

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

### 1.1. Product identifier

|                                  |                      |
|----------------------------------|----------------------|
| <b>Product Description:</b>      | <b>Malononitrile</b> |
| <b>Cat No. :</b>                 | <b>A15046</b>        |
| <b>Synonyms</b>                  | MDN; Dicyanomethane  |
| <b>Index No</b>                  | 608-009-00-7         |
| <b>CAS No</b>                    | 109-77-3             |
| <b>EC No</b>                     | 203-703-2            |
| <b>Molecular Formula</b>         | C3 H2 N2             |
| <b>REACH registration number</b> | -                    |

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

|                             |                          |
|-----------------------------|--------------------------|
| <b>Recommended Use</b>      | Laboratory chemicals.    |
| <b>Uses advised against</b> | No Information available |

### 1.3. Details of the supplier of the safety data sheet

|                |  |
|----------------|--|
| <b>Company</b> | Avocado Research Chemicals Ltd.<br>(Part of Thermo Fisher Scientific)<br>Shore Road, Heysham<br>Lancashire, LA3 2XY,<br>United Kingdom<br>Office Tel: +44 (0) 1524 850506<br>Office Fax: +44 (0) 1524 850608 |
|----------------|--|

|                       |                                |
|-----------------------|--------------------------------|
| <b>E-mail address</b> | 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

Based on available data, the classification criteria are not met

#### Health hazards

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|   |                   |
|---|-------------------|
| Acute oral toxicity                         | Category 2 (H300) |
| Acute dermal toxicity                       | Category 3 (H311) |
| Acute Inhalation Toxicity - Dusts and Mists | Category 3 (H331) |
| Serious Eye Damage/Eye Irritation           | Category 2 (H319) |
| Skin Sensitization                          | Category 1 (H317) |
| <b>Environmental hazards</b>                |                   |
| Chronic aquatic toxicity                    | Category 1 (H410) |

Full text of Hazard Statements: see section 16

## 2.2. Label elements



Signal Word

Danger

## Hazard Statements

- H300 - Fatal if swallowed
- H317 - May cause an allergic skin reaction
- H319 - Causes serious eye irritation
- H410 - Very toxic to aquatic life with long lasting effects
- H311 + H331 - Toxic in contact with skin or if inhaled

## Precautionary Statements

- P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
- P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
- P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
- P311 - Call a POISON CENTER or doctor/physician
- P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- P280 - Wear protective gloves/protective clothing/eye protection/face protection

## 2.3. Other hazards

- 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 % | GHS Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567 |
|---------------|----------|-------------------|----------|---|
| Malononitrile | 109-77-3 | EEC No. 203-703-2 | >95      | Acute Tox. 2 (H300)   |

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|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  | Acute Tox. 3 (H311)<br>Acute Tox. 3 (H331)<br>Aquatic Chronic 1 (H410)<br>Eye Irrit. 2 (H319)<br>Skin Sens. 1 (H317) |
|--|--|--|--|--|

| Component     | Specific concentration limits (SCL's) | M-Factor | Component notes |
|---------------|---------------------------------------|----------|-----------------|
| Malononitrile | -                                     | 1        | -               |

|                                  |   |
|----------------------------------|---|
| <b>REACH registration number</b> | - |
|----------------------------------|---|

Full text of Hazard Statements: see section 16

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

|   |  |
|---|--|
| <b>General Advice</b>                     | Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.  |
| <b>Eye Contact</b>                        | In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.   |
| <b>Skin Contact</b>                       | Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.  |
| <b>Ingestion</b>                          | Do NOT induce vomiting. Call a physician or poison control center immediately.   |
| <b>Inhalation</b>                         | 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. |
| <b>Self-Protection of the First Aider</b> | 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. May cause allergic skin reaction. Metabolism may release cyanide, which may result in headache, dizziness, weakness, collapse, unconsciousness, and possible death: 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

|                           |                        |
|---------------------------|------------------------|
| <b>Notes to Physician</b> | Treat symptomatically. |
|---------------------------|------------------------|

## SECTION 5: FIREFIGHTING MEASURES

### 5.1. Extinguishing media

#### **Suitable Extinguishing Media**

Water spray. Carbon dioxide (CO<sub>2</sub>). Dry chemical. Chemical foam.

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

No information available.

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

Do not allow run-off from fire-fighting to enter drains or water courses.

