

# SAFETY DATA SHEET

## 1. Identification

**Product identifier:** D-(+)-Lactose, Monohydrate

**Other means of identification**

**Product No.:** 2248, 2249, 2250, 6270

**Recommended use and restriction on use**

**Recommended use:** For Laboratory, Research or Manufacturing Use.

**Restrictions on use:** Not determined.

**Details of the supplier of the safety data sheet**

Telephone:  Fax: Contact Person: E-mail:	Avantor Performance Materials, LLC 100 Matsonford Rd, Suite 200 Radnor, PA 19087  Customer Service: 855-282-6867  Product Information Compliance info@avantormaterials.com
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**Emergency telephone number:**

CHEMTREC: 1-800-424-9300 within US and Canada (24 hrs/day, 7 days/week)

## 2. Hazard identification

**Hazard Classification**

**Physical Hazards**

Combustible dust	Category 1
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**Label Elements**

<b>Hazard Symbol:</b>	No symbol
<b>Signal Word:</b>	Warning
<b>Hazard Statement:</b>	May form combustible dust concentrations in air.
<b>Precautionary Statements</b>	
<b>Prevention:</b>	Prevent dust accumulation to minimize explosion hazard.

**Other hazards which do not result in GHS classification:** None.

### 3. Composition/information on ingredients

#### Substances

Chemical name	Common name and synonyms	CAS number	Content in percent (%)*
D-(+)-Lactose, Monohydrate		64044-51-5	100%

\* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

### 4. First-aid measures

<b>General information:</b>	Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
<b>Ingestion:</b>	Rinse mouth thoroughly. Get medical attention if symptoms occur.
<b>Inhalation:</b>	Move to fresh air. Get medical attention if symptoms persist.
<b>Skin Contact:</b>	Wash skin thoroughly with soap and water. Get medical attention if irritation persists after washing. Wash contaminated clothing before reuse.
<b>Eye contact:</b>	Flush thoroughly with water. If irritation occurs, get medical assistance.

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

<b>Symptoms:</b>	May cause irritation to skin, eyes and respiratory tract.
<b>Hazards:</b>	None known.

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

<b>Treatment:</b>	Treat symptomatically.
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### 5. Fire-fighting measures

<b>General Fire Hazards:</b>	Powdered material may form explosive dust-air mixtures.
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#### Suitable (and unsuitable) extinguishing media

<b>Suitable extinguishing media:</b>	Use fire-extinguishing media appropriate for surrounding materials.
<b>Unsuitable extinguishing media:</b>	None known.

<b>Specific hazards arising from the chemical:</b>	During fire, gases hazardous to health may be formed. Dust clouds may be explosive under certain conditions.
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#### Special protective equipment and precautions for firefighters

<b>Special fire fighting procedures:</b>	Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.
<b>Special protective equipment for fire-fighters:</b>	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

## 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures:</b>	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unauthorized personnel away. Use personal protective equipment. See Section 8 of the SDS for Personal Protective Equipment.
<b>Methods and material for containment and cleaning up:</b>	Avoid dust formation. Sweep up and place in a clearly labeled container for chemical waste. Clean surface thoroughly to remove residual contamination.
<b>Notification Procedures:</b>	Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.
<b>Environmental Precautions:</b>	Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

## 7. Handling and storage

<b>Precautions for safe handling:</b>	Avoid generation and spreading of dust. Ground and bond container and receiving equipment. Use personal protective equipment as required. Avoid contact with eyes, skin, and clothing. Avoid inhalation of dust. Wash thoroughly after handling.
<b>Conditions for safe storage, including any incompatibilities:</b>	Keep containers tightly closed. Store in cool, dry place. Store in a well-ventilated place.

## 8. Exposure controls/personal protection

### Control Parameters

#### Occupational Exposure Limits

None of the components have assigned exposure limits.

#### Appropriate Engineering Controls

No data available.

### Individual protection measures, such as personal protective equipment

<b>General information:</b>	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Use explosion-proof ventilation equipment.
<b>Eye/face protection:</b>	Use tight fitting goggles if dust is generated.
<b>Skin Protection</b>	
<b>Hand Protection:</b>	Wear protective gloves.
<b>Other:</b>	Wear suitable protective clothing.
<b>Respiratory Protection:</b>	In case of inadequate ventilation use suitable respirator.
<b>Hygiene measures:</b>	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower.

## 9. Physical and chemical properties

### Appearance

Physical state:	Solid
Form:	Powder.
Color:	White, Off-white
Odor:	Odorless
Odor threshold:	No data available.
pH:	No data available.
Melting point/freezing point:	214 °C
Initial boiling point and boiling range:	No data available.
Flash Point:	No data available.
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
<b>Upper/lower limit on flammability or explosive limits</b>	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	No data available.
Vapor density:	No data available.
Density:	1,53 g/cm <sup>3</sup> (20 °C)
Relative density:	1,53 (20 °C)
<b>Solubility(ies)</b>	
Solubility in water:	No data available.
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.
<b>Other information</b>	
Molecular weight:	360,31 g/mol (C <sub>12</sub> H <sub>22</sub> O <sub>11</sub> ·H <sub>2</sub> O)

## 10. Stability and reactivity

Reactivity:	No dangerous reaction known under conditions of normal use.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Hazardous polymerization does not occur.
Conditions to avoid:	Contact with incompatible materials. Heat, sparks, flames.
Incompatible Materials:	Strong oxidizing agents.
Hazardous Decomposition Products:	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

## 11. Toxicological information

**Information on likely routes of exposure**

- Inhalation:** May cause irritation to the respiratory system.
- Skin Contact:** Prolonged skin contact may cause temporary irritation.
- Eye contact:** May cause temporary eye irritation.
- Ingestion:** May cause irritation of the gastrointestinal tract.

