

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

Creation Date 15-Apr-2009 Revision Date 02-Feb-2024 Revision Number 3

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

#### 1.1. Product identifier

Product Description: <u>Diethyl ether, ACS</u>

Cat No. : 33224

 Synonyms
 Ethyl ether; Ether

 Index No
 603-022-00-4

 CAS No
 60-29-7

 EC No
 200-467-2

 Molecular Formula
 C4 H10 O

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 1 (H224)

ALFAA33224

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#### **Health hazards**

Acute oral toxicity

Specific target organ toxicity - (single exposure)

Category 4 (H302) Category 3 (H336)

#### **Environmental hazards**

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

#### 2.2. Label elements



#### Signal Word

#### **Danger**

#### **Hazard Statements**

H224 - Extremely flammable liquid and vapor

H302 - Harmful if swallowed

H336 - May cause drowsiness or dizziness

EUH019 - May form explosive peroxides

EUH066 - Repeated exposure may cause skin dryness or cracking

## **Precautionary Statements**

P240 - Ground and bond container and receiving equipment

P243 - Take action to prevent static discharges

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

P233 - Keep container tightly closed

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

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

P403 + P235 - Store in a well-ventilated place. Keep cool

#### 2.3. Other hazards

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

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<br>GB-CLP Regulations UK SI 2019/720 and<br>UK SI 2020/1567 |
|-------------|---------|-------------------|----------|---|
| Ethyl ether | 60-29-7 | EEC No. 200-467-2 | >95      | Flam. Liq. 1 (H224)<br>Acute Tox. 4 (H302)<br>STOT SE 3 (H336)<br>(EUH019)<br>(EUH066)        |

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**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. Get

medical attention.

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

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

**Inhalation** Remove to fresh air. If breathing is difficult, give oxygen. 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. Get

medical attention.

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**

CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.

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

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

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

Extremely flammable. Risk of ignition. Vapors may travel to source of ignition and flash back. Vapors may form explosive mixtures with air. Containers may explode when heated. May form explosive peroxides. Vapors may form explosive mixtures with air.

#### **Hazardous Combustion Products**

Carbon monoxide (CO), Carbon dioxide (CO2), peroxides.

#### 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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Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes or clothing.

#### 6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information.

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

Remove all sources of ignition. Soak up with inert absorbent material. Take precautionary measures against static discharges. Keep in suitable, closed containers for disposal. 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

Wear personal protective equipment/face protection. Handle under an inert atmosphere. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Do not breathe mist/vapors/spray. Keep away from open flames, hot surfaces and sources of ignition. If peroxide formation is suspected, do not open or move container. Use only non-sparking tools. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

#### **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. Store under an inert atmosphere. Keep away from open flames, hot surfaces and sources of ignition. May form explosive peroxides. Containers should be dated when opened and tested periodically for the presence of peroxides. Should crystals form in a peroxidizable liquid, peroxidation may have occurred and the product should be considered extremely dangerous. In this instance, the container should only be opened remotely by professionals. Keep away from heat, sparks and flame. Keep container tightly closed in a dry 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**

List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **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            |
|-------------|----------------------|-------------------|--------------------|
| Ethyl ether | STEL: 200 ppm 15 min | TWA: 100 ppm (8h) | TWA: 100 ppm 8 hr. |

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| STEL: 620 mg/m <sup>3</sup> 15 min | TWA: 308 mg/m <sup>3</sup> (8h)     | TWA: 308 mg/m <sup>3</sup> 8 hr.   |
|------------------------------------|-------------------------------------|------------------------------------|
| TWA: 100 ppm 8 hr                  | STEL: 200 ppm (15min)               | STEL: 200 ppm 15 min               |
| TWA: 310 mg/m <sup>3</sup> 8 hr    | STEL: 616 mg/m <sup>3</sup> (15min) | STEL: 616 mg/m <sup>3</sup> 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 (Dermal) | Acute effects systemic (Dermal) | Chronic effects local (Dermal) | Chronic effects<br>systemic (Dermal) |
|--------------------------------|------------------------------|---------------------------------|--------------------------------|--------------------------------------|
| Ethyl ether<br>60-29-7 ( >95 ) |                              |                                 |                                | DNEL = 44mg/kg<br>bw/dav             |

| Component                      | Acute effects local (Inhalation) | Acute effects systemic (Inhalation) | Chronic effects local (Inhalation) | Chronic effects systemic (Inhalation) |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|---------------------------------------|
| Ethyl ether<br>60-29-7 ( >95 ) |                                  | DNEL = 616mg/m <sup>3</sup>         |                                    | DNEL = 308mg/m <sup>3</sup>           |