## **Hazardous Combustion Products**

Nitrogen oxides (NO<sub>x</sub>), Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Hydrogen cyanide (hydrocyanic acid).

## **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**

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

### **6.2. Environmental precautions**

Do not flush into surface water or sanitary sewer system. 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**

Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

### **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. Avoid dust formation. Use only under a chemical fume hood. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.

### **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 in a dry, cool and well-ventilated place. Keep container tightly closed.

**Technical Rules for Hazardous Substances (TRGS) 510**      Class 6.1A  
**Storage Class (LGK) (Germany)**

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## 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.

| Component     | The United Kingdom   | European Union | Ireland |
|---------------|--|----------------|---------|
| Malononitrile | STEL: 15 mg/m <sup>3</sup> 15 min<br>TWA: 5 mg/m <sup>3</sup> 8 hr<br>Skin |                |         |

#### 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

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 | See manufacturers recommendations | -               | EN 374      | (minimum requirement) |
| Neoprene       |                                   |                 |             |                       |
| Natural rubber |                                   |                 |             |                       |
| PVC            |                                   |                 |             |                       |

**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 compatibility, 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.

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Remove gloves with care avoiding skin contamination.

|  |  |
|--|--|
| <b>Respiratory Protection</b>          | When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.<br>To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly  |
| <b>Large scale/emergency use</b>       | Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced<br><b>Recommended Filter type:</b> Particulates filter conforming to EN 143  |
| <b>Small scale/Laboratory use</b>      | 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.<br><b>Recommended half mask:-</b> Particle filtering: EN149:2001<br>When RPE is used a face piece Fit Test should be conducted |
| <b>Environmental exposure controls</b> | 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

|  |                           |  |
|--|---------------------------|--|
| <b>Physical State</b>                          | Solid                     |  |
| <b>Appearance</b>                              | Yellow                    |  |
| <b>Odor</b>                                    | Odorless                  |  |
| <b>Odor Threshold</b>                          | No data available         |  |
| <b>Melting Point/Range</b>                     | 30 - 34 °C / 86 - 93.2 °F |  |
| <b>Softening Point</b>                         | No data available         |  |
| <b>Boiling Point/Range</b>                     | 220 °C / 428 °F           | @ 760 mmHg                               |
| <b>Flammability (liquid)</b>                   | Not applicable            | Solid                                    |
| <b>Flammability (solid,gas)</b>                | No information available  |  |
| <b>Explosion Limits</b>                        | No data available         |  |
| <b>Flash Point</b>                             | 112 °C / 233.6 °F         | <b>Method -</b> No information available |
| <b>Autoignition Temperature</b>                | 365 °C / 689 °F           |  |
| <b>Decomposition Temperature</b>               | > 100°C                   |  |
| <b>pH</b>                                      | 3-5                       | 90.9 g/L                                 |
| <b>Viscosity</b>                               | Not applicable            | Solid                                    |
| <b>Water Solubility</b>                        | 133 g/L (20°C)            |  |
| <b>Solubility in other solvents</b>            | No information available  |  |
| <b>Partition Coefficient (n-octanol/water)</b> |                           |  |
| <b>Component</b>                               | <b>log Pow</b>            |  |
| Malononitrile                                  | -0.5                      |  |
| <b>Vapor Pressure</b>                          | 1 hPa @ 50 °C             |  |
| <b>Density / Specific Gravity</b>              | 1.040                     |  |
| <b>Bulk Density</b>                            | No data available         |  |
| <b>Vapor Density</b>                           | Not applicable            | Solid                                    |
| <b>Particle characteristics</b>                | No data available         |  |

### 9.2. Other information

|                          |                        |
|--------------------------|------------------------|
| <b>Molecular Formula</b> | C3 H2 N2               |
| <b>Molecular Weight</b>  | 66.06                  |
| <b>Evaporation Rate</b>  | Not applicable - Solid |

## SECTION 10: STABILITY AND REACTIVITY

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## 10.1. Reactivity

None known, based on information available

## 10.2. Chemical stability

Stable under normal conditions.

## 10.3. Possibility of hazardous reactions

### Hazardous Polymerization Hazardous Reactions

Hazardous polymerization may occur.  
None under normal processing.

## 10.4. Conditions to avoid

Temperatures above 100°C. Incompatible products. Avoid dust formation.

## 10.5. Incompatible materials

Strong oxidizing agents. Strong acids. Strong bases. Strong reducing agents.

