

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

## Section 1 - Identification

**Product Name** Hydrochloric acid 36TW synthesis grade

**CAS No** 7647-01-0

**Synonyms** Muriatic acid

**Product Code** **R14520**

**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 contains one or more substance(s) on the Illicit Drug Precursors/Reagents list. Verify requirements related to using, handling and storing these substances. This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction. This product contains one or more 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

Substances/mixtures corrosive to metal

Category 1

#### Health hazards

Skin Corrosion/Irritation  
Serious Eye Damage/Eye Irritation  
Specific target organ toxicity - (single exposure)

Category 1 B  
Category 1  
Category 3

#### Environmental hazards

No hazards identified

#### Label Elements



Exclamation Mark



Corrosion

**Signal Word**

**Danger**

**Hazard Statements**

H290 - May be corrosive to metals  
H314 - Causes severe skin burns and eye damage  
H335 - May cause respiratory irritation

**Precautionary Statements**

P234 - Keep only in original packaging  
P264 - Wash face, hands and any exposed skin thoroughly after handling  
P271 - Use only outdoors or in a well-ventilated area  
P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting  
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower  
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  
P310 - Immediately call a POISON CENTER or doctor  
P363 - Wash contaminated clothing before reuse  
P390 - Absorb spillage to prevent material damage  
P402 - Store in a dry place  
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed  
P406 - Store in corrosion resistant polypropylene container with a resistant liner  
P501 - Dispose of contents/ container to an approved waste disposal plant

**Other information**

Toxic to terrestrial vertebrates

## Section 3 - Composition and Information on Ingredients

| Component         | CAS No    | Weight % |
|-------------------|-----------|----------|
| Water             | 7732-18-5 | 65-70    |
| Hydrochloric acid | 7647-01-0 | 30-35    |

## 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>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> | Causes burns by all exposure routes. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation            |
| <b>Notes to Physician</b>                  | Treat symptomatically.   |

## Section 5 - Fire Fighting Measures

### Suitable Extinguishing Media

CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam.

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

No information available.

### Hazardous Decomposition Products

Hydrogen chloride gas.

### Decomposition Temperature

1782 °C

### Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors.

### 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

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

### Environmental Precautions

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

### Methods for Containment and Clean Up

#### Clean-up methods - small spillage

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

#### Clean-up methods - large spillage

Typically only supplied in 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

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

### Conditions for Safe Storage, Including any Incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep only in the original container. Corrosives area.

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

## 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 **ACGIH** - Threshold Limit Values - Ceiling (TLV-C) guidelines by the American Conference of Governmental Industrial Hygienists (ACGIH) for controlling worker exposure to airborne chemical concentrations in the workplace. **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  |
|-------------------|--|--|----------------|--|--|
| Hydrochloric acid | Ceiling: 5 ppm<br>Ceiling: 7.5 mg/m <sup>3</sup> | Ceiling: 5 ppm<br>Ceiling: 7.5 mg/m <sup>3</sup> | Ceiling: 2 ppm | STEL: 5 ppm 15 min<br>STEL: 8 mg/m <sup>3</sup> 15 min<br>TWA: 1 ppm 8 hr<br>TWA: 2 mg/m <sup>3</sup> 8 hr | TWA: 2 ppm (8 Stunden). AGW - exposure factor 2<br>TWA: 3 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 2<br>TWA: 2 ppm (8 Stunden). MAK<br>TWA: 3.0 mg/m <sup>3</sup> (8 Stunden). MAK<br>Höhepunkt: 4 ppm<br>Höhepunkt: 6 mg/m <sup>3</sup> |

### Biological limit values

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

### Exposure Controls

#### Engineering Measures

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   |
|----------------|-------------------|-----------------|-----------------|--|
| Butyl rubber   | > 480 minutes     | 0.20 mm         | AS/NZS 2161     | As tested under EN374-3 Determination of Resistance to Permeation by Chemicals |
| Neoprene       | > 480 minutes     | 0.35 mm         |                 |  |
| Nitrile rubber | > 480 minutes     | 0.45 mm         |                 |  |
| PVC            | > 480 minutes     | 0.18 mm         |                 |  |
| Viton (R)      | > 480 minutes     | 0.30 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 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.

