

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

## Section 1 - Identification

**Product Name** Butyronitrile

**CAS No** 109-74-0

**Synonyms** n-Butanenitrile; 1-Cyanopropane

**Product Code** **L02999**

**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

Flammable liquids

Category 2

#### Health hazards

Acute Oral Toxicity  
Acute Dermal Toxicity

Category 3  
Category 3

#### Environmental hazards

No hazards identified

### Label Elements



Flame



Skull and Crossbones

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

H225 - Highly flammable liquid and vapor

H301 + H311 - Toxic if swallowed or in contact with skin

**Precautionary Statements**

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

P233 - Keep container tightly closed

P240 - Ground and bond container and receiving equipment

P241 - Use explosion-proof electrical/ ventilating/ lighting equipment

P242 - Use non-sparking tools

P271 - Use only outdoors or in a well-ventilated area

P243 - Take action to prevent static discharges

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

P264 - Wash face, hands and any exposed skin thoroughly after handling

P270 - Do not eat, drink or smoke when using this product

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P311 - Call a POISON CENTER or doctor

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor

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

P330 - Rinse mouth

P380 - Evacuate area

P372 - Explosion risk

P374 - Fight fire with normal precautions from a reasonable distance

P362 + P364 - Take off contaminated clothing and wash it before reuse

P403 + P235 - Store in a well-ventilated place. Keep cool

P405 - Store locked up

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 % |
|-----------------|----------|----------|
| n-Butanenitrile | 109-74-0 | <= 100   |

**Section 4 - First Aid Measures****Inhalation**

Remove to fresh air. 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. If not breathing, give artificial respiration.

|                                            |                                                                                                                                                  |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ingestion</b>                           | Do NOT induce vomiting. Call a physician or poison control center immediately.                                                                   |
| <b>Skin Contact</b>                        | Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.                                      |
| <b>Eye Contact</b>                         | Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.                |
| <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> | Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting     |
| <b>Notes to Physician</b>                  | Treat symptomatically.                                                                                                                           |

## Section 5 - Fire Fighting Measures

### Suitable Extinguishing Media

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

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

### Specific Hazards Arising from the Chemical

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

### 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.

## Section 6 - Accidental Release Measures

### Emergency procedures

Remove all sources of ignition. Take precautionary measures against static discharges.

### Environmental Precautions

See Section 12 for additional Ecological Information.

### Methods for Containment and Clean Up

#### Clean-up methods - small spillage

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Wear self-contained breathing apparatus and protective suit. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Do not let this chemical enter the environment.

#### 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

Do not breathe mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance. Handle product only in closed system or provide appropriate exhaust ventilation. Use spark-proof tools and explosion-proof equipment. Use only non-sparking tools. Wear personal protective equipment/face protection. Keep away from open flames, hot surfaces and sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

### Conditions for Safe Storage, Including any Incompatibilities

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat, sparks and flame. Flammables area. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed in a dry and well-ventilated place.

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

**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                                                                             |
|-----------------|-----------|-----------------|-----------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| n-Butanenitrile |           |                 |           | STEL: 15 mg/m <sup>3</sup> 15 min<br>TWA: 5 mg/m <sup>3</sup> 8 hr<br>Skin | TWA: 2 mg/m <sup>3</sup> (8 Stunden). MAK<br>Höhepunkt: 2 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

### Exposure Controls

#### Engineering Measures

Use explosion-proof electrical/ventilating/lighting equipment. 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 | See manufacturers | -               | AS/NZS 2161     | (minimum requirement) |
| Neoprene       | recommendations   |                 |                 |                       |
| Natural rubber |                   |                 |                 |                       |
| PVC            |                   |                 |                 |                       |

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.

|                                 |                                                                                                                                                                                                                                                                                                                             |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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> | Organic gases and vapours filter Type A Brown conforming to EN14387 (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                                                                                                                                                                         |

**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>                                    | No information available      |                                             |
| <b>Odor Threshold</b>                          | No data available             |                                             |
| <b>pH</b>                                      | No data available             |                                             |
| <b>Melting Point/Range</b>                     | -112 °C / -169.6 °F           |                                             |
| <b>Softening Point</b>                         | No data available             |                                             |
| <b>Boiling Point/Range</b>                     | 115 - 117 °C / 239 - 242.6 °F |                                             |
| <b>Flash Point</b>                             | 16 °C / 60.8 °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> 1.6              |                                             |
| <b>Vapor Pressure</b>                          | 19.7 hPa @ 20 °C              |                                             |
| <b>Vapor Density</b>                           | No data available             | (Air = 1.0)                                 |
| <b>Specific Gravity / Density</b>              | 0.790                         |                                             |
| <b>Bulk Density</b>                            | Not applicable                | Liquid                                      |
| <b>Water Solubility</b>                        | 33 g/L (25°C)                 |                                             |
| <b>Solubility in other solvents</b>            | No information available      |                                             |
| <b>Partition Coefficient (n-octanol/water)</b> |                               |                                             |
| <b>Component</b>                               | <b>log Pow</b>                |                                             |
| n-Butanenitrile                                | 0.401                         |                                             |
| <b>Autoignition Temperature</b>                | 501 °C / 933.8 °F             |                                             |
| <b>Decomposition Temperature</b>               | No data available             |                                             |
| <b>Viscosity</b>                               | 0.57 mPa s at 20 °C           |                                             |
| <b>Explosive Properties</b>                    |                               | Vapors may form explosive mixtures with air |
| <b>Oxidizing Properties</b>                    | No information available      |                                             |
| <b>Other information</b>                       |                               |                                             |
| <b>Molecular Formula</b>                       | C4 H7 N                       |                                             |
| <b>Molecular Weight</b>                        | 69.11                         |                                             |

