

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

### 1.1. Product identifier

|                           |  |
|---------------------------|--|
| Product Description:      | <b>Butyl chloroformate</b>                                   |
| Cat No. :                 | <b>180170000; 180170010; 180170050; 180170250; 180171000</b> |
| Index No                  | 607-138-00-6   |
| CAS No                    | 592-34-7   |
| EC No                     | 209-750-5  |
| Molecular Formula         | C5 H9 Cl O2  |
| REACH registration number | 01-2120087840-51   |

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

|                      |                          |
|----------------------|--------------------------|
| Recommended Use      | Intermediate.            |
| Uses advised against | No Information available |

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

#### Company

**UK entity/business name**  
Fisher Scientific UK  
Bishop Meadow Road,  
Loughborough, Leicestershire LE11 5RG, United Kingdom

**EU entity/business name**  
Thermo Fisher Scientific  
Janssen Pharmaceuticaaan 3a, 2440 Geel, Belgium

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

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Acute oral toxicity  
Acute Inhalation Toxicity - Vapors  
Skin Corrosion/Irritation  
Serious Eye Damage/Eye Irritation

Category 4 (H302)  
Category 2 (H330)  
Category 1 B (H314)  
Category 1 (H318)

## **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**

H226 - Flammable liquid and vapor  
H302 - Harmful if swallowed  
H330 - Fatal if inhaled  
H314 - Causes severe skin burns and eye damage  
EUH071 - Corrosive to the respiratory tract

## **Precautionary Statements**

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower  
P310 - Immediately call a POISON CENTER or doctor/physician  
P280 - Wear protective gloves/protective clothing/eye protection/face protection  
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

## **2.3. Other hazards**

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)  
Decomposes in contact with water  
Lachrymator (substance which increases the flow of tears)  
This product does not contain any known or suspected endocrine disruptors  
Toxic to terrestrial vertebrates

## **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 |
|---------------------|----------|-------------------|----------|---|
| Butyl chloroformate | 592-34-7 | EEC No. 209-750-5 | <100     | Flam. Liq. 3 (H226)   |

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|  |  |  |  |   |
|--|--|--|--|---|
|  |  |  |  | Acute Tox. 4 (H302)<br>Acute Tox. 2 (H330)<br>Skin Corr. 1B (H314)<br>Eye Dam. 1 (H318)<br>EUH071 |
|--|--|--|--|---|

|                                  |                  |
|----------------------------------|------------------|
| <b>REACH registration number</b> | 01-2120087840-51 |
|----------------------------------|------------------|

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>                        | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.   |
| <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>                         | 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. Remove to fresh air. 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

Causes burns by all exposure routes. Difficulty in breathing. 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

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

## SECTION 5: FIREFIGHTING MEASURES

### 5.1. Extinguishing media

#### Suitable Extinguishing Media

Carbon dioxide (CO<sub>2</sub>). Dry chemical. Chemical foam. Do not use a solid water stream as it may scatter and spread fire. Water mist may be used to cool closed containers. CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam.

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

No information available.

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

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes.

### **Hazardous Combustion Products**

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Phosgene, Hydrogen chloride gas.

## 5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions, protective equipment and emergency procedures

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

### 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

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material.

### 6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for safe handling

Do not get in eyes, on skin, or on clothing. Wear personal protective equipment/face protection. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance.

### **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. Refrigerator/flammables. Keep under nitrogen. Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

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

### 7.3. Specific end use(s)

Use in laboratories

ACR18017

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## 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   |
|---------------------|---|----------------|---|
| Butyl chloroformate | STEL: 3 ppm 15 min<br>STEL: 17.1 mg/m <sup>3</sup> 15 min<br>TWA: 1 ppm 8 hr<br>TWA: 5.7 mg/m <sup>3</sup> 8 hr |                | TWA: 1 ppm 8 hr.<br>TWA: 5.6 mg/m <sup>3</sup> 8 hr.<br>STEL: 3 ppm 15 min<br>STEL: 16.8 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)

No information available

#### Predicted No Effect Concentration (PNEC)

See values below.

