Safety Data Sheet
D-(+)-Melibiose Monohydrate

1. Identification

Product name:	D-(+)-Melibiose Monohydrate
Catalog#:	MSIM0050
IUPAC name:	(2R,3S,4R,5R)-2,3,4,5-tetrahydroxy-6-[(2S,3R,4S,5R,6R)-3,4,5-trihydroxy-6-(hydroxymethyl)oxan-2-yl]oxyhexanal; hydrate
Product use restrictions:	For research and development use only, by or directly under the supervision of a technically qualified individual. Not intended for food, drug, pesticide, biocidal, household, or consumer use.
Company:	MetaSci Inc. 1 Yonge St., Suite 1801 Toronto, M5E 1W7, ON, Canada
Telephone:	1-289-597-1611
Website:	www.metasci.ca
Emergency contact number:	1-800-633-8253 United States & Canada 1-801-629-0667 International

2. Hazard Identification

GHS Classification

Not classified as hazardous under OSHA HazCom 2012 / WHMIS 2015.

Pictogram:	None required.
Signal word:	**None.**

Hazard statement(s)

—	None.

Precautionary statement(s)

—	None required.
Other hazard information:	TCI M0050 is not classifiable under OSHA HazCom / WHMIS. Avoid generating or breathing dust and follow the handling controls in Sections 7 and 8.
Hazards not otherwise classified:	None identified in the TCI M0050 SDS.

3. Composition/Information on Ingredients

Chemical name:	D-(+)-Melibiose Monohydrate
Synonyms:	6-O-alpha-D-Galactopyranosyl-D-glucopyranose Monohydrate; D(+)-Melibiose monohydrate; Melibiose hydrate
CAS#:	66009-10-7
Purity:	>99.0% (HPLC); TCI current specification: min. 99.0 area%
EC#:	209-568-6
Molecular formula:	$C_{12}H_{22}O_{11}\cdot H_2O$ (equivalent to $C_{12}H_{24}O_{12}$)
Molecular weight:	360.32 g/mol (342.30 g/mol anhydrous basis)
MDL#:	MFCD00198188
Related CAS#:	585-99-9 (anhydrous melibiose)

4. First Aid Measures

General information: If exposed or you feel unwell, obtain medical advice. Remove contaminated clothing as appropriate.
Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
Skin contact: Remove contaminated clothing. Rinse skin with water/shower. If skin irritation or rash occurs, get medical advice/attention.
Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.
Ingestion: Rinse mouth. Get medical advice/attention if you feel unwell.
Most important symptoms/effects: Acute: No data available. Delayed: No data available.
Notes to physician: No data available. Treat symptomatically as clinically indicated.

5. Fire Fighting Measures

Suitable extinguishing media: Dry chemical, foam, water spray, or carbon dioxide.
Unsuitable extinguishing media: No specific information available.
Specific hazards arising from the chemical: Hazardous combustion products include carbon oxides. Closed containers may explode from the heat of a fire.
Advice for firefighters: Wear self-contained breathing apparatus if possible and suitable protective equipment.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Keep people away from and upwind of spill/leak. Control entry of non-involved personnel around the leakage area.

Environmental precautions: Prevent product from entering drains, waterways, or soil.

Methods and materials for containment and cleaning up: Sweep dust carefully into an airtight container without dispersing it. Dispose of collected material promptly in accordance with applicable laws and regulations.

7. Handling and Storage

Precautions for safe handling: Handle in a well-ventilated place. Wear suitable protective equipment. Prevent dispersion of dust. Wash hands and face thoroughly after handling. Use local exhaust if dust or aerosol may be generated. Avoid contact with skin, eyes, and clothing.

Conditions for safe storage, including incompatibilities: Keep container tightly closed and store in a cool, dark place. TCI lists room-temperature storage and recommends a cool and dark place below 15 deg C. Store away from incompatible materials such as oxidizing agents.

8. Exposure Controls/Personal Protection

Exposure limits

OSHA PEL:	No specific occupational exposure limit established.
NIOSH REL:	No specific occupational exposure limit established.
ACGIH TLV:	No specific occupational exposure limit established.

Appropriate engineering controls: Follow safe industrial/laboratory practices. Use a closed system or local exhaust where possible so workers are not directly exposed. Provide a safety shower and eye bath.

Personal protection

Eyes:	Safety glasses. Use a face shield if the situation requires.
Hands:	Protective gloves.
Skin and body:	Protective clothing; protective boots if the situation requires.
Respiratory:	Use a dust respirator when needed. Follow applicable local and national respiratory-protection requirements.

9. Physical and Chemical Properties

Physical state:	Solid
Appearance:	White to almost white crystal/powder
Molecular formula:	C12H22O11·H2O
Molecular weight:	360.32 g/mol
Odor:	Odorless (Thermo Fisher); TCI SDS reports no data available.
Odor threshold:	No data available.
pH:	No data available.
Melting/freezing point:	185 deg C (decomposition) per TCI; Thermo reports 182 deg C.
Boiling point/range:	No data available.
Flash point:	No data available.
Evaporation rate:	Not applicable / no data available.
Flammability:	No data available; product is not classified as a flammable solid.
Explosion limits:	No data available.
Vapor pressure:	No data available.
Vapor density:	Not applicable / no data available.
Relative density:	No data available.
Water solubility:	TCI SDS: no quantitative data available. Thermo SDS indicates the substance is soluble in water.
Solubility in other solvents:	No data available.
Refractive index:	No data available.
Partition coefficient:	No data available.
Auto-ignition temperature:	Not applicable / no data available.
Decomposition temperature:	Decomposes at melting point; no separate decomposition-temperature value available.
Viscosity:	Not applicable.
Explosive properties:	No data available.
Oxidizing properties:	No data available.
Specific rotation:	+132 to +139 deg (C=4, H2O); reference value 136 deg.
Water content:	4.0 to 6.0% (TCI specification).

