# SAFETY DATA SHEET

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

**Creation Date** 10-Nov-2010 **Revision Date** 12-Nov-2024 **Revision Number** 4

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

### 1.1. Product identifier

| | |
|---|---|
| **Product Description:** | **N,N-Dimethylcyclohexylamine** |
| **Cat No. :** | **L14521** |
| **Synonyms** | Dimethylcyclohexylamine. |
| **CAS No** | 98-94-2 |
| **EC No** | 202-715-5 |
| **Molecular Formula** | C8 H17 N |
| **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 |
| **Product category** | PC21 - Laboratory chemicals |
| **Process categories** | PROC15 - Use as a laboratory reagent |
| **Environmental release category** | ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates) |
| **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 3 (H226)

**Health hazards**

| | |
|---|---|
| Acute oral toxicity | Category 3 (H301) |
| Acute dermal toxicity | Category 3 (H311) |
| Acute Inhalation Toxicity - Vapors | Category 3 (H331) |
| Skin Corrosion/Irritation | Category 1 B (H314) |
| Serious Eye Damage/Eye Irritation | Category 1 (H318) |

**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**

H226 - Flammable liquid and vapor
H314 - Causes severe skin burns and eye damage
H412 - Harmful to aquatic life with long lasting effects
H301 + H311 + H331 - Toxic if swallowed, in contact with skin or if inhaled

**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
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
P310 - Immediately call a POISON CENTER or doctor/physician

### 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
Toxic to terrestrial vertebrates

## 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 |
|---|---|---|---|---|
| N,N-Dimethylcyclohexylamine | 98-94-2 | EEC No. 202-715-5 | >95 | Flam. Liq. 3 (H226)<br>Skin Corr. 1B (H314)<br>Eye Dam. 1 (H318)<br>Acute Tox. 3 (H301)<br>Acute Tox. 3 (H311)<br>Acute Tox. 3 (H331)<br>Aquatic Chronic 3 (H412) |

| REACH registration number | - |
|---|---|

*Full text of Hazard Statements: see section 16*

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

**General Advice** Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

**Eye Contact** 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.

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

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

**Inhalation** 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.

**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

Causes burns by all exposure routes. 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: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

### 4.3. Indication of any immediate medical attention and special treatment needed

**Notes to Physician** Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

### 5.1. Extinguishing media

**Suitable Extinguishing Media**

Water mist may be used to cool closed containers. $CO_2$, dry chemical, dry sand, alcohol-resistant foam.

**Extinguishing media which must not be used for safety reasons**
Water may be ineffective.

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

**Hazardous Combustion Products**
Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide ($CO_2$), Thermal decomposition can lead to release of irritating gases and vapors.

### 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

Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Remove all sources of ignition. Take precautionary measures against static discharges.

### 6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system.

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

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Remove all sources of ignition. 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

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. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

**Hygiene Measures**
Handle in accordance with good industrial hygiene and safety practice. Keep working clothes separately.

### 7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from heat, sparks and flame. Store under an inert atmosphere.

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

### 7.3. Specific end use(s)

Use in laboratories

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

**Exposure limits**
List source(s):

**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)**
Workers; See table for values

| Component | Acute effects local (Dermal) | Acute effects systemic (Dermal) | Chronic effects local (Dermal) | Chronic effects systemic (Dermal) |
|---|---|---|---|---|
| N,N-Dimethylcyclohexylamine 98-94-2 ( >95 ) | | | | DNEL = 0.6mg/kg bw/day |

| Component | Acute effects local (Inhalation) | Acute effects systemic (Inhalation) | Chronic effects local (Inhalation) | Chronic effects systemic (Inhalation) |
|---|---|---|---|---|
| N,N-Dimethylcyclohexylamine 98-94-2 ( >95 ) | DNEL = 8.3mg/m³ | | DNEL = 8.3mg/m³ | DNEL = 0.53mg/m³ |

