

Australian statement of hazardous nature : Classified as hazardous according to criteria of Safe Work Australia

## Section 1 - Identification

**Product Name** 1-methyl-2-pyrrolidone

**CAS No** 872-50-4

**Synonyms** N-methyl-2-pyrrolidone; N-Methylpyrrolidone; NMP

**Product Code** **N140-1**

**Address** ThermoFisher Scientific Australia Pty Ltd  
5 Caribbean Drive, Scoresby  
VICTORIA 3179, Australia

**Emergency Tel.** **CHEMTREC®**  
**03 9757 4559 or +613 9757 4559**

**Telephone / Fax Numbers** Tel: 1300 735 292  
Fax: 1800 067 639

**E-mail address** ANZinfo@thermofisher.com

**Recommended Use** Laboratory chemicals.

**Uses advised against** This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list. This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction. This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern.

## Section 2 - Hazard(s) Identification

### Classification under Safe Work Australia

Classified as hazardous according to criteria of Safe Work Australia

#### Physical hazards

No hazards identified

#### Health hazards

|  |             |
|--|-------------|
| Skin Corrosion/Irritation                          | Category 2  |
| Serious Eye Damage/Eye Irritation                  | Category 2  |
| Reproductive Toxicity                              | Category 1B |
| Specific target organ toxicity - (single exposure) | Category 3  |

#### Environmental hazards

No hazards identified

#### Label Elements



Exclamation Mark



Health Hazard

**Signal Word****Danger****Hazard Statements**

H315 - Causes skin irritation  
H319 - Causes serious eye irritation  
H335 - May cause respiratory irritation  
H360 - May damage fertility or the unborn child  
Combustible liquid

**Precautionary Statements**

P201 - Obtain special instructions before use  
P202 - Do not handle until all safety precautions have been read and understood  
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
P260 - Do not breathe dust/fume/gas/mist/vapors/spray  
P264 - Wash face, hands and any exposed skin thoroughly after handling  
P271 - Use only outdoors or in a well-ventilated area  
P280 - Wear eye protection/ face protection  
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  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P308 + P313 - IF exposed or concerned: Get medical advice/attention  
P332 + P313 - If skin irritation occurs: Get medical advice/attention  
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish  
P362 + P364 - Take off contaminated clothing and wash it before reuse  
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed  
P501 - Dispose of contents/ container to an approved waste disposal plant

**Other information**

## Section 3 - Composition and Information on Ingredients

| Component              | CAS No   | Weight % |
|------------------------|----------|----------|
| 1-Methyl-2-pyrrolidone | 872-50-4 | 99       |

## Section 4 - First Aid Measures

**Inhalation**

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.

**Ingestion**

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

**Skin Contact**

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

|  |  |
|--|--|
| <b>Eye Contact</b>                         | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.                |
| <b>General Advice</b>                      | May damage the unborn child. Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.                   |
| <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. |
| <b>First Aid Facilities</b>                | Eyewash, safety shower and washroom.   |
| <b>Most important symptoms and effects</b> | . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting, Central nervous system disorders                          |
| <b>Notes to Physician</b>                  | Treat symptomatically. Symptoms may be delayed.  |

## Section 5 - Fire Fighting Measures

### Suitable Extinguishing Media

Water spray, carbon dioxide (CO<sub>2</sub>), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

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

No information available.

### Hazardous Decomposition Products

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Nitrogen oxides (NO<sub>x</sub>), peroxides.

### Specific Hazards Arising from the Chemical

Combustible material. Containers may explode when heated. Keep product and empty container away from heat and sources of ignition.

### Special protective equipment and precautions for fire fighters

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

### Emergency procedures

Not to be used by pregnant workers and workers who have recently given birth or who are breastfeeding. Ensure adequate ventilation. Use personal protective equipment as required. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges.

### Environmental Precautions

Should not be released into the environment.

### Methods for Containment and Clean Up

#### Clean-up methods - small spillage

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

#### Clean-up methods - large spillage

Typically only supplied is small quantities as packaged goods.

If extremely toxic or used in larger quantities ensure a spillage action plan is in place. Evacuate area. Control the source and/or contain the spill if safe and able to do so. Use temporary diking, sand bags, dry sand, earth or proprietary booms/absorbent pads if available. Obtain advice on containment, neutralisation and clean-up from local emergency responders.

### Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

## Section 7 - Handling and Storage

### Precautions for Safe Handling

Do not get in eyes, on skin, or on clothing. Not to be used by pregnant workers and workers who have recently given birth or who are breastfeeding. 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.

### Conditions for Safe Storage, Including any Incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Protect from light.

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals

AS 1940-2004 - The storage and handling of flammable and combustible liquids

## Section 8 - Exposure Controls and Personal Protection

### Exposure limits

**AUS** - Exposure Standards for Atmospheric Contaminants in the Occupational Environment - Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:3008(1995)]

Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)]

updated in August, 2005. Safe Work Australia **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **DE** - MAK and BAT values of Hazardous Chemical Compounds in the Work Area. Published by German Research Foundation on July 1, 2011

| Component              | Australia  | New Zealand WEL  | ACGIH TLV | The United Kingdom   | Germany   |
|------------------------|--|--|-----------|--|---|
| 1-Methyl-2-pyrrolidone | STEL: 75 ppm<br>STEL: 309 mg/m <sup>3</sup><br>TWA: 25 ppm<br>TWA: 103 mg/m <sup>3</sup> | TWA: 25 ppm<br>TWA: 103 mg/m <sup>3</sup><br>STEL: 75 ppm<br>STEL: 309 mg/m <sup>3</sup><br>Skin |           | STEL: 20 ppm 15 min<br>STEL: 80 mg/m <sup>3</sup> 15 min<br>TWA: 10 ppm 8 hr<br>TWA: 40 mg/m <sup>3</sup> 8 hr<br>Skin | TWA: 20 ppm (8 Stunden). AGW - exposure factor 2<br>TWA: 82 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 2<br>TWA: 20 ppm (8 Stunden). MAK can occur as vapor and aerosol at the same time<br>TWA: 82 mg/m <sup>3</sup> (8 Stunden). MAK can occur as vapor and aerosol at the same time<br>Höhepunkt: 40 ppm<br>Höhepunkt: 164 mg/m <sup>3</sup><br>Haut |

### Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

| Component              | Australia | New Zealand | European Union | United Kingdom | Germany   |
|------------------------|-----------|-------------|----------------|----------------|---|
| 1-Methyl-2-pyrrolidone |           |             |                |                | 5-Hydroxy-N-methyl-2-pyrrolidone: 150 mg/L urine (end of shift) |

### 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 (Australian/New Zealand Standard AS/NZS 1337 - Eye protectors for Industrial applications)

**Hand Protection**

Protective gloves

| Glove material | Breakthrough time | Glove thickness | AUS/NZ Standard | Glove comments  |
|----------------|-------------------|-----------------|-----------------|---|
| Nitrile rubber | < 30 minutes      | 0.38 mm         | AS/NZS 2161     | Permeation rate 43 µg/cm <sup>2</sup> /min  |
| Neoprene       | < 140 minutes     | 0.66 mm         |                 | Permeation rate 19 µg/cm <sup>2</sup> /min As tested under EN374-3 Determination of Resistance to Permeation by Chemicals |
| Butyl rubber   | > 480 minutes     | 0.50 mm         |                 |   |

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.

**Skin and body protection**

Long sleeved clothing

**Respiratory Protection**

Use an AS/NZS 1716 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained in line with AS/NZS 1715 on the use and maintenance of respiratory protective devices

**Recommended Filter type:**

Organic gases and vapours filter Type A Brown conforming to EN14387 (or AUS/NZ equivalent)

**Recommended half mask:-**Valve filtering: EN405 or Half mask: EN140 plus filter, EN 141 (or AUS/NZ equivalent)  
When RPE is used a face piece Fit Test should be conducted**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls**

No information available.

