDENTAL RELEASE MEASURES****Personal Precautions**

Ensure adequate ventilation. Use personal protective equipment as required. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

**Environmental Precautions**

Should not be released into the environment. Do not flush into surface water or sanitary sewer system.

**Methods for Containment and Clean Up**

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Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7. HANDLING AND STORAGE

**Handling**

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance.

**Storage**

Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from light. Do not store in aluminum containers.

**Specific Use(s)**

Use in laboratories

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control Parameters**

Component	China	Taiwan	Thailand	Hong Kong
Trichloroethylene	TWA: 30 mg/m <sup>3</sup>	TWA: 50 ppm TWA: 269 mg/m <sup>3</sup>	Ceiling: 200 ppm STEL: 300 ppm TWA: 100 ppm	TWA: 50 ppm TWA: 269 mg/m <sup>3</sup> STEL: 100 ppm STEL: 537 mg/m <sup>3</sup>

Component	ACGIH TLV	OSHA PEL	NIOSH	The United Kingdom	European Union
Trichloroethylene	TWA: 10 ppm STEL: 25 ppm	(Vacated) TWA: 50 ppm (Vacated) TWA: 270 mg/m <sup>3</sup> Ceiling: 200 ppm (Vacated) STEL: 200 ppm (Vacated) STEL: 1080 mg/m <sup>3</sup> TWA: 100 ppm	IDLH: 1000 ppm	STEL: 150 ppm 15 min STEL: 820 mg/m <sup>3</sup> 15 min TWA: 100 ppm 8 hr TWA: 550 mg/m <sup>3</sup> 8 hr Carc. Skin	TWA: 54.7 mg/m <sup>3</sup> (8h) TWA: 10 ppm (8h) Skin STEL: 164.1 mg/m <sup>3</sup> (8h) STEL: 30 ppm (8h)

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

**Monitoring methods**

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS70 General methods for sampling airborne gases and vapours MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

**Exposure Controls****Engineering Measures**

Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

**Personal protective equipment****Eye Protection**

Goggles (European standard - EN 166)

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## Hand Protection

Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Viton (R)	> 480 minutes	0.7 mm	EN 374	As tested under EN374-3 Determination of Resistance to Permeation by Chemicals
PVA	> 360 minutes	0.3 mm		
Nitrile rubber	< 12 minutes	0.7mm		
Laminated film (Barrier)	> 480 minutes	2.5 mil		

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.  
(Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

## Skin and body protection

Long sleeved clothing

## Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

## Large scale/emergency use

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

**Recommended Filter type:** Organic gases and vapours filter Type A Brown conforming to EN14387

## Small scale/Laboratory use

Maintain adequate ventilation Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Recommended half mask:-** Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141

## Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

## Environmental exposure controls

Prevent product from entering drains. Do not allow material to contaminate ground water system.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

## Appearance

Colorless

## Physical State

Liquid

## Odor

Characteristic

## Odor Threshold

No data available

## pH

No information available

## Melting Point/Range

-85 °C / -121 °F

## Softening Point

No data available

## Boiling Point/Range

87 °C / 188.6 °F

Literature reference

## Flash Point

No information available

**Method -** No information available

## Evaporation Rate

0.69 (Carbon Tetrachloride = 1.0)

## Flammability (solid,gas)

Not applicable

Liquid

## Explosion Limits

**Lower** 8,0 vol %

Literature reference

**Upper** 44.8 vol %

77.3 mbar @ 20 °C

## Vapor Pressure

## Vapor Density

4.5 (Air = 1.0)

Literature reference

## Specific Gravity / Density

1.460

## Bulk Density

Not applicable

Liquid

## Water Solubility

Insoluble

## Solubility in other solvents

No information available

## Partition Coefficient (n-octanol/water)

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<b>Component</b>	<b>log Pow</b>	
Trichloroethylene	2.4	
<b>Autoignition Temperature</b>	410 °C / 770 °F	DIN 51794
<b>Decomposition Temperature</b>	> 120°C	
<b>Viscosity</b>	0.55 mPa.s (25°C)	Based on available literature
<b>Explosive Properties</b>	Not explosive	explosive air/vapour mixtures possible
<b>Oxidizing Properties</b>	Not oxidising	
<b>Molecular Formula</b>	C2 H Cl3	
<b>Molecular Weight</b>	131.39	

## SECTION 10. STABILITY AND REACTIVITY

<b>Stability</b>	Light sensitive.
<b>Hazardous Reactions</b>	None under normal processing.
<b>Hazardous Polymerization</b>	No information available.
<b>Conditions to Avoid</b>	Incompatible products. Excess heat. Exposure to light. Exposure to moist air or water.
<b>Materials to avoid</b>	Strong oxidizing agents. Strong bases. Amines. Alkali metals. Metals. .

**Hazardous Decomposition Products** Chlorine. Phosgene. Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Hydrogen chloride gas.