**Predicted No Effect Concentration (PNEC)**
See values below.

| Component | Fresh water | Fresh water sediment | Water Intermittent | Microorganisms in sewage treatment | Soil (Agriculture) |
|---|---|---|---|---|---|
| N,N-Dimethylcyclohexylamine 98-94-2 ( >95 ) | 0.0035 mg/L | 0.0369 | PNEC = 0.02mg/L | 20.3 mg/L | 0.0053 mg/kg |

| Component | Marine water | Marine water sediment | Marine water intermittent | Food chain | Air |
|---|---|---|---|---|---|
| N,N-Dimethylcyclohexylamine 98-94-2 ( >95 ) | 0.00035 mg/L | 0.00369 mg/kg | | | |

### 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** Face protection shield and Tight sealing safety goggles Goggles (European standard - EN 166)

**Hand Protection** Protective gloves

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments |
|---|---|---|---|---|
| Natural rubber<br>Nitrile rubber<br>Neoprene<br>PVC | See manufacturers recommendations | - | EN 374 | (minimum requirement) |

**Skin and body protection** Apron. Wear rubber boots if needed to prevent skin contact with liquid material.

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** 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:** Ammonia and organic ammonia derivatives filter Type K Green conforming to EN14387 Particulates filter conforming to EN 143

**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** 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

| | | |
|---|---|---|
| **Physical State** | Liquid | |
| **Appearance** | Colorless | |
| **Odor** | Ammonia-like | |
| **Odor Threshold** | No data available | |
| **Melting Point/Range** | -60 °C / -76 °F | |
| **Softening Point** | No data available | |
| **Boiling Point/Range** | 160 °C / 320 °F | @ 760 mmHg |
| **Flammability (liquid)** | Flammable | On basis of test data |
| **Flammability (solid,gas)** | Not applicable | Liquid |
| **Explosion Limits** | **Lower** 3.6<br>**Upper** 19 | |
| **Flash Point** | 37 °C / 98.6 °F | **Method -** No information available |
| **Autoignition Temperature** | 215 - °C / 419 - °F | |
| **Decomposition Temperature** | No data available | |

| | | |
|---|---|---|
| **pH** | No information available @ 20°C | 5 g/L aq. solution |
| **Viscosity** | 1.16 mPa.s @ 25°C | |
| **Water Solubility** | 13 g/L (20°C) | |
| **Solubility in other solvents** | No information available | |
| **Partition Coefficient (n-octanol/water)** | | |
| **Component** | **log Pow** | |
| N,N-Dimethylcyclohexylamine | 2.01 | |
| **Vapor Pressure** | 3.6 mmHg @ 20 °C | |
| **Density / Specific Gravity** | 0.840 | |
| **Bulk Density** | Not applicable | Liquid |
| **Vapor Density** | 4.93 | (Air = 1.0) |
| **Particle characteristics** | Not applicable (liquid) | |

**9.2. Other information**

| | |
|---|---|
| **Molecular Formula** | C8 H17 N |
| **Molecular Weight** | 127.23 |
| **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.

**10.3. Possibility of hazardous reactions**

| | |
|---|---|
| **Hazardous Polymerization** | Hazardous polymerization does not occur. |
| **Hazardous Reactions** | None under normal processing. |

**10.4. Conditions to avoid**

Incompatible products. Excess heat. 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**

Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide ($CO_2$). Thermal decomposition can lead to release of irritating gases and vapors.

## 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 3 |
| **Dermal** | Category 3 |
| **Inhalation** | Category 3 |

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|
| N,N-Dimethylcyclohexylamine | LD50 = 272 mg/kg ( Rat ) | 370 mg/kg ( Rat ) | 1.7-5.8 mg/L/4h |

| | | | |
|---|---|---|---|
| | | | |

**(b) skin corrosion/irritation;** Category 1 B Based on available data, the classification criteria are not met

**(c) serious eye damage/irritation;** Category 1 Based on available data, the classification criteria are not met

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

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

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

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

**(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;** Based on available data, the classification criteria are not met

**(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** The toxicological properties have not been fully investigated.