## Section 9 - Physical and Chemical Properties

**Information on basic physical and chemical properties**

|  |  |  |
|--|--|--|
| <b>Appearance</b>                              | Colorless  |  |
| <b>Physical State</b>                          | Liquid   |  |
| <b>Odor</b>                                    | Mild amine                                       |  |
| <b>Odor Threshold</b>                          | No data available                                |  |
| <b>pH</b>                                      | 7.7-8.0  | 100 g/L aq.sol                           |
| <b>Melting Point/Range</b>                     | -24 °C / -11.2 °F                                |  |
| <b>Softening Point</b>                         | No data available                                |  |
| <b>Boiling Point/Range</b>                     | 202 °C / 395.6 °F                                | @ 760 mmHg                               |
| <b>Flash Point</b>                             | 91 °C / 195.8 °F                                 | <b>Method</b> - No information available |
| <b>Evaporation Rate</b>                        | No data available                                |  |
| <b>Flammability (solid,gas)</b>                | Not applicable                                   | Liquid                                   |
| <b>Explosion Limits</b>                        | <b>Lower</b> 1.3 vol %<br><b>Upper</b> 9.5 vol % |  |
| <b>Vapor Pressure</b>                          | 0.7 mbar @ 25 °C                                 |  |
| <b>Vapor Density</b>                           | 3.4  | (Air = 1.0)                              |
| <b>Specific Gravity / Density</b>              | 1.030  |  |
| <b>Bulk Density</b>                            | Not applicable                                   | Liquid                                   |
| <b>Water Solubility</b>                        | Miscible   |  |
| <b>Solubility in other solvents</b>            | No information available                         |  |
| <b>Partition Coefficient (n-octanol/water)</b> |  |  |
| <b>Component</b>                               | <b>log Pow</b>                                   |  |

|                           |                          |  |
|---------------------------|--------------------------|--|
| 1-Methyl-2-pyrrolidone    | -0.46                    |  |
| Autoignition Temperature  | 346 °C / 654.8 °F        |  |
| Decomposition Temperature | No data available        |  |
| Viscosity                 | 1.67 mPa s at 20 °C      |  |
| Explosive Properties      |                          | explosive air/vapour mixtures possible |
| Oxidizing Properties      | No information available |  |

**Other information**

|                   |           |
|-------------------|-----------|
| Molecular Formula | C5 H9 N O |
| Molecular Weight  | 99.13     |

## Section 10 - Stability and Reactivity

|                                  |   |
|----------------------------------|---|
| Reactivity                       | None known, based on information available  |
| Stability                        | Hygroscopic. Air sensitive. Light sensitive.  |
| Conditions to Avoid              | Incompatible products, Heat, flames and sparks, Exposure to air, Exposure to moist air or water, Exposure to light, Keep away from open flames, hot surfaces and sources of ignition. |
| Incompatible Materials           | Strong oxidizing agents, Strong acids, Strong bases.  |
| Hazardous Decomposition Products | Carbon monoxide (CO). Carbon dioxide (CO <sub>2</sub> ). Nitrogen oxides (NO <sub>x</sub> ). peroxides.   |
| Hazardous Polymerization         | No information available.   |

## Section 11 - Toxicological Information

**Information on Toxicological Effects****Product Information****(a) acute toxicity;**

|            |  |
|------------|--|
| Oral       | Based on available data, the classification criteria are not met |
| Dermal     | Based on available data, the classification criteria are not met |
| Inhalation | Based on available data, the classification criteria are not met |

| Component              | LD50 Oral                 | LD50 Dermal              | LC50 Inhalation             |
|------------------------|---------------------------|--------------------------|-----------------------------|
| 1-Methyl-2-pyrrolidone | LD50 = 3914 mg/kg ( Rat ) | LD50 = 8 g/kg ( Rabbit ) | LC50 > 5.1 mg/L ( Rat ) 4 h |

**(b) skin corrosion/irritation;** Category 2

**(c) serious eye damage/irritation;** Category 2

**(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;**

Mutagenic effects have occurred in microorganisms

**(f) carcinogenicity;** Based on available data, the classification criteria are not met  
There are no known carcinogenic chemicals in this product

|  |  |
|--|--|
| <b>(g) reproductive toxicity;<br/>Reproductive Effects<br/>Developmental Effects<br/><br/>Teratogenicity</b> | Category 1B<br>Experiments have shown reproductive toxicity effects on laboratory animals<br>Substances known to cause developmental toxicity in humans May cause harm to the unborn child<br>Teratogenic effects have occurred in experimental animals. |
| <b>(h) STOT-single exposure;<br/><br/>Results / Target organs</b>  | Category 3<br><br>Respiratory system   |
| <b>(i) STOT-repeated exposure;<br/><br/>Target Organs</b>  | Based on available data, the classification criteria are not met<br><br>None known.  |
| <b>(j) aspiration hazard;</b>  | Based on available data, the classification criteria are not met   |
| <b>Other Adverse Effects</b>   | Tumorigenic effects have been reported in experimental animals.  |
| <b>Symptoms / effects, both acute and delayed</b>  | Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting, Central nervous system disorders  |

