

ALFAAL15983

## D-(-)-Pantolactone

### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

|                                                       |                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>产品说明:</b><br><b>Product Description:</b>           | <b>D-(-)-泛酰内酯</b><br><b>D-(-)-Pantolactone</b>                                                                                                                                                                                                                     |
| <b>Cat No. :</b>                                      | <b>L15983</b>                                                                                                                                                                                                                                                      |
| <b>Synonyms</b>                                       | (R)-(-)-Dihydro-3-hydroxy-4,4-dimethyl-2(3H)-furanone                                                                                                                                                                                                              |
| <b>CAS No</b>                                         | 599-04-2                                                                                                                                                                                                                                                           |
| <b>Molecular Formula</b>                              | C6 H10 O3                                                                                                                                                                                                                                                          |
| <b>Supplier</b>                                       | Avocado Research Chemicals Ltd.<br>(Part of Thermo Fisher Scientific)<br>Shore Road, Heysham<br>Lancashire, LA3 2XY,<br>United Kingdom<br>Office Tel: +44 (0) 1524 850506<br>Office Fax: +44 (0) 1524 850608                                                       |
| <b>Emergency Telephone Number</b>                     | For information <b>US</b> call: 001-800-227-6701 / <b>Europe</b> call: +32 14 57 52 11<br>Emergency Number <b>US</b> :001-201-796-7100 / <b>Europe</b> : +32 14 57 52 99<br><b>CHEMTREC</b> Tel. No. <b>US</b> :001-800-424-9300 / <b>Europe</b> :001-703-527-3887 |
| <b>E-mail address</b>                                 | begel.sdsdesk@thermofisher.com                                                                                                                                                                                                                                     |
| <b>Recommended Use</b><br><b>Uses advised against</b> | Laboratory chemicals.<br>No Information available                                                                                                                                                                                                                  |

### SECTION 2. HAZARD IDENTIFICATION

|                                                                                                       |                            |                                         |
|-------------------------------------------------------------------------------------------------------|----------------------------|-----------------------------------------|
| <b>Physical State</b><br>Solid                                                                        | <b>Appearance</b><br>White | <b>Odor</b><br>No information available |
| <b>Emergency Overview</b><br>May be harmful if swallowed. Causes serious eye irritation. Hygroscopic. |                            |                                         |

#### Classification of the substance or mixture

|                                   |            |
|-----------------------------------|------------|
| Acute Oral Toxicity               | Category 5 |
| Serious Eye Damage/Eye Irritation | Category 2 |

#### Label Elements



Signal Word

Warning

Hazard Statements

## D-(-)-Pantolactone

H303 - May be harmful if swallowed  
H319 - Causes serious eye irritation

**Precautionary Statements****Prevention**

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

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

P280 - Wear eye protection/ face protection

**Response**

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P337 + P313 - If eye irritation persists: Get medical advice/attention

**Storage**

P403 - Store in a well-ventilated place

**Disposal**

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

**Physical and Chemical Hazards**

Hygroscopic.

**Health Hazards**

May be harmful if swallowed. Causes serious eye irritation.

**Environmental hazards**

Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants. Will likely be mobile in the environment due to its water solubility. The product is water soluble, and may spread in water systems.

**Other Hazards**

This product does not contain any known or suspected endocrine disruptors.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

| Component                                             | CAS No   | Weight % |
|-------------------------------------------------------|----------|----------|
| 2(3H)-Furanone, dihydro-3-hydroxy-4,4-dimethyl-, (R)- | 599-04-2 | <=100    |

**SECTION 4. 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.

**Inhalation**

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

**Ingestion**

Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

**Most important symptoms and effects**

None reasonably foreseeable.

**Self-Protection of the First Aider**

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

**Notes to Physician**

Treat symptomatically.

**SECTION 5. FIRE-FIGHTING MEASURES****Suitable Extinguishing Media**

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

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

No information available.

**Specific Hazards Arising from the Chemical**

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

**Protective Equipment and Precautions for Firefighters**

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**

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

**Environmental Precautions**

Should not be released into the environment.