| Component                              | Fresh water      | Fresh water sediment                | Water Intermittent | Microorganisms in sewage treatment | Soil (Agriculture)               |
|--|------------------|-------------------------------------|--------------------|------------------------------------|----------------------------------|
| Butyl chloroformate<br>592-34-7 (<100) | PNEC = 0.082mg/L | PNEC =<br>0.377mg/kg<br>sediment dw | PNEC = 2.25mg/L    | PNEC = 2476mg/L                    | PNEC =<br>0.0273mg/kg soil<br>dw |

| Component                              | Marine water         | Marine water sediment                | Marine water intermittent | Food chain | Air |
|--|----------------------|--------------------------------------|---------------------------|------------|-----|
| Butyl chloroformate<br>592-34-7 (<100) | PNEC =<br>0.0082mg/L | PNEC =<br>0.0377mg/kg<br>sediment dw |                           |            |     |

### 8.2. Exposure controls

#### Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. 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

If splashes are likely to occur: Goggles Face protection shield (European standard - EN 166)

##### Hand Protection

Protective gloves

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments        |
|----------------|-------------------|-----------------|-------------|-----------------------|
| Natural rubber | See manufacturers | -               |             | (minimum requirement) |

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|   |                 |        |
|---|-----------------|--------|
| Butyl rubber<br>Nitrile rubber<br>Neoprene<br>PVC | recommendations | EN 374 |
|---|-----------------|--------|

**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.

Remove gloves with care avoiding skin contamination.

## Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

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

## 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:** Particulates filter conforming to EN 143 Acid gases filter Type E Yellow conforming to EN14387

## Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Recommended half mask:-** Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141

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

**Environmental exposure controls** No information available.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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

|  |                                  |  |
|--|----------------------------------|--|
| <b>Physical State</b>                          | Liquid                           |  |
| <b>Appearance</b>                              | No information available         |  |
| <b>Odor</b>                                    | No information available         |  |
| <b>Odor Threshold</b>                          | No data available                |  |
| <b>Melting Point/Range</b>                     | < -70 °C / -94 °F                |  |
| <b>Softening Point</b>                         | No data available                |  |
| <b>Boiling Point/Range</b>                     | 142 °C / 287.6 °F                | @ 760 mmHg                               |
| <b>Flammability (liquid)</b>                   | Flammable                        | On basis of test data                    |
| <b>Flammability (solid,gas)</b>                | Not applicable                   | Liquid                                   |
| <b>Explosion Limits</b>                        | No data available                |  |
| <b>Flash Point</b>                             | 39 °C / 102.2 °F                 | <b>Method -</b> No information available |
| <b>Autoignition Temperature</b>                | 285 °C / 545 °F                  |  |
| <b>Decomposition Temperature</b>               | No data available                |  |
| <b>pH</b>                                      | No information available         |  |
| <b>Viscosity</b>                               | 0.95 mPa s at 20 °C              |  |
| <b>Water Solubility</b>                        | Decomposes in contact with water |  |
| <b>Solubility in other solvents</b>            | No information available         |  |
| <b>Partition Coefficient (n-octanol/water)</b> |                                  |  |
| <b>Vapor Pressure</b>                          | 7.18 mbar @ 20 °C                |  |
| <b>Density / Specific Gravity</b>              | 1.060                            |  |
| <b>Bulk Density</b>                            | Not applicable                   | Liquid                                   |

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Vapor Density 4.7 (Air = 1.0)  
Particle characteristics Not applicable (liquid)

## 9.2. Other information

Molecular Formula C5 H9 Cl O2  
Molecular Weight 136.58  
Explosive Properties explosive air/vapour mixtures possible

## SECTION 10: STABILITY AND REACTIVITY

**10.1. Reactivity** None known, based on information available

**10.2. Chemical stability** Stable under normal conditions. Moisture sensitive.

### 10.3. Possibility of hazardous reactions

**Hazardous Polymerization** No information available.  
**Hazardous Reactions** None under normal processing.

### 10.4. Conditions to avoid

To avoid thermal decomposition, do not overheat. Keep away from open flames, hot surfaces and sources of ignition. Excess heat. Incompatible products. Exposure to moist air or water.

### 10.5. Incompatible materials

Strong oxidizing agents. Strong bases. Amines. Strong reducing agents.