10. Stability and Reactivity

Reactivity:	No data available.
Chemical stability:	Stable under proper / normal conditions.
Possibility of hazardous reactions:	No special reactivity reported; hazardous polymerization is not expected.

Conditions to avoid:	Incompatible materials and conditions that generate or disperse dust.
Incompatible materials:	Oxidizing agents / strong oxidizing agents.
Hazardous decomposition products:	Carbon dioxide and carbon monoxide.

11. Toxicological Information

Acute toxicity:	No product-specific acute toxicity data are available. Thermo Fisher reports ATE values above classification thresholds: oral >2000 mg/kg, dermal >2000 mg/kg, mist >5 mg/L.
Routes of exposure:	Inhalation, eye contact, skin contact, ingestion.
Skin corrosion/irritation:	No data available.
Serious eye damage/irritation:	No data available.
Respiratory sensitization:	No data available.
Skin sensitization:	No data available.
Germ cell mutagenicity:	No data available.
Carcinogenicity:	Not listed by IARC, NTP, ACGIH, or OSHA in the consulted Thermo Fisher SDS.
Reproductive toxicity:	No data available.
STOT - single exposure:	None known / no data available.
STOT - repeated exposure:	None known / no data available.
Aspiration hazard:	No data available.
Symptoms related to exposure:	No specific acute or delayed symptoms identified in the TCI M0050 SDS.

12. Ecological Information

Ecotoxicity:	No quantitative aquatic toxicity data available.
Persistence and degradability:	TCI: no data available. Thermo Fisher states persistence is unlikely based on available information.
Bioaccumulative potential:	No data available.
Mobility in soil/environment:	Thermo Fisher indicates the substance will likely be mobile in the environment due to its water solubility.
PBT/vPvB:	No product-specific assessment available in the consulted exact-CAS SDS data.
Endocrine disruption:	No information available.
Other adverse effects:	Do not empty into drains or allow release to the environment.

13. Disposal Considerations

Disposal of waste: Recycle to process if possible. Chemical waste generators must comply with applicable federal, provincial/state, and local requirements. TCI notes that permitted chemical incineration may be an option where lawful and appropriately controlled. Do not allow the product to enter the environment, drains, waterways, or soil.
Disposal of packaging: Dispose of container as unused product and in accordance with applicable regulations.

14. Transportation Information

DOT (United States)	
UN/NA number:	Not applicable.
Proper shipping name:	Not regulated / non-hazardous for transportation.
Transport hazard class:	Not applicable.
Packing group:	Not applicable.
Additional note:	TCI M0050 and Thermo Fisher SDSs both report DOT transport as non-hazardous / not regulated.
IATA	
UN number:	Not applicable.
Proper shipping name:	Not regulated / non-hazardous for transportation.
Transport hazard class:	Not applicable.
Packing group:	Not applicable.
IMDG/IMO	
Transport status:	Not regulated / non-hazardous for transportation.
Marine pollutant:	Not identified as a marine pollutant.

15. Regulatory Information

TSCA:	TCI M0050 SDS states the product is on the TSCA inventory; current Fisher/TCI product safety information also lists TSCA: Yes. A Thermo Fisher SDS for the same CAS reports it as not listed, so current status should be verified for regulatory decisions.
Canada DSL/NDSL:	TCI M0050 SDS: on DSL. Thermo Fisher SDS for the same CAS reports not listed on DSL/NDSL. Verify current Canadian inventory status before regulatory use.
EC / EINECS:	209-568-6 (reported by TCI M0050 SDS).
Other inventories:	TCI M0050 SDS provides EC and Canadian inventory information. Thermo Fisher reports PICCS and Japan ISHL listing for the same CAS, with several other inventories not listed.
SARA 313:	Not listed / not applicable in consulted U.S. SDS sources.
CERCLA:	No reportable hazardous substance identified / not applicable in consulted U.S. SDS sources.
California Proposition 65:	Not listed; no Proposition 65 chemicals identified in consulted supplier SDS sources.
NFPA rating:	TCI M0050 SDS: Health 0; Flammability 0; Instability 0. Thermo Fisher SDS for the same CAS reports Health 0; Flammability 1; Instability 0.

16. Additional Information

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Data-source note: This MetaSci SDS was prepared for D-(+)-Melibiose Monohydrate, CAS 66009-10-7, supplier product TCI M0050, using the TCI America M0050 SDS and the current TCI product page as the primary product-specific sources. Current Thermo Fisher/Fisher Scientific SDS and product data for the same CAS were used to fill and cross-check available physical, toxicological, ecological, transport, and regulatory information. Where reliable sources differ, the discrepancy is stated rather than silently reconciled.

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