## Section 12 - Ecological Information

### Ecotoxicity effects

| Component              | Freshwater Fish  | Water Flea                             | Freshwater Algae                                | Microtox |
|------------------------|--|--|---|----------|
| 1-Methyl-2-pyrrolidone | LC50: = 1400 mg/L, 96h static (Poecilia reticulata)<br>LC50: = 1072 mg/L, 96h static (Pimephales promelas)<br>LC50: = 832 mg/L, 96h static (Lepomis macrochirus) | EC50: = 4897 mg/L, 48h (Daphnia magna) | EC50: > 500 mg/L, 72h (Desmodesmus subspicatus) |          |

### Persistence and Degradability

**Persistence** Persistence is unlikely.

| Component                                 | Degradability                                       |
|---|---|
| 1-Methyl-2-pyrrolidone<br>872-50-4 ( 99 ) | water: 73% 28 days OECD 301C<br>soil: >=90% 21 days |

**Bioaccumulative Potential** Bioaccumulation is unlikely

| Component              | log Pow | Bioconcentration factor (BCF) |
|------------------------|---------|-------------------------------|
| 1-Methyl-2-pyrrolidone | -0.46   | No data available             |

**Mobility** 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

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors

**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

**Waste from Residues/Unused Products** Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes, including emptied containers, are controlled wastes and should be disposed of in accordance with all federal, E.P.A., state and local regulations. Assure conformity with all applicable regulations.

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

**Other Information** Chemical wastes should be disposed through a licensed commercial waste collection service. Waste codes should be assigned by the user based on the application for which

the product was used. Do not empty into drains.

## Section 14 - Transport Information

**IMDG/IMO** Not regulated

**ADG** Not regulated

**IATA** Not regulated

**Environmental hazards** No hazards identified

**Special Precautions** No special precautions required

**Additional information** None known

## Section 15 - Regulatory Information

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

**National Regulations** Australia

See section 8 for national exposure control parameters.

### Standard for the Uniform Scheduling of Medicines and Poisons

Classified as a scheduled poison according to the Standard for Uniform Scheduling of Medicines and Poisons.

| Component                         | Standard for the Uniform Scheduling of Medicines and Poisons   |
|-----------------------------------|--|
| 1-Methyl-2-pyrrolidone - 872-50-4 | Schedule 5 listed - when packed in single use containers having a capacity of $\leq 2$ mL<br>Schedule 5 listed - in preparations of N-Methyl-2-pyrrolidone or preparations containing $\leq 50\%$ of a mixture of any two or more of N-Methyl-2-pyrrolidone, N-(N-Octyl)-2-pyrrolidone or N-(N-Dodecyl)-2-pyrrolidone except in preparations containing $\leq 25\%$ of designated solvent<br>Schedule 6 listed - except when included in Schedule 5, or in preparations containing $\leq 25\%$ of designated solvent |

### Australian Industrial Chemicals Introduction Scheme (AICIS)

| Component                         | Australian Industrial Chemicals Introduction Scheme (AICIS) | Additional information |
|-----------------------------------|---|------------------------|
| 1-Methyl-2-pyrrolidone - 872-50-4 | Present   | -                      |

### Australian - Illicit Drug Precursors/Reagents Substance List

This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

### Chemicals of Security Concern

This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern

**National pollutant inventory** Not applicable



**Prohibition or notification/licensing requirements**

Shown below are details of specific prohibition/notifications or licensing requirements when they apply.

This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction.

