

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

Creation Date 03-Dec-2010 Revision Date 02-May-2025 **Revision Number** 5

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

1.1. Product identifier

Ethyl vinyl ether **Product Description:**

Cat No.: A15691

Svnonvms Ethoxy ethene; Vinyl ethyl ether

CAS No 109-92-2 EC No 203-718-4 Molecular Formula C4 H8 O

01-2119487136-33-0121 **REACH** registration number

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

Recommended Use Laboratory chemicals.

Sector of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

PC21 - Laboratory chemicals **Product category**

PROC15 - Use as a laboratory reagent **Process categories**

ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates) **Environmental release category**

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

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

Physical hazards

Flammable liquids Category 2 (H225)

Ethyl vinyl ether

Health hazards

Specific target organ toxicity - (single exposure) Category 3 (H336)

Environmental hazards

Chronic aquatic toxicity Category 3 (H412)

Full text of Hazard Statements: see section 16

2.2. Label elements



Signal Word

Danger

Hazard Statements

H225 - Highly flammable liquid and vapor

H336 - May cause drowsiness or dizziness

H412 - Harmful to aquatic life with long lasting effects

Precautionary Statements

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

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

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

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

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

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 %	GHS Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Vinyl ethyl ether	109-92-2	EEC No. 203-718-4	99.9	Flam. Liq. 2 (H225) STOT SE 3 (H336) Aquatic Chronic 3 (H412)
Potassium hydroxide	1310-58-3	215-181-3	0.1	Acute Tox. 4 (H302) Skin Corr. 1A (H314)

ALFAAA15691

Revision Date 02-May-2025

Ethyl vinyl ether Revision Date 02-May-2025

Eye Dam. 1 (H318)

Component	Specific concentration limits	M-Factor	Component notes
	(SCL's)		
Potassium hydroxide	Skin Corr. 1A (H314) :: C>=5%	=	=
·	Skin Corr. 1B (H314) ::		
	2%<=C<5%		
	Eye Irrit. 2 (H319) ::		
	0.5%<=C<2%		
	Skin Irrit. 2 (H315) ::		
	0.5%<=C<2%		ļ

REACH registration number	01-2119487136-33-0121
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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 If symptoms persist, call a physician.

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

medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists,

call a physician.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if

symptoms occur.

Self-Protection of the First Aider No special precautions required.

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

None reasonably foreseeable. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Causes central nervous system depression

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

Water may be ineffective. Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Flammable. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may

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Ethyl vinyl ether

Revision Date 02-May-2025

explode when heated. Vapors may form explosive mixtures with air.

Hazardous Combustion Products

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.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Ensure adequate ventilation.

6.2. Environmental precautions

Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. 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

Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid ingestion and inhalation. Do not get in eyes, on skin, or on clothing.

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

Keep away from heat, sparks and flame. Keep container tightly closed. Keep in a dry, cool and well-ventilated place. Refrigerator/flammables. Flammables area. Keep container tightly closed in a dry and well-ventilated place. Protect from direct sunlight.

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

List source(s): **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **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
Potassium hydroxide	WEL - 2 mg/m ³ STEL		STEL: 2 mg/m ³ 15 min

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)

See table for values

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Potassium hydroxide 1310-58-3 (0.1)			DNEL = 1mg/m ³	

Predicted No Effect Concentration (PNEC)

See values below.

Г	Component	Fresh water	Fresh water	Water Intermittent	Microorganisms in	Soil (Agriculture)
			sediment		sewage treatment	
Г	Vinyl ethyl ether	PNEC =	PNEC =	PNEC = 0.283mg/L	PNEC = 337.6mg/L	PNEC =
	109-92-2 (99.9)	0.0283mg/L	0.129mg/kg	_	-	0.00924mg/kg soil
			sediment dw			dw

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Vinyl ethyl ether	PNEC =	PNEC =			
109-92-2 (99.9)	0.00283mg/L	0.0129mg/kg			
,		sediment dw			

8.2. Exposure controls

Engineering Measures

Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location. 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) (European standard - EN 166)

Hand Protection Protective gloves

ſ	Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
١	Nitrile rubber	See manufacturers	-	EN 374	(minimum requirement)
L	Viton (R)	recommendations			

Skin and body protection Long sleeved clothing.

Ethyl vinyl ether

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 No protective equipment is needed under normal use conditions.

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits Large scale/emergency use

are exceeded or if irritation or other symptoms are experienced

Small scale/Laboratory use Maintain adequate ventilation

Environmental exposure controls Prevent product from entering drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State Liquid

Appearance Colorless

Petroleum distillates Odor **Odor Threshold** No data available **Melting Point/Range** -116 °C / -176.8 °F **Softening Point** No data available

36 °C / 96.8 °F **Boiling Point/Range** @ 760 mmHg Flammability (liquid) Highly flammable On basis of test data Liquid

Flammability (solid,gas) Not applicable

Lower 1.3 Vol% **Explosion Limits** Upper 12 Vol%

-45 °C / -49 °F Flash Point

Method - No information available 180 °C / 356 °F **Autoignition Temperature**

280 °C **Decomposition Temperature**

No information available pН 0.28 mPa s at 5 °C Viscosity **Water Solubility** Moderately soluble Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Component log Pow Vinyl ethyl ether 1.63 Potassium hydroxide 0.83

Vapor Pressure 560 mbar @ 20 °C

Density / Specific Gravity 0.750

Bulk Density Not applicable Liquid **Vapor Density** No information available (Air = 1.0)

Particle characteristics Not applicable (liquid)

9.2. Other information

C4 H8 O Molecular Formula **Molecular Weight** 72.11

Explosive Properties Vapors may form explosive mixtures with air - Heat of Polymerization (KJ/Mole) = 17.9 Self-accelerating polymerisation

temperature (SAPT) Inhibitor level > 1000 ppm

ALFAAA15691

Revision Date 02-May-2025

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Yes

10.2. Chemical stability

Air sensitive.

