

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

Creation Date 18-Sep-2007 Revision Date 02-Feb-2024 Revision Number 5

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

#### 1.1. Product identifier

Product Description: <u>Ethyl chloroacetate</u>

 Cat No.:
 A15554

 Index No
 607-070-00-7

 CAS No
 105-39-5

 EC No
 203-294-0

 Molecular Formula
 C4 H7 Cl O2

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** 

Flammable liquids Category 3 (H226)

**Health hazards** 

ALFAAA15554

#### Ethyl chloroacetate Revision Date 02-Feb-2024

Acute oral toxicity
Acute dermal toxicity
Acute Inhalation Toxicity - Vapors
Skin Corrosion/Irritation
Serious Eye Damage/Eye Irritation
Skin Sensitization
Category 1 (H318)
Category 1 (H317)

#### **Environmental hazards**

Acute aquatic toxicity Category 1 (H400)

Full text of Hazard Statements: see section 16

#### 2.2. Label elements



#### Signal Word

**Danger** 

#### **Hazard Statements**

H226 - Flammable liquid and vapor

H301 + H331 - Toxic if swallowed or if inhaled

H310 - Fatal in contact with skin

H315 - Causes skin irritation

H317 - May cause an allergic skin reaction

H318 - Causes serious eye damage

H400 - Very toxic to aquatic life

#### **Precautionary Statements**

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

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

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower

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

P310 - Immediately call a POISON CENTER or doctor/physician

#### 2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB) Lachrymator (substance which increases the flow of tears)

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

#### Ethyl chloroacetate

				UK SI 2020/1567
Ethyl chloroacetate	105-39-5	EEC No. 203-294-0	<=100	Flam. Liq. 3 (H226) Acute Tox. 3 (H301) Acute Tox. 2 (H310) Acute Tox. 3 (H331) Skin Irrit. 2 (H315)
				Eye Dam. 1 (H318) Skin Sens. 1 (H317) Aquatic Acute 1 (H400)

Component	Specific concentration limits (SCL's)	M-Factor	Component notes	
Ethyl chloroacetate	-	1	-	

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. In

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

Revision Date 02-Feb-2024

advice.

**Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. Immediate medical

attention is required.

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

**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.

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

None reasonably foreseeable. Causes severe eye damage. May cause allergic skin reaction. Symptoms of overexposure may be 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

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

Notes to Physician Treat symptomatically.

## **SECTION 5: FIREFIGHTING MEASURES**

#### 5.1. Extinguishing media

#### Suitable Extinguishing Media

Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

Ethyl chloroacetate Revision Date 02-Feb-2024

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

Water.

#### 5.2. Special hazards arising from the substance or mixture

Flammable. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air. Do not allow run-off from fire-fighting to enter drains or water courses.

#### **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

Use personal protective equipment as required. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges.

#### 6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

#### 6.3. Methods and material for containment and cleaning up

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

#### 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

Do not get in eyes, on skin, or on clothing. Wear personal protective equipment/face protection. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

#### **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 Class 3 Storage Class (LGK) (Germany)

#### 7.3. Specific end use(s)

Ethyl chloroacetate Revision Date 02-Feb-2024

Use in laboratories

## **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

#### 8.1. Control parameters

#### **Exposure limits**

List source(s):

#### **Biological limit values**

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

#### Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

No information available

## **Predicted No Effect Concentration (PNEC)**

No information available.

#### 8.2. Exposure controls

#### **Engineering Measures**

Use explosion-proof electrical/ventilating/lighting equipment. 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
Nitrile rubber Neoprene Natural rubber PVC	See manufacturers recommendations	-	EN 374	(minimum requirement)

**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.

To protect the wearer, respiratory protective equipment must be the correct fit and be used

and maintained properly

Ethyl chloroacetate Revision Date 02-Feb-2024

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 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

When RPE is used a face piece Fit Test should be conducted

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

system. Local authorities should be advised if significant spillages cannot be contained.

## **SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

#### 9.1. Information on basic physical and chemical properties

Physical State Liquid

Appearance Colorless

Odor
Odor No information available
No data available
Melting Point/Range -26 °C / -14.8 °F
Softening Point No data available

**Boiling Point/Range** 142 - 145 °C / 287.6 - 293 °F

Flammability (liquid) Flammable On basis of test data

Flammability (solid,gas) Not applicable Liquid

Explosion Limits Lower 2.6

Flash Point 53 °C / 127.4 °F Method - No information available

**Autoignition Temperature**452 - °C / 845.6 - °F **Decomposition Temperature**No data available

Decomposition Temperature<br/>pHNo data available<br/>Not applicableViscosity1.27mPa.s at 20 °C

Water Solubility 20 g/l (20°C)

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Componentlog PowEthyl chloroacetate1.13

Vapor Pressure 4.5 mbar @ 20 °C

Density / Specific Gravity 1.150

 Bulk Density
 Not applicable
 Liquid

 Vapor Density
 No data available
 (Air = 1.0)

Particle characteristics Not applicable (liquid)

9.2. Other information

Molecular FormulaC4 H7 Cl O2Molecular Weight122.55

**Explosive Properties** explosive air/vapour mixtures possible

## **SECTION 10: STABILITY AND REACTIVITY**

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Stable under normal conditions.

