

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

## Section 1 - Identification

**Product Name** 2,2,4-Trimethylpentane

**CAS No** 540-84-1

**Synonyms** Isooctane

**Product Code** 268810000; 268810010; 268810025

**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

Aspiration Toxicity

Category 1

Skin Corrosion/Irritation

Category 2

Specific target organ toxicity - (single exposure)

Category 3

#### Environmental hazards

Acute aquatic toxicity

Category 1

Chronic aquatic toxicity

Category 1

#### Label Elements



Flame



Exclamation Mark



Health Hazard



Environment

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

H225 - Highly flammable liquid and vapor  
 H304 - May be fatal if swallowed and enters airways  
 H315 - Causes skin irritation  
 H336 - May cause drowsiness or dizziness  
 H410 - Very toxic to aquatic life with long lasting effects

**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  
 P243 - Take action to prevent static discharges  
 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 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor  
 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  
 P312 - Call a POISON CENTER or doctor if you feel unwell  
 P331 - Do NOT induce vomiting  
 P363 - Wash contaminated clothing before reuse  
 P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish  
 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 % |
|-----------|----------|----------|
| Isooctane | 540-84-1 | >95      |

## Section 4 - First Aid Measures

**Inhalation**

Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur. Risk of serious damage to the lungs (by aspiration).

**Ingestion**

Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.

|  |  |
|--|--|
| <b>Skin Contact</b>                        | Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.                                |
| <b>Eye Contact</b>                         | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.                                  |
| <b>General Advice</b>                      | If symptoms persist, call a physician.   |
| <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> | None reasonably foreseeable. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting |
| <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

Do not use a solid water stream as it may scatter and spread fire.

### Hazardous Decomposition Products

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

### Specific Hazards Arising from the Chemical

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air. Do not allow run-off from fire-fighting to enter drains or water courses.

### 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

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

### Environmental Precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

### 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. Use spark-proof tools and explosion-proof equipment.

#### 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. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. 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 away from open flames, hot surfaces and sources of ignition. Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area. Keep away from heat, sparks and flame.

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**

**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.

| Component | Australia | New Zealand WEL | ACGIH TLV    | The United Kingdom | Germany |
|-----------|-----------|-----------------|--------------|--------------------|---------|
| Isooctane |           |                 | TWA: 300 ppm |                    |         |

**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 only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

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**

Wear safety glasses with side shields (or 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  | > 480 minutes     | 0.3 mm          | AS/NZS 2161     | As tested under EN374-3 Determination of Resistance to Permeation by Chemicals |
| Viton (R)       | > 480 minutes     | 0.35 mm         |                 |  |
| Neoprene        |                   |                 |                 |  |
| Natural rubber  |                   |                 |                 |  |
| PVC             |                   |                 |                 |  |
| Neoprene gloves | > 480 minutes     | 0.45 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 EN371 (or AUS/NZ equivalent)

**Recommended half mask:-** Valve filtering: EN405 or Half mask: EN140 plus filter, EN 371 (or AUS/NZ equivalent)

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls** Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

## Section 9 - Physical and Chemical Properties

### Information on basic physical and chemical properties

|  |  |   |
|--|--|---|
| <b>Appearance</b>                              | Colorless                                      |   |
| <b>Physical State</b>                          | Liquid   |   |
| <b>Odor</b>                                    | Petroleum distillates                          |   |
| <b>Odor Threshold</b>                          | No data available                              |   |
| <b>pH</b>                                      | Not applicable                                 |   |
| <b>Melting Point/Range</b>                     | -107 °C / -160.6 °F                            |   |
| <b>Softening Point</b>                         | No data available                              |   |
| <b>Boiling Point/Range</b>                     | 98 - 99 °C / 208.4 - 210.2 °F                  | @ 760 mmHg                                  |
| <b>Flash Point</b>                             | -12 °C / 10.4 °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> 1.1 vol %<br><b>Upper</b> 6 vol % |   |
| <b>Vapor Pressure</b>                          | 51 mbar @ 20 °C                                |   |
| <b>Vapor Density</b>                           | 3.94   | (Air = 1.0)                                 |
| <b>Specific Gravity / Density</b>              | 0.690  |   |
| <b>Bulk Density</b>                            | Not applicable                                 | Liquid                                      |
| <b>Water Solubility</b>                        | Immiscible                                     |   |
| <b>Solubility in other solvents</b>            | No information available                       |   |
| <b>Partition Coefficient (n-octanol/water)</b> |  |   |
| <b>Autoignition Temperature</b>                | 410 °C / 770 °F                                |   |
| <b>Decomposition Temperature</b>               | No data available                              |   |
| <b>Viscosity</b>                               | 0.51 mPa s at 22 °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>                       | C8 H18   |   |
| <b>Molecular Weight</b>                        | 114.23   |   |