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

See values below.

| ſ | Component     | Fresh water  | Fresh water      | Water Intermittent | Microorganisms in | Soil (Agriculture) |
|---|---------------|--------------|------------------|--------------------|-------------------|--------------------|
| L |               |              | sediment         |                    | sewage treatment  |                    |
| ſ | Ethyl ether   | PNEC = 2mg/L | PNEC = 9.14mg/kg | PNEC = 1.65mg/L    | PNEC = 4.2mg/L    | PNEC = 0.66mg/kg   |
| 1 | 60-29-7 (>95) |              | sediment dw      |                    | _                 | soil dw            |

| Component     | Marine water   | Marine water sediment | Marine water intermittent | Food chain | Air |
|---------------|----------------|-----------------------|---------------------------|------------|-----|
| Ethyl ether   | PNEC = 0.2mg/L | PNEC =                |                           |            |     |
| 60-29-7 (>95) |                | 0.914mg/kg            |                           |            |     |
|               |                | sediment dw           |                           |            |     |

## 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. Use explosion-proof electrical/ventilating/lighting equipment.

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

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments                           |
|----------------|-------------------|-----------------|-------------|--|
| Nitrile rubber | < 33 minutes      | 0.28 - 0.35 mm  | EN 374      | Permeation rate 36 µg/cm2/min            |
|                |                   |                 | Level 2     | As tested under EN374-3 Determination of |
|                |                   |                 |             | Resistance to Permeation by Chemicals    |
| Viton (R)      | < 19 minutes      | 0.3 mm          |             | •  |

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure.

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.

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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.

When workers are facing concentrations above the exposure limit they must use **Respiratory Protection** 

appropriate certified respirators.

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

and maintained properly

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: low boiling organic solvent Type AX Brown conforming to

EN371

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

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** Colorless Odor aromatic

No data available **Odor Threshold Melting Point/Range** -116 °C / -176.8 °F **Softening Point** No data available **Boiling Point/Range** 34.6 °C / 94.3 °F Flammability (liquid) Extremely flammable

On basis of test data

Flammability (solid, gas) Not applicable Liquid

**Explosion Limits** Lower 1.7 vol % Upper 48 vol %

**Flash Point** -45 °C / -49 °F Method - No information available

160 °C / 320 °F **Autoignition Temperature** No data available **Decomposition Temperature** No information available pН **Viscosity** 0.2448 cP at 20 °C Water Solubility 69 g/L (20°C)

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Component log Pow Ethyl ether 0.82

**Vapor Pressure** 587 mbar @ 20 °C

**Density / Specific Gravity** 0.714

**Bulk Density** Not applicable Liquid **Vapor Density** 2.55 (Air = 1.0)

Particle characteristics Not applicable (liquid)

#### 9.2. Other information

Molecular Formula C4 H10 O **Molecular Weight** 74.12

**Explosive Properties** Vapors may form explosive mixtures with air

37.5 - (Butyl Acetate = 1.0) **Evaporation Rate** 

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

10.1. Reactivity

Yes

10.2. Chemical stability

May form explosive peroxides. Air sensitive. Light sensitive. Hygroscopic.

10.3. Possibility of hazardous reactions

**Hazardous Polymerization** 

Hazardous polymerization does not occur.

**Hazardous Reactions** 

May form explosive peroxides.

10.4. Conditions to avoid

Incompatible products. Heat, flames and sparks. Exposure to air. Exposure to light. Exposure to moisture. Keep away from open flames, hot surfaces and sources of ignition.

10.5. Incompatible materials

Strong oxidizing agents. Strong acids.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). peroxides.

## **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 4

**Dermal**Inhalation
Based on available data, the classification criteria are not met
Based on available data, the classification criteria are not met

| Component   | LD50 Oral        | LD50 Dermal       | LC50 Inhalation     |
|-------------|------------------|-------------------|---------------------|
| Ethyl ether | 1215 mg/kg (Rat) | 20 mL/kg (Rabbit) | 32000 ppm (Rat) 4 h |

**(b) skin corrosion/irritation**; Based on available data, the classification criteria are not met

(c) serious eye damage/irritation; Based on available data, the classification criteria are not met

(d) respiratory or skin sensitization;

**Respiratory**Skin
Based on available data, the classification criteria are not met Based on available data, the classification criteria are not met

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

Mutagenic effects have occurred in experimental animals

(f) carcinogenicity; Based on available data, the classification criteria are not met

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; Based on available data, the classification criteria are not met

(h) STOT-single exposure; Category 3

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Results / Target organs Central nervous system (CNS).