**International Inventories**

| Component              | AICS | NZIoC | EINECS    | ELINCS | TSCA | DSL | NDSL | PICCS | ENCS | ISHL | IECSC | KECL     |
|------------------------|------|-------|-----------|--------|------|-----|------|-------|------|------|-------|----------|
| 1-Methyl-2-pyrrolidone | X    | X     | 212-828-1 | -      | X    | X   | -    | X     | X    | X    | X     | KE-25324 |

**Legend:** X - Listed. '-' - Not Listed. R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA. **KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

**International Regulations**

**Ozone Depletion Potential** This product does not contain any known or suspected substance

**Persistent Organic Pollutant** This product does not contain any known or suspected substance

**Rotterdam Convention (PIC)** Not applicable

**Basel convention on the control of transboundary movements of hazardous wastes and their disposal**

Not applicable.

| Component              | CAS No   | OECD HPV | Restriction of Hazardous Substances (RoHS) | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements |
|------------------------|----------|----------|--|---|--|
| 1-Methyl-2-pyrrolidone | 872-50-4 | Listed   | Not applicable                             | Not applicable  | Not applicable   |

**Authorisation/Restrictions according to EU REACH**

| Component              | 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) |
|------------------------|---|--|---|
| 1-Methyl-2-pyrrolidone | -   | Use restricted. See item 72. (see link for restriction details)<br>Use restricted. See item 30. (see link for restriction details)<br>Use restricted. See item 71. (see link for restriction details)<br>Use restricted. See item 75. (see link for restriction details) | SVHC Candidate list - 212-828-1 - Toxic for reproduction, Article 57c                                 |

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

<https://echa.europa.eu/authorisation-list>

<https://echa.europa.eu/substances-restricted-under-reach>

<https://echa.europa.eu/candidate-list-table>

**Section 16 - Other Information**

**Legend**

|  |  |
|--|--|
| <b>AICS</b> - Australian Inventory of Chemical Substances  | <b>NZIoC</b> - New Zealand Inventory of Chemicals  |
| <b>TSCA</b> - United States Toxic Substances Control Act Section 8(b) Inventory                      | <b>EINECS/ELINCS</b> - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances |
| <b>DSL/NDL</b> - Canadian Domestic Substances List/Non-Domestic Substances List                      | <b>ENCS</b> - Japanese Existing and New Chemical Substances  |
| <b>IECSC</b> - Chinese Inventory of Existing Chemical Substances                                     | <b>KECL</b> - Korean Existing and Evaluated Chemical Substances  |
| <b>PICCS</b> - Philippines Inventory of Chemicals and Chemical Substances                            | <b>CAS</b> - Chemical Abstracts Service  |
| <b>TWA</b> - Time Weighted Average   | <b>ACGIH</b> - American Conference of Governmental Industrial Hygienists   |
| <b>IARC</b> - International Agency for Research on Cancer  | Predicted No Effect Concentration (PNEC)   |
| <b>ICAO/IATA</b> - International Civil Aviation Organization/International Air Transport Association | <b>IMO/IMDG</b> - International Maritime Organization/International Maritime Dangerous Goods Code                            |
| <b>MARPOL</b> - International Convention for the Prevention of Pollution from Ships                  | <b>ADG</b> Australian Code for the Transport of Dangerous Goods by Road and Rail   |
| <b>NZS 5433:2012</b> - Transport of Dangerous Goods on Land  | <b>OECD</b> - Organisation for Economic Co-operation and Development   |
| <b>LD50</b> - Lethal Dose 50%  | <b>LC50</b> - Lethal Concentration 50%   |
| <b>EC50</b> - Effective Concentration 50%  | <b>ATE</b> - Acute Toxicity Estimate   |
| <b>WEL</b> - Workplace Exposure Limit  | <b>RPE</b> - Respiratory Protective Equipment  |
| <b>DNEL</b> - Derived No Effect Level  | <b>NOEC</b> - No Observed Effect Concentration   |
| <b>POW</b> - Partition coefficient Octanol:Water   | <b>BCF</b> - Bioconcentration factor   |
| <b>vPvB</b> - very Persistent, very Bioaccumulative  | <b>PBT</b> - Persistent, Bioaccumulative, Toxic  |
| <b>VOC</b> - (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.

Chemical incident response training.

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

|                         |                 |
|-------------------------|-----------------|
| <b>Revision Date</b>    | 21-Nov-2022     |
| <b>Revision Summary</b> | Not applicable. |

**This Safety Data Sheet (SDS) is prepared in accordance to and complies with the requirements of Safe Work Australia - Work Health and Safety Regulations (WHS Regulations).**

**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