## Section 10 - Stability and Reactivity

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

|                                         |                                                                                                        |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------|
| <b>Stability</b>                        | Stable under normal conditions.                                                                        |
| <b>Conditions to Avoid</b>              | Keep away from open flames, hot surfaces and sources of ignition, Incompatible products.               |
| <b>Incompatible Materials</b>           | Strong oxidizing agents, Strong acids, Strong bases, Strong reducing agents.                           |
| <b>Hazardous Decomposition Products</b> | Nitrogen oxides (NO <sub>x</sub> ). Carbon monoxide (CO). Carbon dioxide (CO <sub>2</sub> ). nitriles. |
| <b>Hazardous Polymerization</b>         | Hazardous polymerization does not occur.                                                               |

## Section 11 - Toxicological Information

### Information on Toxicological Effects

#### Product Information

**(a) acute toxicity;**

|                   |            |
|-------------------|------------|
| <b>Oral</b>       | Category 3 |
| <b>Dermal</b>     | Category 3 |
| <b>Inhalation</b> | Category 3 |

| Component       | LD50 Oral                | LD50 Dermal               | LC50 Inhalation             |
|-----------------|--------------------------|---------------------------|-----------------------------|
| n-Butanenitrile | LD50 = 111 mg/kg ( Rat ) | LD50 > 2000 mg/kg ( Rat ) | LC50 > 1147 ppm ( Rat ) 1 h |

**(b) skin corrosion/irritation;** No data available

**(c) serious eye damage/irritation;** No data available

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

|                    |                   |
|--------------------|-------------------|
| <b>Respiratory</b> | No data available |
| <b>Skin</b>        | No data available |

**(e) germ cell mutagenicity;** No data available

**(f) carcinogenicity;** No data available

There are no known carcinogenic chemicals in this product

**(g) reproductive toxicity;** No data available

**(h) STOT-single exposure;** No data available

**(i) STOT-repeated exposure;** No data available

**Target Organs** No information available.

**(j) aspiration hazard;** No data available

**Symptoms / effects, both acute and delayed** Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

## Section 12 - Ecological Information

**Ecotoxicity effects** Do not empty into drains. .

| Component | Freshwater Fish | Water Flea | Freshwater Algae | Microtox |
|-----------|-----------------|------------|------------------|----------|
|-----------|-----------------|------------|------------------|----------|

|                 |                                                    |  |  |  |
|-----------------|----------------------------------------------------|--|--|--|
| n-Butanenitrile | LC50: > 107 mg/L, 96h static (Pimephales promelas) |  |  |  |
|-----------------|----------------------------------------------------|--|--|--|

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

Persistence is unlikely.

**Bioaccumulative Potential**

Bioaccumulation is unlikely

| Component       | log Pow | Bioconcentration factor (BCF) |
|-----------------|---------|-------------------------------|
| n-Butanenitrile | 0.401   | 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. 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.

**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 flush to sewer. Can be landfilled or incinerated, when in compliance with local regulations.

## Section 14 - Transport Information

**IMDG/IMO**

|                         |               |
|-------------------------|---------------|
| UN-No                   | UN2411        |
| Proper Shipping Name    | BUTYRONITRILE |
| Hazard Class            | 3             |
| Subsidiary Hazard Class | 6.1           |
| Packing Group           | II            |

**ADG**

|                         |               |
|-------------------------|---------------|
| UN-No                   | UN2411        |
| Proper Shipping Name    | BUTYRONITRILE |
| Hazard Class            | 3             |
| Subsidiary Hazard Class | 6.1           |
| Packing Group           | II            |

| Component                              | Hazchem Code |
|----------------------------------------|--------------|
| n-Butanenitrile<br>109-74-0 ( <= 100 ) | 3WE          |

**IATA**

|                         |               |
|-------------------------|---------------|
| UN-No                   | UN2411        |
| Proper Shipping Name    | BUTYRONITRILE |
| Hazard Class            | 3             |
| Subsidiary Hazard Class | 6.1           |
| 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**

No poison schedule number allocated.

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

| Component                  | Australian Industrial Chemicals Introduction Scheme (AICIS) | Additional information |
|----------------------------|-------------------------------------------------------------|------------------------|
| n-Butanenitrile - 109-74-0 | 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       |
|-----------------|------|-------|-----------|--------|------|-----|------|-------|------|------|-------|------------|
| n-Butanenitrile | X    | X     | 203-700-6 | -      | X    | X   | -    | X     | X    | X    | X     | 2009-1-592 |

**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  
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 |
|-----------------|----------|----------|--------------------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| n-Butanenitrile | 109-74-0 | Listed   | Not applicable                             | Not applicable                                                                            | Not applicable                                                                           |

Authorisation/Restrictions according to EU REACH Not applicable

## 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  
**PNEC** - 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

### 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.

**Revision Date** 18-Nov-2022  
**Revision Summary** Not applicable.

This Safety Data Sheet (SDS) is prepared in accordance to and complies with the requirements of

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**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**