

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

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>N,N,N',N'-Tetramethyl-1,3-propanediamine</u>

Cat No. : A19500

Synonyms N,N,N`,N`-Tetramethyl-1,3-diaminopropane; N; 1,3-Propanediamine,

N,N,N`,N`-tetramethyl-

CAS No 110-95-2 Molecular Formula C7 H18 N2

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

ALFAAA19500

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Acute oral toxicity

Acute dermal toxicity

Acute Inhalation Toxicity - Vapors

Skin Corrosion/Irritation

Serious Eye Damage/Eye Irritation

Category 4 (H302)

Category 3 (H311)

Category 3 (H331)

Category 1 B (H314)

Category 1 (H318)

Environmental hazards

Based on available data, the classification criteria are not met

Chronic aquatic toxicity Category 2 (H411)

Full text of Hazard Statements: see section 16

2.2. Label elements



Signal Word

Danger

Hazard Statements

H226 - Flammable liquid and vapor

H314 - Causes severe skin burns and eye damage

H302 - Harmful if swallowed

H411 - Toxic to aquatic life with long lasting effects

H311 + H331 - Toxic in contact with skin or if inhaled

Precautionary Statements

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

P312 - Call a POISON CENTER or doctor if you feel unwell

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

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting

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

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

2.3. Other hazards

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

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
1,3-Propanediamine, N,N,N',N'-tetramethyl-	110-95-2	EEC No. 203-818-8	>95	Skin Corr. 1B (H314) Eye Dam. 1 (H318) Acute Tox. 4 (H302)

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		Acute Tox. 3 (H311)
		Acute Tox. 3 (H331)
		Flam. Liq. 3 (H226)
		Aquatic Chronic 2 (H411)

REACH registration number

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated

clothes and shoes.

Ingestion Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Drink

plenty of water. If possible drink milk afterwards.

Inhalation Remove from exposure, lie down. Remove to fresh air.

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. Causes burns by all exposure routes. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

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.

Extinguishing media which must not be used for safety reasons

No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products

Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO₂).

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.

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SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation.

6.2. Environmental precautions

See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

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 breathe mist/vapors/spray. Avoid contact with skin and eyes. Use only under a chemical fume hood.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Flammables area. Keep containers tightly closed in a dry, cool and well-ventilated place.

Technical Rules for Hazardous Substances (TRGS) 510 Class 3 Storage Class (LGK) (Germany)

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

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

Biological limit values

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

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

See table for values

Component	Acute effects local (Dermal)	Acute effects systemic (Dermal)	Chronic effects local (Dermal)	Chronic effects systemic (Dermal)
1,3-Propanediamine,		DNEL = 3.1mg/kg		DNEL = 0.16mg/kg
N,N,N',N'-tetramethyl-		bw/day		bw/day
110-95-2 (>95)		-		-

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
1,3-Propanediamine, N,N,N',N'-tetramethyl- 110-95-2 (>95)	DNEL = 2.34mg/m ³	DNEL = 2.34mg/m ³	DNEL = 1.17mg/m ³	DNEL = 1.17mg/m ³

Predicted No Effect Concentration (PNEC)

See values below.

	Component	Fresh water	Fresh water	Water Intermittent	Vater Intermittent Microorganisms in	
			sediment		sewage treatment	
Ī	1,3-Propanediamine,	$PNEC = 8.8 \mu g/L$	PNEC =	PNEC = 0.1mg/L	PNEC = 100mg/L	PNEC =
	N,N,N',N'-tetramethyl-		0.1302mg/kg			0.0209mg/kg soil
-	110-95-2 (>95)		sediment dw			dw

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
1,3-Propanediamine,	PNEC = 0.88µg/L	PNEC =			
N,N,N',N'-tetramethyl-		0.013mg/kg			
110-95-2 (>95)		sediment dw			

8.2. Exposure controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas.

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 Wear safety glasses with side shields (or goggles) Goggles (European standard - EN 166)

Protective gloves **Hand Protection**

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Disposable gloves	See manufacturers	-	EN 374	(minimum requirement)
	recommendations			

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

Remove gloves with care avoiding skin contamination.

Respiratory Protection

Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

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

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Large scale/emergency use In case of insufficient ventilation, wear suitable respiratory equipment

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.