**Symptoms / effects,both acute and delayed** 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. Symptoms of overexposure may be 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** The product contains following substances which are hazardous for the environment. Contains a substance which is:. Very toxic to aquatic organisms.

| Component | Freshwater Fish | Water Flea | Freshwater Algae |
|---|---|---|---|
| N,N-Dimethylcyclohexylamine | | 75 mg/L EC50 48 h | >2 mg/L EC50 72 h |

| Component | Microtox | M-Factor |
|---|---|---|
| N,N-Dimethylcyclohexylamine | EC50 = 206 mg/L 17 h | |

**12.2. Persistence and degradability** Readily biodegradable

**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) |
|---|---|---|
| N,N-Dimethylcyclohexylamine | 2.01 | 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

**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

**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** 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 empty into drains. Large amounts will affect pH and harm aquatic organisms. Do not let this chemical enter the environment.

## SECTION 14: TRANSPORT INFORMATION

**IMDG/IMO**

**14.1. UN number** UN2264

**14.2. UN proper shipping name** N,N-Dimethylcyclohexylamine

**14.3. Transport hazard class(es)** 8

**Subsidiary Hazard Class** 3

**14.4. Packing group** II

**ADR**

| | |
|---|---|
| **14.1. UN number** | UN2264 |
| **14.2. UN proper shipping name** | N,N-Dimethylcyclohexylamine |
| **14.3. Transport hazard class(es)** | 8 |
| **Subsidiary Hazard Class** | 3 |
| **14.4. Packing group** | II |

**IATA**

| | |
|---|---|
| **14.1. UN number** | UN2264 |
| **14.2. UN proper shipping name** | N,N-Dimethylcyclohexylamine |
| **14.3. Transport hazard class(es)** | 8 |
| **Subsidiary Hazard Class** | 3 |
| **14.4. Packing group** | II |

**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**

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 |
|---|---|---|---|---|---|---|---|---|---|
| N,N-Dimethylcyclohexylamine | 98-94-2 | 202-715-5 | - | - | X | X | KE-11282 | X | X |

| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | DSL | NDSL | AICS | NZIoC | PICCS |
|---|---|---|---|---|---|---|---|---|
| N,N-Dimethylcyclohexylamine | 98-94-2 | 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** Not applicable

| 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) |
|---|---|---|---|---|
| N,N-Dimethylcyclohexylamine | 98-94-2 | - | - | - |

**Seveso III Directive (2012/18/EC)**

| Component | CAS No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements |
|---|---|---|---|
| N,N-Dimethylcyclohexylamin | 98-94-2 | Not applicable | Not applicable |

| | | | |
|---|---|---|---|
| e | | | |

**Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals**
Not applicable

**Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?**
Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

**National Regulations**

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

**WGK Classification** See table for values

| Component | Germany - Water Classification (AwSV) | Germany - TA-Luft Class |
|---|---|---|
| N,N-Dimethylcyclohexylamine | WGK3 | |

| Component | France - INRS (Tables of occupational diseases) |
|---|---|
| N,N-Dimethylcyclohexylamine | Tableaux des maladies professionnelles (TMP) - RG 49 |

**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**
H301 - Toxic if swallowed
H311 - Toxic in contact with skin
H331 - Toxic if inhaled
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H412 - Harmful to aquatic life with long lasting effects
H226 - Flammable liquid and vapor

**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/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

**WEL** - Workplace Exposure Limit
**ACGIH** - American Conference of Governmental Industrial Hygienists
**DNEL** - Derived No Effect Level

**TWA** - Time Weighted Average
**IARC** - International Agency for Research on Cancer
Predicted No Effect Concentration (PNEC)

**RPE** - Respiratory Protective Equipment
**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

**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 incident response training.

| | |
|---|---|
| **Prepared By** | Health, Safety and Environmental Department |
| **Creation Date** | 10-Nov-2010 |
| **Revision Date** | 12-Nov-2024 |
| **Revision Summary** | SDS sections updated. |

## This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

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**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