**Information on toxicological effects**

**Acute toxicity (list all possible routes of exposure)**

- Oral**
- Product:** No data available.
  
- Dermal**
- Product:** No data available.
  
- Inhalation**
- Product:** No data available.

**Repeated dose toxicity**

- Product:** No data available.

**Skin Corrosion/Irritation**

- Product:** Prolonged skin contact may cause temporary irritation.

**Serious Eye Damage/Eye Irritation**

- Product:** May cause temporary eye irritation.

**Respiratory or Skin Sensitization**

- Product:** Not a skin nor a respiratory sensitizer.

**Carcinogenicity**

- Product:** This substance has no evidence of carcinogenic properties.

**IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:**

No carcinogenic components identified

**US. National Toxicology Program (NTP) Report on Carcinogens:**

No carcinogenic components identified

**ACGIH Carcinogen List:**

No carcinogenic components identified

**Germ Cell Mutagenicity**

- In vitro**
- Product:** No mutagenic components identified
  
- In vivo**
- Product:** No mutagenic components identified

**Reproductive toxicity**

- Product:** No components toxic to reproduction

**Specific Target Organ Toxicity - Single Exposure**

**Product:** No data available.

**Specific Target Organ Toxicity - Repeated Exposure**

**Product:** No data available.

**Aspiration Hazard**

**Product:** Not classified

**Other effects:** None known.

**12. Ecological information**

**Ecotoxicity:**

**Acute hazards to the aquatic environment:**

**Fish**

**Product:** No data available.

**Aquatic Invertebrates**

**Product:** No data available.

**Chronic hazards to the aquatic environment:**

**Fish**

**Product:** No data available.

**Aquatic Invertebrates**

**Product:** No data available.

**Toxicity to Aquatic Plants**

**Product:** No data available.

**Persistence and Degradability**

**Biodegradation**

**Product:** There are no data on the degradability of this product.

**BOD/COD Ratio**

**Product:** No data available.

**Bioaccumulative potential**

**Bioconcentration Factor (BCF)**

**Product:** No data available on bioaccumulation.

**Partition Coefficient n-octanol / water (log Kow)**

**Product:** No data available.

**Mobility in soil:** No data available.

**Other adverse effects:** The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

### 13. Disposal considerations

**Disposal instructions:** Discharge, treatment, or disposal may be subject to national, state, or local laws. Since emptied containers retain product residue, follow label warnings even after container is emptied.

**Contaminated Packaging:** Since emptied containers retain product residue, follow label warnings even after container is emptied.

### 14. Transport information

**TDG**  
Not regulated.

**IMDG**  
Not regulated.

**IATA**  
Not regulated.

**Transport in bulk according to Annex II of MARPOL and the IBC Code:** Not applicable

### 15. Regulatory information

#### Canada Federal Regulations

**List of Toxic Substances (CEPA, Schedule 1)**  
Not Regulated

**Export Control List (CEPA 1999, Schedule 3)**  
Not Regulated

#### National Pollutant Release Inventory (NPRI)

**Canada. National Pollutant Release Inventory (NPRI) Substances, Part 5, VOCs with Additional Reporting Requirements**

NPRI PT5 Not Regulated

#### Canada. National Pollutant Release Inventory (NPRI) (Schedule 1, Parts 1-4)

NPRI Not Regulated

#### Greenhouse Gases

Not Regulated

#### Controlled Drugs and Substances Act

CA CDSI Not Regulated

CA CDSII Not Regulated

CA CDSIII Not Regulated

CA CDSIV Not Regulated

CA CDSV Not Regulated

CA CDSVII Not Regulated

CA CDSVIII Not Regulated

**Precursor Control Regulations**

Not Regulated

**International regulations**

**Montreal protocol**

Not applicable

**Stockholm convention**

Not applicable

**Rotterdam convention**

Not applicable

**Kyoto protocol**

Not applicable

**Inventory Status:**

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Japan (ENCS) List:	On or in compliance with the inventory
Japan ISHL Listing:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Mexico INSQ:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Philippines PICCS:	On or in compliance with the inventory
Taiwan Chemical Substance Inventory:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory

<b>16. Other information</b>
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**Source of information:** Sources of information used in preparing this SDS included one or more of the following: results from in house or supplier toxicology studies, information from the Toxicology Data Network (TOXNET), European Chemical Agency (ECHA) substance dossiers, IARC Monographs, US National Toxicology Program data, the Agency for Toxic Substances and Disease Registry, other manufacturer's SDSs and other sources, as appropriate.

**Further Information:** No data available.



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