Ethyl chloroacetate Revision Date 02-Feb-2024

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. Keep away from open flames, hot surfaces and

sources of ignition.

10.5. Incompatible materials

Strong oxidizing agents. Strong bases.

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;

Oral Category 3
Dermal Category 2
Inhalation Category 3

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethyl chloroacetate	LD50 = 180 mg/kg ( Rat )	LD50 = 161.2 mg/kg (Rat) LD50 = 230 mg/kg (Rabbit)	$LC50 = 3.33 \text{ mL/m}^3 \text{ (Rat) 4 h}$

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory No data available Skin Category 1

No information available

(e) germ cell mutagenicity; No data available

Not mutagenic in AMES Test

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

Target Organs None known.

Revision Date 02-Feb-2024 Ethyl chloroacetate

(i) aspiration hazard; No data available

delayed

Symptoms / effects,both acute and Symptoms of overexposure may be 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.

#### 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** 

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms.

Component	Freshwater Fish	Water Flea	Freshwater Algae
Ethyl chloroacetate	LC50: = 1.48 mg/L, 96h static (Brachydanio rerio)	EC50: 1.1 - 2.4 mg/L, 48h (Daphnia magna)	

Component	Microtox	M-Factor
Ethyl chloroacetate		1

12.2. Persistence and degradability Expected to be biodegradable

**Persistence** 

Persistence is unlikely.

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)
Ethyl chloroacetate	1.13	No data available

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

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent

and very bioaccumulative (vPvB).

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.

Ethyl chloroacetate Revision Date 02-Feb-2024

Contaminated Packaging Dispose of this container to hazardous or special waste collection point. Empty containers

retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and

empty container away from heat and sources of ignition.

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. Can be landfilled or incinerated, when in compliance with local regulations. Do not empty into drains. Do not let this chemical enter

the environment.

## **SECTION 14: TRANSPORT INFORMATION**

#### IMDG/IMO

**14.1. UN number** UN1181

14.2. UN proper shipping name ETHYL CHLOROACETATE

14.3. Transport hazard class(es)6.1Subsidiary Hazard Class314.4. Packing groupII

ADR

**14.1. UN number** UN1181

14.2. UN proper shipping name ETHYL CHLOROACETATE

14.3. Transport hazard class(es)6.1Subsidiary Hazard Class314.4. Packing groupII

<u>IATA</u>

**14.1. UN number** UN1181

14.2. UN proper shipping name ETHYL CHLOROACETATE

14.3. Transport hazard class(es) 6.1 Subsidiary Hazard Class 3 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 according to IMO instruments

Not applicable, packaged goods

## **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
Ethyl chloroacetate	105-39-5	203-294-0	-	-	Х	X	-	Χ	Х

#### Ethyl chloroacetate

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Ethyl chloroacetate	105-39-5	X	ACTIVE	-	Х	X	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

Not applicable

Revision Date 02-Feb-2024

	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)
Ī	Ethyl chloroacetate	105-39-5	-	-	-

## 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	
Ethyl chloroacetate	105-39-5	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

Not applicable

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
ſ	Ethyl chloroacetate	WGK3	Class I: 20 mg/m³ (Massenkonzentration)

## 15.2. Chemical safety assessment

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

## **SECTION 16: OTHER INFORMATION**

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

H301 - Toxic if swallowed

H310 - Fatal in contact with skin

H331 - Toxic if inhaled

H315 - Causes skin irritation

Ethyl chloroacetate Revision Date 02-Feb-2024

H317 - May cause an allergic skin reaction

H318 - Causes serious eve damage

H400 - Very toxic to aquatic life

H226 - Flammable liquid and vapor

## Legend

**CAS** - Chemical Abstracts Service

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

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%

Substances List

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

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

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

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

#### **Training Advice**

Chemical incident response training.

**Prepared By** Health, Safety and Environmental Department

**Creation Date** 18-Sep-2007 **Revision Date** 02-Feb-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**