|  |   |
|--|---|
| <b>Skin and body protection</b>        | Wear appropriate protective gloves and clothing to prevent skin exposure  |
| <b>Respiratory Protection</b>          | 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 |
| <b>Recommended Filter type:</b>        | Acid gases filter Type E Yellow or Particulates filter conforming to EN 143 (or AUS/NZ equivalent)  |
| <b>Recommended half mask:-</b>         | Valve filtering: EN405 or Half mask: EN140 plus filter, EN 141 (or AUS/NZ equivalent)<br>When RPE is used a face piece Fit Test should be conducted   |
| <b>Hygiene Measures</b>                | Handle in accordance with good industrial hygiene and safety practice.  |
| <b>Environmental exposure controls</b> | 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>                                    | pungent                  |  |
| <b>Odor Threshold</b>                          | No data available        |  |
| <b>pH</b>                                      | < 1                      |  |
| <b>Melting Point/Range</b>                     | -35 °C / -31 °F          |  |
| <b>Softening Point</b>                         | No data available        |  |
| <b>Boiling Point/Range</b>                     | 57 °C / 134.6 °F         | @ 760 mmHg                               |
| <b>Flash Point</b>                             | No information available | <b>Method -</b> No information available |
| <b>Evaporation Rate</b>                        | > 1.00                   |  |
| <b>Flammability (solid,gas)</b>                | Not applicable           | Liquid                                   |
| <b>Explosion Limits</b>                        | No data available        |  |
| <b>Vapor Pressure</b>                          | 125 mbar @ 20 °C         |  |
| <b>Vapor Density</b>                           | 1.26                     | (Air = 1.0)                              |
| <b>Specific Gravity / Density</b>              | 1.16                     |  |
| <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>Autoignition Temperature</b>                | No data available        |  |
| <b>Decomposition Temperature</b>               | 1782 °C                  |  |
| <b>Viscosity</b>                               | 1.9 mPa.s at 15 °C       |  |
| <b>Explosive Properties</b>                    | No information available |  |
| <b>Oxidizing Properties</b>                    | No information available |  |
| <b>Other information</b>                       |                          |  |
| <b>Molecular Formula</b>                       | Cl H                     |  |
| <b>Molecular Weight</b>                        | 36.45                    |  |

## Section 10 - Stability and Reactivity

|                   |  |
|-------------------|--|
| <b>Reactivity</b> | None known, based on information available |
|-------------------|--|

|   |   |
|---|---|
| <b>Stability</b>                        | Stable under normal conditions.                         |
| <b>Conditions to Avoid</b>              | Incompatible products, Excess heat.                     |
| <b>Incompatible Materials</b>           | Strong oxidizing agents, Reducing Agent, Bases, Metals. |
| <b>Hazardous Decomposition Products</b> | Hydrogen chloride gas.                                  |
| <b>Hazardous Polymerization</b>         | Hazardous polymerization does not occur.                |

## Section 11 - Toxicological Information

### Information on Toxicological Effects

#### Product Information

|                            |  |
|----------------------------|--|
| <b>(a) acute toxicity;</b> |  |
| <b>Oral</b>                | Based on available data, the classification criteria are not met |
| <b>Dermal</b>              | Based on available data, the classification criteria are not met |
| <b>Inhalation</b>          | Based on available data, the classification criteria are not met |

#### Toxicology data for the components

| Component         | LD50 Oral               | LD50 Dermal             | LC50 Inhalation       |
|-------------------|-------------------------|-------------------------|-----------------------|
| Water             | -                       | -                       | -                     |
| Hydrochloric acid | 238 - 277 mg/kg ( Rat ) | > 5010 mg/kg ( Rabbit ) | 1.68 mg/L ( Rat ) 1 h |

**(b) skin corrosion/irritation;** Category 1 B

**(c) serious eye damage/irritation;** Category 1

**(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;** Category 3  
    **Results / Target organs** Respiratory system

**(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

**Symptoms / effects, both acute and delayed** Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

## Section 12 - Ecological Information

**Ecotoxicity effects**

Do not empty into drains. .

| Component         | Freshwater Fish  | Water Flea                 | Freshwater Algae | Microtox |
|-------------------|--|----------------------------|------------------|----------|
| Hydrochloric acid | 282 mg/L LC50 96 h<br>Gambusia affinis<br>mg/L LC50 48 h<br>Leuciscus idus | 56mg/L EC50 72h<br>Daphnia | -                | -        |

**Persistence and Degradability****Persistence**

Persistence is unlikely, based on information available.

**Bioaccumulative Potential**

Bioaccumulation is unlikely

**Mobility**

The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility

**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. Do not flush to sewer. Large amounts will affect pH and harm aquatic organisms. Solutions with low pH-value must be neutralized before discharge.

## Section 14 - Transport Information

**IMDG/IMO**

UN-No UN1789  
Proper Shipping Name Hydrochloric acid  
Hazard Class 8  
Packing Group II

**ADG**

UN-No UN1789  
Proper Shipping Name Hydrochloric acid  
Hazard Class 8  
Packing Group II

| Component           | Hazchem Code |
|---------------------|--------------|
| Hydrochloric acid   | 2RE          |
| 7647-01-0 ( 30-35 ) | 2R           |

**IATA**

UN-No UN1789  
Proper Shipping Name Hydrochloric acid  
Hazard Class 8  
Packing Group II

|                        |                                 |
|------------------------|---------------------------------|
| 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  |
|-------------------------------|---|
| Hydrochloric acid - 7647-01-0 | Schedule 5 listed - except its salts and derivatives; in preparations except: in preparations containing $\leq 0.5\%$ of Hydrochloric acid, or for therapeutic use<br>Schedule 6 listed - except its salts and derivatives; except: when included in Schedule 5, in preparations for therapeutic use, or in preparations containing $\leq 0.5\%$ of Hydrochloric acid |

#### **Australian Industrial Chemicals Introduction Scheme (AICIS)**

| Component                     | Australian Industrial Chemicals Introduction Scheme (AICIS) | Additional information |
|-------------------------------|---|------------------------|
| Water - 7732-18-5             | Present   | -                      |
| Hydrochloric acid - 7647-01-0 | Present   | -                      |

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

This product contains one or more substance(s) on the Illicit Drug Precursors/Reagents list. Verify requirements related to using, handling and storing these substances.

