

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

Creation Date 22-Sep-2009 Revision Date 28-Jan-2024 Revision Number 3

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

1.1. Product identifier

Product Description: <u>1,1,2,2-Tetrachloroethane</u>

Cat No. : L04489

Synonyms Acetosal; Bonoform; Cellon

 Index No
 602-015-00-3

 CAS No
 79-34-5

 EC No
 201-197-8

 Molecular Formula
 C2 H2 Cl4

REACH registration number -

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

Recommended Use Laboratory chemicals.
Uses advised against No Information available

1.3. Details of the supplier of the safety data sheet

Company

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

E-mail address begel.sdsdesk@thermofisher.com

1.4. 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

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Physical hazards

Based on available data, the classification criteria are not met

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Health hazards

Acute dermal toxicity

Acute Inhalation Toxicity - Vapors

Category 1 (H310)

Category 2 (H330)

Environmental hazards

Chronic aquatic toxicity Category 2 (H411)

Full text of Hazard Statements: see section 16

2.2. Label elements



Signal Word

Danger

Hazard Statements

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

Precautionary Statements

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P361 - Remove/Take off immediately all contaminated clothing

P302 + P350 - IF ON SKIN: Gently wash with plenty of soap and water

P310 - Immediately call a POISON CENTER or doctor/physician

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P273 - Avoid release to the environment

Additional EU labelling

For use in industrial installations only

2.3. 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

3.1. Substances

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
1,1,2,2-Tetrachloroethane	79-34-5	EEC No. 201-197-8	98.5	Acute Tox. 2 (H330) Actute Tox. 1 (H310)
				Aguatic Chronic 2 (H411)

	REACH registration number	-
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Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of 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.

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

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.

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.

4.2. Most important symptoms and effects, both acute and delayed

Difficulty in breathing. . Inhalation of high vapor concentrations may cause symptoms like

headache, dizziness, tiredness, nausea and vomiting

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically. Symptoms may be delayed.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

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.

5.2. Special hazards arising from the substance or mixture

Non-combustible.

Hazardous Combustion Products

Carbon monoxide (CO), Carbon dioxide (CO2), Hydrogen chloride gas.

5.3. Advice 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

6.1. Personal precautions, protective equipment and emergency procedures

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

6.2. 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.

6.3. Methods and material for containment and cleaning up

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

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe 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.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

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

Technical Rules for Hazardous Substances (TRGS) 510 Storage Class (LGK) (Germany)

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Class 6.1A

8.1. Control parameters

Exposure limits

List source(s): **IRE -** 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority

Component	The United Kingdom	European Union	Ireland
1,1,2,2-Tetrachloroethane			TWA: 1 ppm 8 hr.
			TWA: 6.9 mg/m ³ 8 hr.
			STEL: 3 ppm 15 min
			STEL: 20.7 mg/m ³ 15 min
			Skin

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

No information available

Predicted No Effect Concentration (PNEC)

No information available.

8.2. 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	-	EN 374	(minimum requirement)
Nitrile rubber	recommendations			
Neoprene				
PVC				
Viton (R)				

Skin and body protection Long sleeved clothing.

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.

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

Environmental exposure controls Prevent product from entering drains. Do not allow material to contaminate ground water

system.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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9.1. Information on basic physical and chemical properties

Physical State Liquid

Appearance Colorless Odor sweet

Odor ThresholdNo data availableMelting Point/Range-43 °C / -45.4 °FSoftening PointNo data availableBoiling Point/Range147 °C / 296.6 °FFlammability (liquid)No data available

Flammability (solid,gas) Not applicable Liquid

Explosion Limits No data available

Flash Point No information available Method - No information available

Autoignition Temperature
Decomposition Temperature
pH
Viscosity
Viscosity
No data available
No data available
No information available
1.7 mPa s at 28 °C
0.3 G/100ML WATER (25°C)
Solubility in other solvents
No information available

Partition Coefficient (n-octanol/water)

Componentlog Pow1,1,2,2-Tetrachloroethane2.39

Vapor Pressure 6.6 mbar @ 20 °C

Density / Specific Gravity 1.580

Bulk DensityNot applicableLiquidVapor Density5.79(Air = 1.0)

Particle characteristics Not applicable (liquid)

9.2. Other information

Molecular FormulaC2 H2 Cl4Molecular Weight167.85

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

10.4. Conditions to avoid

Incompatible products. Excess heat.