10.3. Possibility of hazardous reactions

Hazardous Polymerization

Hazardous polymerization may occur.

Hazardous Reactions May form explosive peroxides.

10.4. Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition. Exposure to air.

Incompatible products.

10.5. Incompatible materials

Acids. Strong oxidizing agents. oxygen. Peroxides.

10.6. Hazardous decomposition products

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;

OralNo data availableDermalNo data availableInhalationNo data available

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Vinyl ethyl ether	LD50 = 8160 μL/kg (Rat)	LD50 > 15080 mg/kg (Rabbit)	LC50 > 21.2 mg/L (Rat) 4 h
Potassium hydroxide	LD50 = 333-384 mg/kg (Rat)	-	-

(b) skin corrosion/irritation; No data available

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

(d) respiratory or skin sensitization;

RespiratoryNo data available **Skin**No data available

Component	Test method	Test species	Study result
Potassium hydroxide	OECD Test Guideline 406	guinea pig	non-sensitising
1310-58-3 (0.1)			

(e) germ cell mutagenicity; No data available

Not mutagenic in AMES Test

Ethyl vinyl ether Revision Date 02-May-2025

(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

Central nervous system (CNS). Results / Target organs

No data available (i) STOT-repeated exposure;

Target Organs No information available.

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

Other Adverse Effects The toxicological properties have not been fully investigated.

delayed

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

tiredness, nausea and vomiting. Causes central nervous system depression.

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 Data from closely analogous substances. Harmful to aquatic organisms, may cause

long-term adverse effects in the aquatic environment. Do not empty into drains.

Component	Freshwater Fish	Water Flea	Freshwater Algae
Vinyl ethyl ether			EC50: = 510 mg/L, 72h
			(Desmodesmus subspicatus)

Component	Microtox	M-Factor	
Vinyl ethyl ether	EC50 > 5000 mg/L 17 h		

12.2. Persistence and degradability

Persistence

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)
Vinyl ethyl ether	1.63	No data available
Potassium hydroxide	0.83	No data available

12.4. Mobility in soil The product contains volatile organic compounds (VOC) which will evaporate easily from all

Ethyl vinyl ether Revision Date 02-May-2025

surfaces Will likely be mobile in the environment due to its volatility. Disperses rapidly in

air

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.

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 let this chemical enter the environment. Do not

empty into drains.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number UN1302

14.2. UN proper shipping name VINYL ETHYL ETHER, STABILIZED

14.3. Transport hazard class(es) 3 14.4. Packing group I

<u>ADR</u>

14.1. UN number UN1302

14.2. UN proper shipping name VINYL ETHYL ETHER, STABILIZED

14.3. Transport hazard class(es) 3 14.4. Packing group I

IATA

14.1. UN number UN1302

14.2. UN proper shipping name VINYL ETHYL ETHER, STABILIZED

Ethyl vinyl ether Revision Date 02-May-2025

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

14.5. Environmental hazards No hazards identified

14.6. Special precautions for user Inhibitors have been added to stabilize this product. Inhibitor levels should be maintained.

Hazardous polymerization may occur upon depletion of inhibitor.

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
Vinyl ethyl ether	109-92-2	203-718-4	-	-	Х	X	KE-13357	Х	Х
Potassium hydroxide	1310-58-3	215-181-3	-	-	Х	Х	KE-29139	Х	Х

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Vinyl ethyl ether	109-92-2	Х	ACTIVE	X	Ī	X	Х	Х
Potassium hydroxide	1310-58-3	Х	ACTIVE	Χ	ı	Χ	Χ	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 (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Vinyl ethyl ether	109-92-2	-	-	-
Potassium hydroxide	1310-58-3	-	Use restricted. See entry 75.	-
			(see link for restriction details)	

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) - Qualifying Quantities for Major Accident	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report	
			Notification	Requirements	
	Vinyl ethyl ether 109-92-2		Not applicable	Not applicable	
i	Potassium hydroxide 1310-58-3		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)?

Ethyl vinyl ether

Revision Date 02-May-2025

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 (Aw		Germany - TA-Luft Class
Vinyl ethyl ether	WGK1	
Potassium hydroxide	WGK1	

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	
Potassium hydroxide	Prohibited and Restricted			
1310-58-3 (0.1)	Substances			

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

H336 - May cause drowsiness or dizziness

H412 - Harmful to aquatic life with long lasting effects

Legend

CAS - Chemical Abstracts Service

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

Substances/EU List of Notified Chemical Substances

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

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

ENCS - Japanese Existing and New Chemical Substances AICS - Australian Inventory of Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

TWA - Time Weighted Average IARC - International Agency for Research on Cancer

DNEL - Derived No Effect Level RPE - Respiratory Protective Equipment Predicted No Effect Concentration (PNEC)

LC50 - Lethal Concentration 50% NOEC - No Observed Effect Concentration PBT - Persistent, Bioaccumulative, Toxic

LD50 - Lethal Dose 50% EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water vPvB - very Persistent, very Bioaccumulative

Ethyl vinyl ether Revision Date 02-May-2025

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 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.

Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts. Chemical incident response training.

Prepared By Health, Safety and Environmental Department

Creation Date03-Dec-2010Revision Date02-May-2025Revision SummaryNot applicable.

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