(i) STOT-repeated exposure; Based on available data, the classification criteria are not met

**Target Organs** None known.

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

**Other Adverse Effects** See actual entry in RTECS for complete information

delayed

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

tiredness, nausea and vomiting.

#### 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 |
|-------------|--|---------------------|------------------|
| Ethyl ether | LC50: > 10000 mg/L, 96h static<br>(Lepomis macrochirus)<br>LC50: = 2560 mg/L, 96h<br>flow-through (Pimephales<br>promelas) | EC50 = 165 mg/L/24h |                  |

| Component   | Microtox                | M-Factor |
|-------------|-------------------------|----------|
| Ethyl ether | EC50 = 5600 mg/L 15 min |          |

#### 12.2. Persistence and degradability

**Persistence** 

Persistence is unlikely, based on information available.

#### 12.3. Bioaccumulative potential Bioaccumulation is unlikely

| Component   | log Pow | Bioconcentration factor (BCF) |
|-------------|---------|-------------------------------|
| Ethyl ether | 0.82    | No data available             |

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

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** This product does not contain any known or suspected substance

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Ozone Depletion Potential

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

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

was used. Do not flush to sewer. Can be landfilled or incinerated, when in compliance with

local regulations.

## **SECTION 14: TRANSPORT INFORMATION**

#### IMDG/IMO

14.1. UN number UN1155
14.2. UN proper shipping name UN1165

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

#### <u>ADR</u>

**14.1. UN number 14.2. UN proper shipping name**UN1155
Diethyl ether

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

#### IATA

14.1. UN numberUN115514.2. UN proper shipping nameDiethyl ether

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

14.5. Environmental hazards No hazards identified

**14.6. Special precautions for user** No special precautions required.

<u>14.7. Maritime transport in bulk</u> 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**

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(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 ether | 60-29-7 | 200-467-2 | -      | -   | Х     | Х    | KE-27690 | Х    | X    |
|             |         |           |        |     |       |      |          |      | •    |

| Component   | CAS No  | TSCA | TSCA Inventory<br>notification -<br>Active-Inactive | DSL | NDSL | AICS | NZIoC | PICCS |
|-------------|---------|------|---|-----|------|------|-------|-------|
| Ethyl ether | 60-29-7 | Х    | ACTIVE  | X   | -    | X    | X     | X     |

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) -<br>Annex XIV - Substances<br>Subject to Authorization |   | REACH Regulation (EC<br>1907/2006) article 59 -<br>Candidate List of<br>Substances of Very High<br>Concern (SVHC) |
|-------------|---------|---|---|---|
| Ethyl ether | 60-29-7 | -   | - | =   |

#### 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 ether | 60-29-7 | 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 .

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

## **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 |
|-------------|---------------------------------------|-------------------------|
| Ethyl ether | WGK1                                  |                         |

| Component   | France - INRS (Tables of occupational diseases)      |
|-------------|--|
| Ethyl ether | Tableaux des maladies professionnelles (TMP) - RG 84 |

| Component   | Switzerland - Ordinance on the<br>Reduction of Risk from<br>handling of hazardous<br>substances preparation (SR<br>814.81) | Switzerland - Ordinance on<br>Incentive Taxes on Volatile<br>Organic Compounds (OVOC) | Switzerland - Ordinance of the<br>Rotterdam Convention on the<br>Prior Informed Consent<br>Procedure |
|-------------|--|---|--|
| Ethyl ether |  | Group I   |  |

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60-29-7 (>95)

#### 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

H224 - Extremely flammable liquid and vapor

H302 - Harmful if swallowed

H336 - May cause drowsiness or dizziness EUH019 - May form explosive peroxides

EUH066 - Repeated exposure may cause skin dryness or cracking

#### Legend

**CAS** - Chemical Abstracts Service

Inventory

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

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

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

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

**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

Shins

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 Date** 15-Apr-2009 **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

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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**