

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**
**Product Identifier**

Perihalan Produk: **Tetrahydro-4H-pyran-4-one**  
 Product Description: **Tetrahydro-4H-pyran-4-one**  
 Cat No. : A19010  
 Synonyms Tetrahydro-2H-pyran-4-one.  
 CAS No 29943-42-8  
 Molecular Formula C5 H8 O2

**Relevant identified uses of the substance or mixture and uses advised against**

Recommended Use Laboratory chemicals.  
 Uses advised against No Information available

**Company**

Thermo Fisher Scientific Fisher Scientific (M) Sdn Bhd  
 Hap Seng Business Park, Lot 01-03, 01-04 Aras 1 Unity Square,  
 No 12, Persiaran Perusahaan, Seksyen 23, 40300 Shah Alam,  
 Selangor Darul Ehsan, Malaysia.  
 Main line: +60 3-5525 7888

**Supplier**

E-mail address Enquiry.my@thermofisher.com

**Emergency Telephone Number**

Tel: +03-5525 7888  
 CHEMTREC Malaysia 1-800-815-308 (Malay)  
 CHEMTREC Malaysia (Kuala Lumpur) +(60)-327884561 (Malay)

**SECTION 2: HAZARDS IDENTIFICATION**
**Classification of the substance or mixture**

|                   |                   |
|-------------------|-------------------|
| Flammable liquids | Category 3 (H226) |
|-------------------|-------------------|

**Label Elements**

**Signal Word**
**Warning**
**Hazard Statements**

H226 - Flammable liquid and vapor

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## Precautionary Statements

### Prevention

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

P242 - Use non-sparking tools

P243 - Take action to prevent static discharges

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

### Response

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower

P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

### Storage

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

### Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

## Other Hazards

This product does not contain any known or suspected endocrine disruptors

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

| Component                 | CAS No     | Weight % |
|---------------------------|------------|----------|
| Tetrahydro-4H-pyran-4-one | 29943-42-8 | > 95     |

## SECTION 4: FIRST AID MEASURES

### Description of first aid measures

#### General Advice

If symptoms persist, call a physician.

#### Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

#### Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

#### Ingestion

Clean mouth with water and drink afterwards plenty of water.

#### Inhalation

Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

#### Self-Protection of the First Aider

No special precautions required.

### Most important symptoms and effects, both acute and delayed

. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

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

#### Notes to Physician

Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

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## Extinguishing media

### **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.

## Special hazards arising from the substance or mixture

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

## **Hazardous Combustion Products**

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>).

## Advice 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

### Personal Precautions, Protective Equipment and Emergency Procedures

Ensure adequate ventilation. Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges.

### Environmental precautions

Should not be released into the environment.

### Methods and Material for Containment and Cleaning Up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

### 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. Ensure adequate ventilation. Avoid ingestion and inhalation. Do not get in eyes, on skin, or on clothing. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

### Conditions for Safe Storage, Including any Incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat, sparks and flame.

### Specific End Uses

Use in laboratories.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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## Control Parameters

### Exposure Controls

#### **Engineering Measures**

Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting equipment. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

#### **Personal protective equipment**

|                                 |  |
|---------------------------------|--|
| <b>Eye Protection</b>           | Wear safety glasses with side shields (or goggles) |
| <b>Hand Protection</b>          | Protective gloves                                  |
| <b>Skin and body protection</b> | Long sleeved clothing                              |

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>Respiratory Protection</b> | No protective equipment is needed under normal use conditions |
|-------------------------------|---|

|                         |   |
|-------------------------|---|
| <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>               | Light yellow                    |  |
| <b>Physical State</b>           | Liquid                          |  |
| <b>Odor</b>                     | No information available        |  |
| <b>Odor Threshold</b>           | No data available               |  |
| <b>pH</b>                       | No information available        |  |
| <b>Melting Point/Range</b>      | No data available               |  |
| <b>Softening Point</b>          | No data available               |  |
| <b>Boiling Point/Range</b>      | 166 - 166 °C / 330.8 - 330.8 °F | @ 760 mmHg                               |
| <b>Flash Point</b>              | 56 °C / 132.8 °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>         | No data available               |  |
| <b>Vapor Pressure</b>           | No data available               |  |
| <b>Vapor Density</b>            | 3.45                            | (Air = 1.0)                              |