## Section 10 - Stability and Reactivity

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

**Stability** Stable under normal conditions.

|   |   |
|---|---|
| <b>Conditions to Avoid</b>              | Incompatible products, Heat, flames and sparks, Keep away from open flames, hot surfaces and sources of ignition. |
| <b>Incompatible Materials</b>           | Strong oxidizing agents, Strong acids, Strong bases.  |
| <b>Hazardous Decomposition Products</b> | Carbon monoxide (CO). Carbon dioxide (CO <sub>2</sub> ).  |
| <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 |

| Component | LD50 Oral               | LD50 Dermal         | LC50 Inhalation               |
|-----------|-------------------------|---------------------|-------------------------------|
| Isooctane | LD50 5000 mg/kg ( Rat ) | 2000 mg/kg (Rabbit) | LC50 = 33.52 mg/L ( Rat ) 4 h |

|   |   |
|---|---|
| <b>(b) skin corrosion/irritation;</b>             | Category 2  |
| <b>(c) serious eye damage/irritation;</b>         | Based on available data, the classification criteria are not met  |
| <b>(d) respiratory or skin sensitization;</b>     |   |
| <b>Respiratory</b>                                | Based on available data, the classification criteria are not met  |
| <b>Skin</b>                                       | Based on available data, the classification criteria are not met  |
| <b>(e) germ cell mutagenicity;</b>                | Based on available data, the classification criteria are not met  |
| <b>(f) carcinogenicity;</b>                       | Based on available data, the classification criteria are not met<br>There are no known carcinogenic chemicals in this product |
| <b>(g) reproductive toxicity;</b>                 | Based on available data, the classification criteria are not met  |
| <b>(h) STOT-single exposure;</b>                  | Category 3  |
| <b>Effective dose</b>                             | NOAEL 2220 ppm 6hr/day  |
| <b>Results / Target organs</b>                    | Central nervous system (CNS)  |
| <b>(i) STOT-repeated exposure;</b>                | Based on available data, the classification criteria are not met  |
| <b>Target Organs</b>                              | None known.   |
| <b>(j) aspiration hazard;</b>                     | Category 1  |
| <b>Other Adverse Effects</b>                      | The toxicological properties have not been fully investigated.  |
| <b>Symptoms / effects, both acute and delayed</b> | Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting           |

## Section 12 - Ecological Information

### Ecotoxicity effects

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

| Component | Freshwater Fish                           | Water Flea                             | Freshwater Algae     | Microtox |
|-----------|---|--|----------------------|----------|
| Isooctane | LC50 = 0.11 mg/l, 96h,<br>(Rainbow trout) | EC50= 0.4 mg/l, 48h<br>(Daphnia magna) | EC50= 2.94 mg/l, 72h |          |

### Persistence and Degradability

#### Persistence

Insoluble in water, Persistence is unlikely, based on information available, Immiscible with water.

#### Degradation in sewage treatment plant

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

#### Bioaccumulative Potential

May have some potential to bioaccumulate

#### Bioconcentration factor (BCF)

231

#### Mobility

Spillage unlikely to penetrate soil. The product is insoluble and floats on water. The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Will likely be mobile in the environment due to its volatility: Is not likely mobile in the environment due its low 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. 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. Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be landfilled or incinerated, when in compliance with local regulations. Do not let this chemical enter the environment. Do not empty into drains.

## Section 14 - Transport Information

### IMDG/IMO

UN-No UN1262  
 Proper Shipping Name OCTANES  
 Hazard Class 3  
 Packing Group II

| Component                   | IMDG Marine Pollutant  |
|-----------------------------|--|
| Isooctane<br>540-84-1 (>95) | IMDG regulated marine pollutant (Listed in the index) IMDG regulated marine pollutant (UN1262) |

### ADG

UN-No UN1262  
 Proper Shipping Name OCTANES  
 Hazard Class 3  
 Packing Group II

IATA

UN-No UN1262  
Proper Shipping Name OCTANES  
Hazard Class 3  
Packing Group II

Environmental hazards Dangerous for the environment  
Product is a marine pollutant according to the criteria set by IMDG/IMO

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 |
|----------------------|---|------------------------|
| Isooctane - 540-84-1 | 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 licencing 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     |
|-----------|------|-------|-----------|--------|------|-----|------|-------|------|------|-------|----------|
| Isooctane | X    | X     | 208-759-1 | -      | X    | X   | -    | X     | X    | X    | X     | KE-34634 |



**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

**MARPOL** - International Convention for the Prevention of Pollution from Ships

| Component            | IMDG Marine Pollutant  |
|----------------------|--|
| Isooctane - 540-84-1 | IMDG regulated marine pollutant (Listed in the index) IMDG regulated marine pollutant (UN1262) |

### 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 |
|-----------|----------|----------|--|---|--|
| Isooctane | 540-84-1 | 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) |
|-----------|---|---|---|
| Isooctane | -   | 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

**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  
**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

**DNEL** - Derived No Effect Level

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**VOC** - (Volatile Organic Compound)

**NOEC** - No Observed Effect Concentration  
231

**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 incident response training.

**Revision Date**

17-Nov-2022

**Revision Summary**

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**