## SECTION 11. TOXICOLOGICAL INFORMATION

## Product Information

## (a) acute toxicity;

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Trichloroethylene	LD50 = 4920 mg/kg ( Rat )	LD50 = 29000 mg/kg ( Rabbit )	LC50 = 26 mg/L ( Rat ) 4 h

## (b) skin corrosion/irritation;

<b>Test method</b>	Category 2
<b>Test species</b>	OECD 404
<b>Observational endpoint</b>	rabbit
	Irritating

## (c) serious eye damage/irritation; Category 2

## (d) respiratory or skin sensitization;

<b>Respiratory</b>	Based on available data, the classification criteria are not met
<b>Skin</b>	Category 1

Component	Test method	Test species	Study result
Trichloroethylene 79-01-6 ( <=100 )	OECD Test Guideline 429	mouse	Sensitization

May cause sensitization by skin contact

## (e) germ cell mutagenicity;

Category 2
Mutagenic effects have occurred in humans

## (f) carcinogenicity;

Category 1B
The table below indicates whether each agency has listed any ingredient as a carcinogen

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Component	EU	UK	Germany	IARC
Trichloroethylene	Carc Cat. 1B		Cat. 1	Group 1

**(g) reproductive toxicity;** Based on available data, the classification criteria are not met

**(h) STOT-single exposure;** Category 3

**Results / Target organs** Central nervous system (CNS)

**(i) STOT-repeated exposure;** Based on available data, the classification criteria are not met

**Target Organs** None known.

**(j) aspiration hazard;** Based on available data, the classification criteria are not met

**Symptoms / effects, both acute and delayed** Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

**SECTION 12. ECOLOGICAL INFORMATION**

**Ecotoxicity effects** Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not empty into drains. The product contains following substances which are hazardous for the environment. Contains a substance which is: Harmful to aquatic organisms. Toxic to aquatic organisms.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Trichloroethylene	LC50: 31.4 - 71.8 mg/L, 96h flow-through (Pimephales promelas) LC50: 39 - 54 mg/L, 96h static (Lepomis macrochirus)	EC50: = 2.2 mg/L, 48h (Daphnia magna)	EC50: = 175 mg/L, 96h (Pseudokirchneriella subcapitata) EC50: = 450 mg/L, 96h (Desmodesmus subspicatus)	EC50 = 0.81 mg/L 24 h EC50 = 115 mg/L 10 min EC50 = 190 mg/L 15 min EC50 = 235 mg/L 24 h EC50 = 410 mg/L 24 h EC50 = 975 mg/L 5 min

**Persistence and Degradability****Persistence**

Persistence is unlikely, based on information available.

**Degradability**

See values below.

Component	Degradability
Trichloroethylene 79-01-6 ( <=100 )	2.4 % (14d) OECD 301C

**Degradation in sewage treatment plant**

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

**Bioaccumulative Potential**

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Trichloroethylene	2.4	90(Fish)

**Mobility in soil**

The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces Will likely be mobile in the environment due to its volatility Disperses rapidly in air

**Endocrine Disruptor Information**

This product does not contain any known or suspected endocrine disruptors

**Persistent Organic Pollutant**

This product does not contain any known or suspected substance

**Ozone Depletion Potential**

This product does not contain any known or suspected substance

# SAFETY DATA SHEET

Trichloroethylene, stabilized

## SECTION 13. DISPOSAL CONSIDERATIONS

<b>Waste from Residues/Unused Products</b>	Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
<b>Contaminated Packaging</b>	Dispose of this container to hazardous or special waste collection point.
<b>Other Information</b>	Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

## SECTION 14. TRANSPORT INFORMATION

### Road and Rail Transport

<b>UN-No</b>	UN1710
<b>Proper Shipping Name</b>	TRICHLOROETHYLENE
<b>Hazard Class</b>	6.1
<b>Packing Group</b>	III

### IMDG/IMO

<b>UN-No</b>	UN1710
<b>Proper Shipping Name</b>	TRICHLOROETHYLENE
<b>Hazard Class</b>	6.1
<b>Packing Group</b>	III

### IATA

<b>UN-No</b>	UN1710
<b>Proper Shipping Name</b>	TRICHLOROETHYLENE
<b>Hazard Class</b>	6.1
<b>Packing Group</b>	III

**Special Precautions for User** No special precautions required

## SECTION 15. REGULATORY INFORMATION

### International Inventories

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

Component	The Inventory of Hazardous Chemicals (2015 Edition)	List of dangerous goods GB 12268 - 2012	TCSI	IECSC	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	AICS	KECL
Trichloroethylene	X	X	X	X	201-167-4	X	X	X	X	X	X	X

### National Regulations

Component	Toxic Chemical Substances Control Act
Trichloroethylene	Class I (10 wt%)



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79-01-6 ( <=100 )	Class II (10 wt%) TRQ = 50 kg
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**SECTION 16. OTHER INFORMATION**

**Creation Date** 03-Feb-2010  
**Revision Date** 06-Apr-2024  
**Revision Summary** Not applicable.

**Training Advice**

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.  
 Chemical incident response training.

**Legend****CAS** - Chemical Abstracts Service**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances**PICCS** - Philippines Inventory of Chemicals and Chemical Substances**IECSC** - Chinese Inventory of Existing Chemical Substances**KECL** - Korean Existing and Evaluated Chemical Substances**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List**ENCS** - Japanese Existing and New Chemical Substances**AICS** - Australian Inventory of Chemical Substances**NZIoC** - New Zealand Inventory of Chemicals**WEL** - Workplace Exposure Limit**ACGIH** - American Conference of Governmental Industrial Hygienists**DNEL** - Derived No Effect Level**RPE** - Respiratory Protective Equipment**LC50** - Lethal Concentration 50%**NOEC** - No Observed Effect Concentration**PBT** - Persistent, Bioaccumulative, Toxic**TWA** - Time Weighted Average**IARC** - International Agency for Research on Cancer**PNEC** - Predicted No Effect Concentration**LD50** - Lethal Dose 50%**EC50** - Effective Concentration 50%**POW** - Partition coefficient Octanol:Water**vPvB** - very Persistent, very Bioaccumulative**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road**OECD** - Organisation for Economic Co-operation and Development**BCF** - Bioconcentration factor**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code**MARPOL** - International Convention for the Prevention of Pollution from Ships**ATE** - Acute Toxicity Estimate**VOC** - (Volatile Organic Compound)**Key literature references and sources for data**<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**