

ALFAAL04489

1,1,2,2-Tetrachloroethane

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

产品说明: 1,1,2,2-四氯乙烷, 98+%
Product Description: 1,1,2,2-Tetrachloroethane

Cat No. : L04489
Synonyms: Acetosol; Bonoform; Cellon
CAS No: 79-34-5
Molecular Formula: C2 H2 Cl4

Supplier: Avocado Research Chemicals Ltd.
(Part of Thermo Fisher Scientific)
Shore Road, Heysham
Lancashire, LA3 2XY,
United Kingdom
Office Tel: +44 (0) 1524 850506
Office Fax: +44 (0) 1524 850608

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: No Information available

SECTION 2. HAZARD IDENTIFICATION

Physical State
Liquid

Appearance
Colorless

Odor
sweet

Emergency Overview

Fatal in contact with skin. Fatal if inhaled. Toxic to aquatic life with long lasting effects. Lachrymator (substance which increases the flow of tears).

Classification of the substance or mixture

Acute Dermal Toxicity	Category 1
Acute Inhalation Toxicity - Vapors	Category 2
Chronic aquatic toxicity	Category 2

Label Elements



Signal Word

Danger

1,1,2,2-Tetrachloroethane

Hazard Statements

H411 - Toxic to aquatic life with long lasting effects
H310 + H330 - Fatal in contact with skin or if inhaled

Precautionary Statements**Prevention**

P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P284 - Wear respiratory protection
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P262 - Do not get in eyes, on skin, or on clothing
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
P280 - Wear protective gloves/protective clothing/eye protection/face protection

Response

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P310 - Immediately call a POISON CENTER or doctor
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P361 + P364 - Take off immediately all contaminated clothing and wash it before reuse

Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up

Disposal

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

Physical and Chemical Hazards

None identified.

Health Hazards

Fatal in contact with skin. Fatal if inhaled.

Environmental hazards

Toxic to aquatic life with long lasting effects. . Will likely be mobile in the environment due to its water solubility. The product is water soluble, and may spread in water systems.

Other Hazards

Lachrymator (substance which increases the flow of tears)
Toxic to terrestrial invertebrates. Toxic to terrestrial vertebrates. This product does not contain any known or suspected endocrine disruptors.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
1,1,2,2-Tetrachloroethane	79-34-5	98.5

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

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

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact

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

Inhalation

Remove to fresh air. If breathing is difficult, give oxygen. Immediate medical attention is required. 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.

1,1,2,2-Tetrachloroethane

Ingestion

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

Most important symptoms and effects

Difficulty in breathing. . Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

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 (CO₂), dry chemical, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons

No information available.

Specific Hazards Arising from the Chemical

Non-combustible.

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

Do not flush into surface water or sanitary sewer system. See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up

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

Refer to protective measures listed in Sections 8 and 13.

SECTION 7. HANDLING AND STORAGE**Handling**

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

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame.

Specific Use(s)

Use in laboratories

1,1,2,2-Tetrachloroethane

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Component	China	Taiwan	Thailand	Hong Kong
1,1,2,2-Tetrachloroethane	-	TWA: 1 ppm TWA: 6.9 mg/m ³	TWA: 5 ppm	TWA: 1 ppm TWA: 6.9 mg/m ³

Component	ACGIH TLV	OSHA PEL	NIOSH	The United Kingdom	European Union
1,1,2,2-Tetrachloroethane	TWA: 1 ppm Skin	(Vacated) TWA: 1 ppm (Vacated) TWA: 7 mg/m ³ Skin TWA: 5 ppm TWA: 35 mg/m ³	IDLH: 100 ppm TWA: 1 ppm TWA: 7 mg/m ³	-	

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
 OSHA - Occupational Safety and Health Administration
 NIOSH: NIOSH - National Institute for Occupational Safety and Health

Exposure Controls

Engineering Measures

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)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Natural rubber	See manufacturers recommendations	-	EN 374	(minimum requirement)
Nitrile rubber				
Neoprene				
PVC				
Viton (R)				

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 compatibility, 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.