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

Environmental exposure controls No information available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State Liquid

Appearance Light yellow Odor Odorless

Odor Threshold No data available

Melting Point/Range -70 °C

Softening Point No data available

Boiling Point/Range 145 - 146 °C / 293 - 294.8 °F @ 760 mmHg
Flammability (liquid) Flammable On basis of test data

Flammability (solid,gas)

No information available

Explosion Limits

No data available

Explosion Ellinis

Flash Point 31 °C / 87.8 °F Method - No information available

Autoignition Temperature 180 °C

Decomposition Temperature
pHNo data available
No information availableViscosityNo data availableWater SolubilityNo information availableSolubility in other solventsNo information available

Partition Coefficient (n-octanol/water)

Component log Pow 1,3-Propanediamine, 0.36

N,N,N',N'-tetramethyl-

Vapor Pressure 6.5 hPa (20°C)

Density / Specific Gravity 0.779

Bulk Density No data available

Vapor Density 4.49 (Air = 1.0)

Particle characteristics Not applicable (liquid)

9.2. Other information

Molecular Formula C7 H18 N2 Molecular Weight 130.23

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 No information available. Hazardous Reactions No information available.

10.4. Conditions to avoid

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Incompatible products. Excess heat.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO2).

SECTION 11: TOXICOLOGICAL INFORMATION

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

Product Information

(a) acute toxicity;

Oral No data available **Dermal** No data available Inhalation No data available

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation	
1,3-Propanediamine, N,N,N',N'-tetramethyl-	LD50 = 410 μ L/kg (Rat)	LD50 = 1180 mg/kg (Rat)	5.4 mg/L/4h (Rat)	

(b) skin corrosion/irritation; No data available

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

(d) respiratory or skin sensitization;

No data available Respiratory Skin No data 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

No data available (g) reproductive toxicity;

(h) STOT-single exposure; No data available

No data available (i) STOT-repeated exposure;

Target Organs No information available.

No data available (j) aspiration hazard;

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for

complete information

delayed

Symptoms / effects,both acute and Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes

severe swelling, severe damage to the delicate tissue and danger of perforation.

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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 Do not empty into drains.

Component	Freshwater Fish	Water Flea	Freshwater Algae
1,3-Propanediamine, N,N,N',N'-tetramethyl-	LC50: > 100 mg/L, 96h static (Danio rerio)	EC50: 3.1 mg/L/48h	

12.2. Persistence and degradability Not readily biodegradable

12.3. Bioaccumulative potential No information available

Component	log Pow	Bioconcentration factor (BCF)
1,3-Propanediamine, N,N,N',N'-tetramethyl-	0.36	No data available

No information available 12.4. Mobility in soil

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

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Consult local, regional, and national hazardous waste regulations to

ensure complete and accurate classification.

Empty remaining contents. Dispose of in accordance with local regulations. Do not re-use **Contaminated Packaging**

empty containers.

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

application specific.

Other Information Waste codes should be assigned by the user based on the application for which the product

was used.

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SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number UN2734

14.2. UN proper shipping name AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.

Technical Shipping Name 1,3-Propanediamine, N,N,N',N'-tetramethyl-

14.3. Transport hazard class(es)8Subsidiary Hazard Class314.4. Packing groupII

ADR

14.1. UN number UN2734

14.2. UN proper shipping name AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.

Technical Shipping Name 1,3-Propanediamine, N,N,N',N'-tetramethyl-

14.3. Transport hazard class(es)8Subsidiary Hazard Class314.4. Packing groupII

<u>IATA</u>

14.1. UN number UN2734

14.2. UN proper shipping name AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.

Technical Shipping Name 1,3-Propanediamine, N,N,N',N'-tetramethyl-

14.3. Transport hazard class(es)8Subsidiary Hazard Class314.4. Packing groupII

14.5. Environmental hazards No hazards identified

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
1,3-Propanediamine,	110-95-2	203-818-8	-	-	Х	X	KE-33625	X	X
N,N,N',N'-tetramethyl-									

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
1,3-Propanediamine,	110-95-2	Х	ACTIVE	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 Not applicable

	Component	CAS No	REACH (1907/2006) -	REACH (1907/2006) -	REACH Regulation (EC	1
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N,N,N',N'-Tetramethyl-1,3-propanediamine

		Annex XIV - Substances Subject to Authorization	, –	1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
1,3-Propanediamine, N,N,N',N'-tetramethyl-	110-95-2	-	-	-

Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
1,3-Propanediamine, N,N,N',N'-tetramethyl-	110-95-2	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	
1,3-Propanediamine,	WGK2		
N,N,N',N'-tetramethyl-			

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

Legend

CAS - Chemical Abstracts Service

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

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

Substances List **ENCS** - Japanese Existing and New Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances **IECSC** - Chinese Inventory of Existing Chemical Substances

AICS - Australian Inventory of Chemical Substances NZIoC - New Zealand Inventory of Chemicals

KECL - Korean Existing and Evaluated Chemical Substances

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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

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

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

Prepared By Health, Safety and Environmental Department

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