## 10.6. Hazardous decomposition products

Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Hydrogen cyanide (hydrocyanic acid).

## 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 2  
Dermal Category 3  
Inhalation Category 3

| Component     | LD50 Oral               | LD50 Dermal              | LC50 Inhalation           |
|---------------|-------------------------|--------------------------|---------------------------|
| Malononitrile | LD50 = 14 mg/kg ( Rat ) | LD50 = 350 mg/kg ( Rat ) | LC50 = 57 ppm ( Rat ) 2 h |

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; Category 2

#### (d) respiratory or skin sensitization;

Respiratory No data available  
Skin Category 1  
May cause sensitization by skin contact

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available  
There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

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(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

Target Organs None known.

(j) aspiration hazard; Not applicable  
Solid

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

Symptoms / effects, both acute and delayed Metabolism may release cyanide, which may result in headache, dizziness, weakness, collapse, unconsciousness, and possible death. 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, may cause long-term adverse effects in the aquatic environment.

| Component     | Freshwater Fish  | Water Flea | Freshwater Algae |
|---------------|--|------------|------------------|
| Malononitrile | LC50: 1.48 - 1.8 mg/L, 96h flow-through (Oncorhynchus mykiss)<br>LC50: = 0.57 mg/L, 96h static (Lepomis macrochirus)<br>LC50: 0.51 - 0.61 mg/L, 96h flow-through (Pimephales promelas) |            |                  |

| Component     | Microtox | M-Factor |
|---------------|----------|----------|
| Malononitrile |          | 1        |

### 12.2. Persistence and degradability

#### 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) |
|---------------|---------|-------------------------------|
| Malononitrile | -0.5    | 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

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**12.5. Results of PBT and vPvB assessment** No data available for assessment.

**12.6. Endocrine disrupting properties**  
**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors

**12.7. Other adverse effects**  
**Persistent Organic Pollutant** This product does not contain any known or suspected substance  
**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** Should not be released into the environment. Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

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

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

**Other Information** Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

## SECTION 14: TRANSPORT INFORMATION

### IMDG/IMO

**14.1. UN number** UN2647  
**14.2. UN proper shipping name** MALONONITRILE  
**14.3. Transport hazard class(es)** 6.1  
**14.4. Packing group** II

### ADR

**14.1. UN number** UN2647  
**14.2. UN proper shipping name** MALONONITRILE  
**14.3. Transport hazard class(es)** 6.1  
**14.4. Packing group** II

### IATA

**14.1. UN number** UN2647  
**14.2. UN proper shipping name** MALONONITRILE  
**14.3. Transport hazard class(es)** 6.1  
**14.4. Packing group** II

**14.5. Environmental hazards** Dangerous for the environment

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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

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

| Component     | CAS No   | EINECS    | ELINCS | NLP | IECSC | TCSI | KECL     | ENCS | ISHL |
|---------------|----------|-----------|--------|-----|-------|------|----------|------|------|
| Malononitrile | 109-77-3 | 203-703-2 | -      | -   | X     | X    | KE-10262 | X    | X    |

| Component     | CAS No   | TSCA | TSCA Inventory notification - Active-Inactive | DSL | NDSL | AICS | NZIoC | PICCS |
|---------------|----------|------|---|-----|------|------|-------|-------|
| Malononitrile | 109-77-3 | X    | 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

| 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) |
|---------------|----------|---|---|---|
| Malononitrile | 109-77-3 | -   | 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 Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements |
|---------------|----------|---|--|
| Malononitrile | 109-77-3 | 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)?

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 .

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## National Regulations

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

**WGK Classification** Water endangering class = 3 (self classification)

## 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

H300 - Fatal if swallowed  
H311 - Toxic in contact with skin  
H331 - Toxic if inhaled  
H317 - May cause an allergic skin reaction  
H319 - Causes serious eye irritation  
H410 - Very toxic to aquatic life with long lasting effects

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical 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

**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

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

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

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

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**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

### Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**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)

### 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.

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First aid for chemical exposure, including the use of eye wash and safety showers.  
Chemical incident response training.

|                         |   |
|-------------------------|---|
| <b>Prepared By</b>      | Health, Safety and Environmental Department |
| <b>Creation Date</b>    | 26-Sep-2009                                 |
| <b>Revision Date</b>    | 31-Jan-2025                                 |
| <b>Revision Summary</b> | SDS sections updated.                       |

**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**