SAFETY DATA SHEET**1,1,2,2-Tetrachloroethane**

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	sweet	
Odor Threshold	No data available	
pH	No information available	
Melting Point/Range	-43 °C / -45.4 °F	
Softening Point	No data available	
Boiling Point/Range	147 °C / 296.6 °F	
Flash Point	No information available	Method - No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Vapor Pressure	6.6 mbar @ 20 °C	
Vapor Density	5.79	(Air = 1.0)
Specific Gravity / Density	1.580	
Bulk Density	Not applicable	Liquid
Water Solubility	0.3 G/100ML WATER (25°C)	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	log Pow	
1,1,2,2-Tetrachloroethane	2.39	
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Viscosity	1.7 mPa s at 28 °C	
Explosive Properties	No information available	
Oxidizing Properties	No information available	
Molecular Formula	C2 H2 Cl4	
Molecular Weight	167.85	

SECTION 10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions.
Hazardous Reactions	None under normal processing.
Hazardous Polymerization	Hazardous polymerization does not occur.
Conditions to Avoid	Incompatible products. Excess heat.
Materials to avoid	Strong oxidizing agents. Strong bases. nitrogen oxides (NOx). Metals. Finely powdered metals. Aluminium. copper.

Hazardous Decomposition Products Carbon monoxide (CO). Carbon dioxide (CO₂). Hydrogen chloride gas.

SECTION 11. TOXICOLOGICAL INFORMATION

SAFETY DATA SHEET**1,1,2,2-Tetrachloroethane****Product Information****(a) acute toxicity;**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
1,1,2,2-Tetrachloroethane	LD50 = 200 mg/kg (Rat)	LD50 = 3990 mg/kg (Rabbit)	LC50 = 8.6 mg/L (Rat) 4 h

(b) skin corrosion/irritation; No data available**(c) serious eye damage/irritation;** No data available**(d) respiratory or skin sensitization;**

Respiratory No data available
Skin No data available

(e) germ cell mutagenicity; No data available**(f) carcinogenicity;** No data available

Possible cancer hazard. May cause cancer based on animal data The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	EU	UK	Germany	IARC
1,1,2,2-Tetrachloroethane			Cat. 2	Group 2B

(g) reproductive toxicity; No data available**(h) STOT-single exposure;** No data available**(i) STOT-repeated exposure;** No data available

Target Organs No information available.

(j) aspiration hazard; No data available**Other Adverse Effects** The toxicological properties have not been fully investigated.

Symptoms / effects, both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity effects**

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
1,1,2,2-Tetrachloroethane	LC50: 20 - 22 mg/L, 96h static (Lepomis macrochirus) LC50: 19.9 - 20.7 mg/L, 96h flow-through (Pimephales promelas)	EC50: 16 - 35 mg/L, 48h Static (Daphnia magna) EC50: 16 - 35 mg/L, 48h (Daphnia magna)	EC50: 31.4 - 188 mg/L, 72h (Pseudokirchneriella subcapitata) EC50: = 47 mg/L, 96h static (Desmodesmus subspicatus) EC50: 40.7 - 344 mg/L,	EC50 = 1.43 mg/L 24 h EC50 = 5.43 mg/L 5 min

SAFETY DATA SHEET**1,1,2,2-Tetrachloroethane**

			96h (Pseudokirchneriella subcapitata)	
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Persistence and Degradability**Persistence**

No information available, Soluble in water, Persistence is unlikely, based on information available.

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)
1,1,2,2-Tetrachloroethane	2.39	4.5 - 13.2 dimensionless

Mobility in soil

The product is water soluble, and may spread in water systems Will likely be mobile in the environment due to its water solubility Highly mobile in soils

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

SECTION 13. DISPOSAL CONSIDERATIONS**Waste from Residues/Unused Products**

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.

Contaminated Packaging

Dispose of this container to hazardous or special waste collection point.

Other Information

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**

UN-No UN1702
 Proper Shipping Name 1,1,2,2-TETRACHLOROETHANE
 Hazard Class 6.1
 Packing Group II

IMDG/IMO

UN-No UN1702
 Proper Shipping Name 1,1,2,2-TETRACHLOROETHANE
 Hazard Class 6.1
 Subsidiary Hazard Class P
 Packing Group II

IATA

UN-No UN1702
 Proper Shipping Name 1,1,2,2-TETRACHLOROETHANE
 Hazard Class 6.1
 Packing Group II

1,1,2,2-Tetrachloroethane

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/NDL), 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
1,1,2,2-Tetrachloroethane	X	X	X	X	201-197-8	X	X	X	X	X	X	KE-33293

National Regulations

Component	Toxic Chemical Substances Control Act
1,1,2,2-Tetrachloroethane 79-34-5 (98.5)	Class IV (1 wt%)

SECTION 16. OTHER INFORMATION

Prepared By Health, Safety and Environmental Department
 Creation Date 22-Sep-2009
 Revision Date 25-Apr-2024
 Revision Summary New emergency telephone response service provider.

Training Advice

Chemical incident response training.

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

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

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/NDL - 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

1,1,2,2-Tetrachloroethane

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