10.5. Incompatible materials

Strong oxidizing agents. Strong bases. nitrogen oxides (NOx). Metals. Finely powdered

metals. Aluminium. copper.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO₂). Hydrogen chloride gas.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product Information

(a) acute toxicity;

Based on available data, the classification criteria are not met Oral

Dermal Category 1 Inhalation Category 2

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	

No data available (b) skin corrosion/irritation;

No data available (c) serious eye damage/irritation;

(d) respiratory or skin sensitization;

Respiratory No data available No data available Skin

No data available (e) germ cell mutagenicity;

(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

No data available (g) reproductive toxicity;

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

delayed

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any

known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

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

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environment.

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

Component	Microtox	M-Factor
1,1,2,2-Tetrachloroethane	EC50 = 1.43 mg/L 24 h	
	EC50 = 5.43 mg/L 5 min	

12.2. 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.

12.3. Bioaccumulative potential

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
1,1,2,2-Tetrachloroethane	2.39	4.5 - 13.2 dimensionless

12.4. 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

12.5. Results of PBT and vPvB

assessment

No data available for assessment.

12.6. Endocrine disrupting

properties

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

Persistent Organic Pollutant Ozone Depletion Potential This product does not contain any known or suspected substance This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

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.

European Waste Catalogue (EWC) According to the European Waste Catalog, Waste Codes are not product specific, but

application specific.

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.

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SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number UN1702

14.2. UN proper shipping name 1,1,2,2-TETRACHLOROETHANE

14.3. Transport hazard class(es)6.1Subsidiary Hazard ClassP14.4. Packing groupII

ADR

14.1. UN number UN1702

14.2. UN proper shipping name 1,1,2,2-TETRACHLOROETHANE

14.3. Transport hazard class(es) 6.1 **14.4. Packing group** II

IATA

14.1. UN number UN1702

14.2. UN proper shipping name 1,1,2,2-TETRACHLOROETHANE

14.3. Transport hazard class(es) 6.1 14.4. Packing group II

14.5. Environmental hazards Dangerous for the environment

Product is a marine pollutant according to the criteria set by IMDG/IMO

14.6. Special precautions for user No special precautions required.

14.7. Maritime transport in bulk Not applicable, packaged goods

according to IMO instruments

SECTION 15: REGULATORY INFORMATION

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

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

	Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Γ	1,1,2,2-Tetrachloroethane	79-34-5	201-197-8	-	-	Х	Х	KE-33293	Х	X
_	.,.,_,						,,	00200		

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
1,1,2,2-Tetrachloroethane	79-34-5	Х	ACTIVE	X	-	Х	Х	Х

Legend: X - Listed '-' - Not Listed **KECL** - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization		REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
1,1,2,2-Tetrachloroethane	79-34-5	-	Use restricted. See item 35. (see link for restriction details)	-

1,1,2,2-Tetrachloroethane Revision Date 28-Jan-2024

REACH links

https://echa.europa.eu/substances-restricted-under-reach

Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) -	Seveso III Directive (2012/18/EC) -	
		Qualifying Quantities for Major Accident	Qualifying Quantities for Safety Report	
		Notification	Requirements	
1,1,2,2-Tetrachloroethane	79-34-5	Not applicable	Not applicable	

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Component	ANNEX I - PART 1 List of chemicals subject to export notification procedure (referred to in Article 8)		ANNEX I - PART 3 List of chemicals subject to the PIC procedure (referred to in Articles 13 and 14)
1,1,2,2-Tetrachloroethane 79-34-5 (98.5)	sr — severe restriction i(2) — industrial chemical for	-	-
	public		

https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32012R0649&qid=1604065742303.

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)? Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification See table for values

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
1,1,2,2-Tetrachloroethane	WGK3	Class I: 20 mg/m³ (Massenkonzentration)

Component	France - INRS (Tables of occupational diseases)	
1,1,2,2-Tetrachloroethane	Tableaux des maladies professionnelles (TMP) - RG 3	

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
1,1,2,2-Tetrachloroethane 79-34-5 (98.5)	Persistent Organic Pollutants (POPs) Prohibited and Restricted Substances		

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

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SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H310 - Fatal in contact with skin

H330 - Fatal if inhaled

H411 - Toxic to aquatic life with long lasting effects

Legend

CAS - Chemical Abstracts Service

TSCA - United States Toxic Substances Control Act Section 8(b)

Substances List

EINECS/ELINCS - European Inventory of Existing Commercial Chemical DSL/NDSL - Canadian Domestic Substances List/Non-Domestic

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 **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

Predicted No Effect Concentration (PNEC)

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50% POW - Partition coefficient Octanol:Water vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime

Dangerous Goods Code

BCF - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from

Ships

OECD - Organisation for Economic Co-operation and Development 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

Training Advice

Chemical incident response training.

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

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.

Prepared By Health, Safety and Environmental Department

Creation Date 22-Sep-2009 **Revision Date** 28-Jan-2024

Revision Summary New emergency telephone response service provider.

This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

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