

D-(+)-Lactose Monohydrate

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1. Product Identification

Synonyms: 4-O-β-D-Galactopyranosyl-D-Glucose Monohydrate; (alpha)-Lactose; Milk Sugar; Lactose Monohydrate

CAS No.: 64044-51-5 (Monohydrate)

Molecular Weight: 360.32

Chemical Formula: $C_{12}H_{22}O_{11} \cdot H_2O$

Product Codes: CHEM-577 and others

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Lactose	64044-51-5	90 - 100%	Yes*

*This substance is as hazardous as anything that occurs naturally in breast milk.

3. Hazards Identification

Potential Acute Health Effects:

As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing.

SAF-T-DATA^(tm) Ratings

Health Rating: 0 - None

Flammability Rating: 1 - Slight

Reactivity Rating: 0 - None

Contact Rating: 1 - Slight

Lab Protective Equip: GOGGLES; LAB COAT; PROPER GLOVES

Storage Color Code: Green (General Storage)

Potential Health Effects

Inhalation:

Not expected to be a health hazard via inhalation. Inhalation of high concentrations of dust may irritate the throat.

Ingestion:

Not expected to be a health hazard via ingestion. May produce abdominal irritation if large quantities are consumed.

Skin Contact:

Not expected to be a health hazard from skin exposure. May irritate the skin on some super-sensitive persons.

Eye Contact:

Not expected to be a health hazard. May cause mechanical irritation.

Chronic Exposure:

No information found.

Aggravation of Pre-existing Conditions:

No information found.

4. First Aid Measures

Inhalation:

Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:

If large amounts were swallowed, give water to drink and get medical advice.

Skin Contact:

Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Contact:

5. Fire Fighting Measures

Fire:

As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.

Explosion:

Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Lower explosive limit: 0.125 g/l in air.

Fire Extinguishing Media:

Dry chemical, alcohol foam or carbon dioxide.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Water spray may be used to keep fire exposed containers cool.

6. Accidental Release Measures

Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

None established.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

White to off-white Powder.

Odor:

Odorless.

Solubility:

Soluble in water.

Specific Gravity:

1.53

pH:

No information found.

% Volatiles by volume @ 21°C (70°F):

0

Boiling Point:

No information found.

Melting Point:

214°C (417°F)

Vapor Density (Air=1):

Not applicable.

Vapor Pressure (mm Hg):

Not applicable.

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:

Carbon dioxide and carbon monoxide may form when heated to decomposition.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Strong oxidizers.

Conditions to Avoid:

No information found.

11. Toxicological Information

For Lactose: Oral rat LD50: > 10 gm/kg; investigated as a tumorigen and reproductive effector.

Ingredient	Cancer Lists NTP Carcinogen		IARC Category
	Known	Anticipated	
Lactose (64044-51-5)	No	No	None

12. Ecological Information

Environmental Fate:

No information found.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

Ingredient	Chemical Inventory Status - Part 1			
	TSCA	EC	Japan	Australia
Lactose (64044-51-5)	Yes	Yes	Yes	Yes

Ingredient	Chemical Inventory Status - Part 2			
	Korea	DSL	NDSL	Canada Phil.
Lactose (64044-51-5)	Yes	Yes	No	Yes

Ingredient	Federal, State & International Regulations - Part 1			
	RQ	TPQ	SARA 302 List	SARA 313 Chemical Catg.
Lactose (64044-51-5)	No	No	No	No

Federal, State & International Regulations - Part 2

		RCRA	TSCA
Ingredient	CERCLA	261.33	8(d)
Lactose (64044-51-5)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: No Chronic: No Fire: No Pressure: No
Reactivity: No (Pure / Solid)

Australian Hazchem Code: None allocated.

Poison Schedule: None allocated.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **0** Flammability: **1** Reactivity: **0**

Label Hazard Warning:

As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing.

Label Precautions:

None.

Label First Aid:

Not applicable.

Product Use:

Laboratory Reagent and Consumer Hobby

Revision Information:

No Changes.

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