### 10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Phosgene. Hydrogen chloride gas.

## SECTION 11: TOXICOLOGICAL INFORMATION

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

#### Product Information

(a) acute toxicity;  
Oral Category 4  
Dermal No data available  
Inhalation Category 2

| Component           | LD50 Oral               | LD50 Dermal | LC50 Inhalation                      |
|---------------------|-------------------------|-------------|--------------------------------------|
| Butyl chloroformate | LD50 = 1325 mg/kg (Rat) | -           | LC50 = 200 ppm (1.12 mg/l) (Rat) 1 h |

(b) skin corrosion/irritation; Category 1 B

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

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|   |  |
|---|--|
| <b>Respiratory</b>                                | No data available  |
| <b>Skin</b>                                       | No data available  |
| <b>(e) germ cell mutagenicity;</b>                | No data available  |
| <b>(f) carcinogenicity;</b>                       | No data available<br>There are no known carcinogenic chemicals in this product   |
| <b>(g) reproductive toxicity;</b>                 | No data available  |
| <b>(h) STOT-single exposure;</b>                  | No data available  |
| <b>(i) STOT-repeated exposure;</b>                | No data available  |
| <b>Target Organs</b>                              | None known.  |
| <b>(j) aspiration hazard;</b>                     | No data available  |
| <b>Symptoms / effects, both acute and delayed</b> | 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. |

## 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** Reacts with water so no ecotoxicity data for the substance is available.

### 12.2. Persistence and degradability

**Persistence** Soluble in water, Persistence is unlikely, based on information available.  
**Degradability** Decomposes in contact with water.  
**Degradation in sewage treatment plant** Decomposes in contact with water.

### 12.3. Bioaccumulative potential

Bioaccumulation is unlikely; Product does not bioaccumulate due to reaction with water

### 12.4. Mobility in soil

The product is water soluble, and may spread in water systems Decomposes in contact with water Will likely be mobile in the environment due to its water solubility. Is not likely mobile in the environment. Highly mobile in soils

### 12.5. Results of PBT and vPvB assessment

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB). Decomposes in contact with water.



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## 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**

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**

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. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

## SECTION 14: TRANSPORT INFORMATION

### IMDG/IMO

#### 14.1. UN number

UN2743

#### 14.2. UN proper shipping name

BUTYL CHLOROFORMATE

#### 14.3. Transport hazard class(es)

6.1

#### **Subsidiary Hazard Class**

3, 8

#### 14.4. Packing group

II

### ADR

#### 14.1. UN number

UN2743

#### 14.2. UN proper shipping name

n-BUTYL CHLOROFORMATE

#### 14.3. Transport hazard class(es)

6.1

#### **Subsidiary Hazard Class**

3, 8

#### 14.4. Packing group

II

### IATA

#### 14.1. UN number

UN2743

#### 14.2. UN proper shipping name

n-BUTYL CHLOROFORMATE

#### 14.3. Transport hazard class(es)

6.1

#### **Subsidiary Hazard Class**

3, 8

#### 14.4. Packing group

II

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- 14.5. Environmental hazards** No hazards identified
- 14.6. Special precautions for user** No special precautions required.
- 14.7. Maritime transport in bulk according to IMO instruments** Not applicable, packaged goods

## SECTION 15: REGULATORY INFORMATION

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### International Inventories

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

| Component           | CAS No   | EINECS    | ELINCS | NLP | IECSC | TCSI | KECL | ENCS | ISHL |
|---------------------|----------|-----------|--------|-----|-------|------|------|------|------|
| Butyl chloroformate | 592-34-7 | 209-750-5 | -      | -   | -     | X    | -    | X    | X    |

| Component           | CAS No   | TSCA | TSCA Inventory notification - Active-Inactive | DSL | NDSL | AICS | NZIoC | PICCS |
|---------------------|----------|------|---|-----|------|------|-------|-------|
| Butyl chloroformate | 592-34-7 | 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) |
|---------------------|----------|---|---|---|
| Butyl chloroformate | 592-34-7 | -   | Use restricted. See item 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 |
|---------------------|----------|---|--|
| Butyl chloroformate | 592-34-7 | 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 .

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## 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 |
|---------------------|---------------------------------------|-------------------------|
| Butyl chloroformate | WGK1                                  |                         |

## 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

H302 - Harmful if swallowed

H330 - Fatal if inhaled

H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

EUH071 - Corrosive to the respiratory tract

### 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

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

**DSL/NDL** - 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

**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

### 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

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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.

|                         |                       |
|-------------------------|-----------------------|
| <b>Creation Date</b>    | 30-Nov-2010           |
| <b>Revision Date</b>    | 22-Sep-2023           |
| <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**