**Methods for Containment and Clean Up**

Keep in suitable, closed containers for disposal. Sweep up and shovel into suitable containers for disposal.

Refer to protective measures listed in Sections 8 and 13.

**SECTION 7. HANDLING AND STORAGE****Handling**

Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

**Storage**

Keep container tightly closed in a dry and well-ventilated place. Air sensitive. Protect from light. This product is hygroscopic. To maintain product quality. Store under an inert atmosphere.

**Specific Use(s)**

Use in laboratories

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Control Parameters****Monitoring methods**

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

**Exposure Controls**

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**Engineering Measures**

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

**Personal protective equipment**

**Eye Protection** Goggles (European standard - EN 166)

**Hand Protection** Protective gloves

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments        |
|----------------|-------------------|-----------------|-------------|-----------------------|
| Nitrile rubber | See manufacturers | -               | EN 374      | (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.

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure

**Respiratory Protection** No protective equipment is needed under normal use conditions.

**Large scale/emergency use** Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

**Small scale/Laboratory use** Maintain adequate ventilation

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

**Environmental exposure controls** No information available.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

|                                     |                               |                                          |
|-------------------------------------|-------------------------------|------------------------------------------|
| <b>Appearance</b>                   | White                         |                                          |
| <b>Physical State</b>               | Solid                         |                                          |
| <b>Odor</b>                         | No information available      |                                          |
| <b>Odor Threshold</b>               | No data available             |                                          |
| <b>pH</b>                           | Not applicable                |                                          |
| <b>Melting Point/Range</b>          | 88 - 92 °C / 190.4 - 197.6 °F |                                          |
| <b>Softening Point</b>              | No data available             |                                          |
| <b>Boiling Point/Range</b>          | 120 - 122 °C / 248 - 251.6 °F | @ 15 mmHg                                |
| <b>Flash Point</b>                  | No information available      | <b>Method -</b> No information available |
| <b>Evaporation Rate</b>             | Not applicable                | Solid                                    |
| <b>Flammability (solid,gas)</b>     | No information available      |                                          |
| <b>Explosion Limits</b>             | No data available             |                                          |
| <b>Vapor Pressure</b>               | No data available             |                                          |
| <b>Vapor Density</b>                | Not applicable                | Solid                                    |
| <b>Specific Gravity / Density</b>   | No data available             |                                          |
| <b>Bulk Density</b>                 | No data available             |                                          |
| <b>Water Solubility</b>             | Soluble                       |                                          |
| <b>Solubility in other solvents</b> | No information available      |                                          |

## D-(-)-Pantolactone

## Partition Coefficient (n-octanol/water)

|                                                          |                          |       |
|----------------------------------------------------------|--------------------------|-------|
| <b>Component</b>                                         | <b>log Pow</b>           |       |
| 2(3H)-Furanone,<br>dihydro-3-hydroxy-4,4-dimethyl-, (R)- | -0.46                    |       |
| <b>Autoignition Temperature</b>                          | No data available        |       |
| <b>Decomposition Temperature</b>                         | No data available        |       |
| <b>Viscosity</b>                                         | Not applicable           | Solid |
| <b>Explosive Properties</b>                              | No information available |       |
| <b>Oxidizing Properties</b>                              | No information available |       |

|                          |           |
|--------------------------|-----------|
| <b>Molecular Formula</b> | C6 H10 O3 |
| <b>Molecular Weight</b>  | 130.14    |

## SECTION 10. STABILITY AND REACTIVITY

|                                         |                                                                                                                                    |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>Stability</b>                        | Hygroscopic. Moisture sensitive. Light sensitive.                                                                                  |
| <b>Hazardous Reactions</b>              | None under normal processing.                                                                                                      |
| <b>Hazardous Polymerization</b>         | No information available.                                                                                                          |
| <b>Conditions to Avoid</b>              | Avoid dust formation. Excess heat. Incompatible products. Exposure to light. Exposure to moist air or water. Exposure to moisture. |
| <b>Materials to avoid</b>               | Strong oxidizing agents.                                                                                                           |
| <b>Hazardous Decomposition Products</b> | Carbon monoxide (CO). Carbon dioxide (CO <sub>2</sub> ).                                                                           |