#### **Chemicals of Security Concern**

This product contains one or more substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern

| Component                     | Australian - Illicit Drug Precursors/Reagents Substance List | Chemicals of Security Concern |
|-------------------------------|--|-------------------------------|
| Hydrochloric acid - 7647-01-0 | Category 3   | Listed in Appendix A          |

#### **Legend**

Category 3 - Chemicals and apparatus that may be used in the illicit production of drugs. Purchases from this list should alert companies or organizations to seek further indicators of any suspicious orders or enquiries. No official reporting is required for items on this list unless considered warranted

**Chemicals of Security Concern** - for further information see <http://www.chemicalsecurity.gov.au/securityconcerns>

**National pollutant inventory** Subject to reporting requirements

| Component                     | National pollutant inventory   |
|-------------------------------|--|
| Hydrochloric acid - 7647-01-0 | 10 tonne/yr. Threshold category 1<br>400 tonne/yr. Threshold category 2a<br>1 tonne/h. Threshold category 2a<br>2000 tonne/yr. Threshold category 2b<br>60000 MWH. Threshold category 2b |



20 MW. Threshold category 2b

**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     |
|-------------------|------|-------|-----------|--------|------|-----|------|-------|------|------|-------|----------|
| Water             | X    | X     | 231-791-2 | -      | X    | X   | -    | X     | X    |      | X     | KE-35400 |
| Hydrochloric acid | X    | X     | 231-595-7 | -      | X    | X   | -    | X     | X    | X    | X     | KE-20189 |

**Legend:** X - Listed. '-' - Not Listed. **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**

Take note that wastes may be subject to export, import, or transit controls pursuant to the Basel convention and/or local regulations implementing the Basel convention.

| Component                     | Basel Convention (Hazardous Waste) | Australian Hazardous Waste Act - Categories of Wastes to Be Controlled |
|-------------------------------|------------------------------------|--|
| Hydrochloric acid - 7647-01-0 | Annex I - Y34                      | Y34 solid or solution  |

| 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 |
|-------------------|-----------|----------|--|---|--|
| Water             | 7732-18-5 | Listed   | Not applicable                             | Not applicable  | Not applicable   |
| Hydrochloric acid | 7647-01-0 | Listed   | Not applicable                             | 25 tonne  | 250 tonne  |

**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) |
|-------------------|---|---|---|
| Hydrochloric acid | -   | Use restricted. See item 75. (see link for restriction details)               | -   |

<https://echa.europa.eu/substances-restricted-under-reach>**Section 16 - Other Information****Legend**

**AICS** - Australian Inventory of Chemical Substances  
**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**IECSC** - Chinese Inventory of Existing Chemical Substances  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**TWA** - Time Weighted Average  
**IARC** - International Agency for Research on Cancer  
**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association  
**MARPOL** - International Convention for the Prevention of Pollution from Ships  
**NZS 5433:2012** - Transport of Dangerous Goods on Land  
**LD50** - Lethal Dose 50%  
**EC50** - Effective Concentration 50%  
**WEL** - Workplace Exposure Limit  
**DNEL** - Derived No Effect Level  
**POW** - Partition coefficient Octanol:Water  
**vPvB** - very Persistent, very Bioaccumulative  
**VOC** - (Volatile Organic Compound)

**NZIoC** - New Zealand Inventory of Chemicals  
**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances  
**ENCS** - Japanese Existing and New Chemical Substances  
**KECL** - Korean Existing and Evaluated Chemical Substances  
**CAS** - Chemical Abstracts Service  
**ACGIH** - American Conference of Governmental Industrial Hygienists Predicted No Effect Concentration (PNEC)  
**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code  
**ADG** Australian Code for the Transport of Dangerous Goods by Road and Rail  
**OECD** - Organisation for Economic Co-operation and Development  
**LC50** - Lethal Concentration 50%  
**ATE** - Acute Toxicity Estimate  
**RPE** - Respiratory Protective Equipment  
**NOEC** - No Observed Effect Concentration  
**BCF** - Bioconcentration factor  
**PBT** - Persistent, Bioaccumulative, Toxic

**Key literature references and sources for data**

<https://echa.europa.eu/information-on-chemicals>  
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:**

|                              |  |
|------------------------------|--|
| <b>Physical hazards</b>      | Data from closely analogous substances |
| <b>Health Hazards</b>        | Bridging principle "Dilution"          |
| <b>Environmental hazards</b> | Bridging principle "Dilution"          |

**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.

|                         |                  |
|-------------------------|------------------|
| <b>Revision Date</b>    | 20-Nov-2022      |
| <b>Revision Summary</b> | Initial Release. |

**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**