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|                              |                          |        |
|------------------------------|--------------------------|--------|
| Specific Gravity / Density   | 1.080                    |        |
| Bulk Density                 | Not applicable           | Liquid |
| Water Solubility             | Miscible                 |        |
| Solubility in other solvents | No information available |        |

## Partition Coefficient (n-octanol/water)

|                           |                          |  |
|---------------------------|--------------------------|--|
| Autoignition Temperature  | No data available        |  |
| Decomposition Temperature | No data available        |  |
| Viscosity                 | No data available        |  |
| Explosive Properties      |                          | explosive air/vapour mixtures possible |
| Oxidizing Properties      | No information available |  |

|                   |          |
|-------------------|----------|
| Molecular Formula | C5 H8 O2 |
| Molecular Weight  | 100.12   |

## SECTION 10: STABILITY AND REACTIVITY

### Reactivity

None known, based on information available.

### Chemical Stability

No information available.

### Possibility of Hazardous Reactions

|                          |                           |
|--------------------------|---------------------------|
| Hazardous Polymerization | No information available. |
| Hazardous Reactions      | No information available. |

### Conditions to Avoid

Incompatible products. Keep away from open flames, hot surfaces and sources of ignition.

### Incompatible Materials

Strong oxidizing agents. Strong bases.

### Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

## SECTION 11: TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects

|                     |   |
|---------------------|---|
| Product Information | No acute toxicity information is available for this product |
|---------------------|---|

|                             |                   |
|-----------------------------|-------------------|
| (a) acute toxicity;<br>Oral | No data available |
|-----------------------------|-------------------|

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|  |   |
|--|---|
| Dermal                                     | No data available   |
| Inhalation                                 | No data available   |
| (b) skin corrosion/irritation;             | No data available   |
| (c) serious eye damage/irritation;         | No data available   |
| (d) respiratory or skin sensitization;     |   |
| Respiratory                                | No data available   |
| Skin                                       | 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   |
| Other Adverse Effects                      | The toxicological properties have not been fully investigated.  |
| Symptoms / effects, both acute and delayed | Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.  |
| 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

|                                      |  |
|--------------------------------------|--|
| <u>Ecotoxicity effects</u>           | Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants.                                  |
| <u>Persistence and degradability</u> |  |
| Persistence                          | Miscible with water, Persistence is unlikely, based on information available.  |
| <u>Bioaccumulative potential</u>     | Bioaccumulation is unlikely  |
| <u>Mobility in soil</u>              | 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. |

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

**Other adverse effects** No information available

## SECTION 13: DISPOSAL CONSIDERATIONS

### 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

**Other Information** Waste codes should be assigned by the user based on the application for which the product was used Do not flush to sewer Can be landfilled or incinerated, when in compliance with local regulations

## SECTION 14: TRANSPORT INFORMATION

### IMDG/IMO

**UN-No** UN1224  
**Hazard Class** 3  
**Packing Group** III  
**Proper Shipping Name** KETONES, LIQUID, N.O.S. tetrahydro-4H-pyran-4-one

### Road and Rail Transport

**UN-No** UN1224  
**Hazard Class** 3  
**Packing Group** III  
**Proper Shipping Name** KETONES, LIQUID, N.O.S. tetrahydro-4H-pyran-4-one

### IATA

**UN-No** UN1224  
**Hazard Class** 3  
**Packing Group** III  
**Proper Shipping Name** KETONES, LIQUID, N.O.S. tetrahydro-4H-pyran-4-one

**Special Precautions for User** No special precautions required

## SECTION 15: REGULATORY INFORMATION

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

**International Inventories** X = listed

| Component                 | EINECS    | TSCA | DSL | PICCS | ENCS | ISHL | IECSC | AICS | KECL |
|---------------------------|-----------|------|-----|-------|------|------|-------|------|------|
| Tetrahydro-4H-pyran-4-one | 249-967-2 | -    | -   | X     | -    | X    | X     | -    | -    |

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## National Regulations

**Persistent Organic Pollutant**  
**Ozone Depletion Potential**

This product does not contain any known or suspected substance  
This product does not contain any known or suspected substance

## SECTION 16: OTHER INFORMATION

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

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

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**POW** - Partition coefficient Octanol:Water

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**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

**Prepared By**

Health, Safety and Environmental Department

**Revision Date**

24-Mar-2025

**Revision Summary**

Not applicable.

**In accordance with local and national regulations: Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013**

### **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**