## SECTION 11. TOXICOLOGICAL INFORMATION

|                            |                                                             |
|----------------------------|-------------------------------------------------------------|
| <b>Product Information</b> | No acute toxicity information is available for this product |
|----------------------------|-------------------------------------------------------------|

## (a) acute toxicity;

| Component                                                | LD50 Oral                 | LD50 Dermal | LC50 Inhalation |
|----------------------------------------------------------|---------------------------|-------------|-----------------|
| 2(3H)-Furanone,<br>dihydro-3-hydroxy-4,4-dimethyl-, (R)- | LD50 = 3360 mg/kg ( Rat ) |             |                 |

|                                |                   |
|--------------------------------|-------------------|
| (b) skin corrosion/irritation; | No data available |
|--------------------------------|-------------------|

|                                    |            |
|------------------------------------|------------|
| (c) serious eye damage/irritation; | Category 2 |
|------------------------------------|------------|

## (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 |
|---------------------------|-------------------|

## D-(-)-Pantolactone

|                                            |                                                                |
|--------------------------------------------|----------------------------------------------------------------|
| (i) STOT-repeated exposure;                | No data available                                              |
| Target Organs                              | None known.                                                    |
| (j) aspiration hazard;                     | Not applicable<br>Solid                                        |
| Other Adverse Effects                      | The toxicological properties have not been fully investigated. |
| Symptoms / effects, both acute and delayed | No information available                                       |

## SECTION 12. ECOLOGICAL INFORMATION

|                                              |                                                                            |
|----------------------------------------------|----------------------------------------------------------------------------|
| Ecotoxicity effects                          | Do not empty into drains. .                                                |
| Persistence and Degradability<br>Persistence | Soluble in water, Persistence is unlikely, based on information available. |
| Bioaccumulative Potential                    | Bioaccumulation is unlikely                                                |

| Component                                                | log Pow | Bioconcentration factor (BCF) |
|----------------------------------------------------------|---------|-------------------------------|
| 2(3H)-Furanone,<br>dihydro-3-hydroxy-4,4-dimethyl-, (R)- | -0.46   | No data available             |

|                                 |                                                                                                                                                           |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mobility in soil                | 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 | 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.                                                                                              |
| Other Information                   | Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains.                                          |

## SECTION 14. TRANSPORT INFORMATION

|                                |               |
|--------------------------------|---------------|
| <u>Road and Rail Transport</u> | Not Regulated |
| <u>IMDG/IMO</u>                | Not regulated |
| <u>IATA</u>                    | Not regulated |

## D-(-)-Pantolactone

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

## SECTION 15. REGULATORY INFORMATION

## International Inventories

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

| Component                                             | The Inventory of Hazardous Chemicals (2015 Edition) | List of dangerous goods GB 12268 - 2012 | TCSI | IECSC | EINECS    | TSCA | DSL | PICCS | ENCS | ISHL | AICS | KECL     |
|-------------------------------------------------------|-----------------------------------------------------|-----------------------------------------|------|-------|-----------|------|-----|-------|------|------|------|----------|
| 2(3H)-Furanone, dihydro-3-hydroxy-4,4-dimethyl-, (R)- | -                                                   | -                                       | X    | X     | 209-963-3 | X    | X   | X     | X    | X    | -    | KE-20454 |

## National Regulations

## SECTION 16. OTHER INFORMATION

**Prepared By** Health, Safety and Environmental Department  
**Revision Date** 07-Sep-2025  
**Revision Summary** SDS sections updated.

## 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.

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/NDSL** - 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

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TWA** - Time Weighted Average

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

**PNEC** - Predicted No Effect Concentration

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

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

**ATE** - Acute Toxicity Estimate

**VOC** - (Volatile Organic Compound)

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**Key literature references and sources for data**

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Disclaimer**

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**End of Safety Data Sheet**