Material Safety Data Sheet
DEXTROSE MONOHYDRATE

Section 1 - Product Identification

Synonyms : D-Glucose hydrated
Molecular Weight : 198.17 g/mol
Chemical Formula : $C_6H_{14}O_7$
Company Identification : Tradeasia International Pte. Limited
Address : 133 Cecil Street # 12-03 Keck Seng Tower, Singapore
Tel: +65-6227 6365
Fax: +65-6225 6286
Email: contact@chemtradeasia.com

Recommended use of the chemical and restrictions on use

The product is used in industrial manufacturing, in particular in :

- Pharmaceutical
- Food and Beverage
- Medicine Application

Section 2 – Composition/Information on Ingredients

The product contains greater than 99.0 percent (%) Dextrose Monohydrate, $C_6H_{14}O_7$

Chemical Name	EC No/CAS No	Purity, %
Dextrose Monohydrate	200-075-1 14431-43-7	min. 99.0

Section 3 – Hazards Identification

3.1 Classification of the substance according to GHS

Not a hazardous substance according to GHS.

Cautionary Statement

Read label before use

Keep out of reach of children

3.3. Other hazards which do not result in classification

Dextrose monohydrate is a white odourless, powdered substance that is not flammable, combustible, or explosive, and has low acute oral and dermal toxicity.

Potential health effects

Inhalation and ingestion are the most significant route of exposure in occupational and other settings.

Inhalation

Occasional mild irritation effects to nose and throat may occur from inhalation of dextrose monohydrate dust.

Eye contact

Dextrose monohydrate can be an eye irritant.

Skin contact

Dextrose monohydrate does not cause irritation to intact skin.

Ingestion

Products containing dextrose monohydrate are suitable for ingestion. Dextrose monohydrate has low acute toxicity. **Potential ecological effects**

Dextrose monohydrate has minimal effect on the ecology.

Signs and symptoms of exposure

Symptoms of overdose of dextrose monohydrate have been associated with ingestion or injection into the body. These may include hyperglycemia and hypokalemia which may induce headaches, muscle spasms and increased thirst.

Section 4 – First-Aid Measures

4.1. Description of first aid mesaures

Skin contact

No treatment necessary because non-irritating.

Eye contact

Use eye wash fountain or fresh water to cleanse eye. If irritation persists for more than 30 minutes, seek medical attention.

Inhalation

If symptoms such as nose or throat irritation are observed, remove to fresh air.

Ingestion

If large amounts are ingested or injected in a short time, contact a doctor immediately.

Note to physicians

Dextrose monohydrate should be diluted to an appropriate concentration before administered into the body. It should be administrated into the body slowly. Rapid administration can cause venous infection, hyperglycaemia or hypokalemia.

4.2. Most important symptoms and effects, both acute and delayed

N.A.

4.3. Indication of any immediate medical attention and special treatment needed

N.A.

Section 5 – Fire Fighting Measures

5.1. Suitable Extinguishing media

Any fire extinguishing media may be used on nearby fires.

5.2. Specific hazards arising from the chemical

Dextrose monohydrate is not flammable, combustable or explosive.

5.3. Special protective actions for fire-fighters

N.A.

Section 6 – Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid dust formation. In case of exposure to prolonged or high level of airborne dust, wear a personal respirator in compliance with national legislation.

6.2. Environmental precautions

Dextrose monohydrate is a water-soluble white powder that is naturally occurring and stable in the environment.

6.3. Methods and material for containment and cleaning up

Land spill

Vacuum, shovel or sweep up dextrose monohydrate and place in containers for disposal in accordance with
applicable local regulations. Avoid contamination of water bodies during clean up and disposal. No personal
protective equipment is needed to clean up land spills.

Spillage into water

Where possible, remove any intact containers from the water. Advise local water authority that none of the affected water should be used for irrigation or for the abstraction of potable water until natural dilution returns
to its normal environmental background level.

Section 7 – Handling and Storage

7.1. Precautions for safe Handling

To maintain package integrity and to minimise caking of the product, bags should be handled on a first-in first out basis. Good housekeeping and dust prevention procedures should be followed to minimise dust generation and accumulation. Your supplier can advise you on safe handling, please contact the supplier.

The product should be kept away from strong reducing agents. Apply above handling advice when mixing with other substances.

7.2. Conditions for safe storage, including any incompatibilities

No special handling precautions are required, but dry, indoor storage is recommended. No specific requirements. Provide appropriate ventilation and store bags such as to prevent any accidental damage.

Section 8 – Exposure Controls/Personal Protection

8.1. Control parameters

Occupational exposure limits for dust (total and respirable). are treated by OSHA, Cal OSHA and ACGIH as "Particulate Not Otherwise Classifed" or "Nuisance Dust"

ACGIH/TLV 10 mg/m^3

Cal OSHA/PEL 10 mg/m^3

OSHA/PEL (total dust) 15 mg/m^3

OSHA/PEL (respirable dust) 5 mg/m^3

8.2. Appropriate engineering controls

Maintain air concentrations below occupational exposure standards.

Use local exhaust ventilation to keep airborne concentrations of dextrose monohydrate dust below permissible

exposure levels. Wash hands before breaks and at the end of the workday. Remove and wash soiled clothing.

8.3. Individual protection measures, such as personal protective equipment (PPE)

Respiratory protection

In case of prolonged exposure to dust wear a personal respirator in compliance with national legislation (make

reference to the appropriate CEN standard)

Eyes and hands protection

Goggles and gloves are not required for normal industrial exposures, but may be warranted if environment is

excessively dusty.

Section 9 – Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance : white solid crystalline powder

Odour : odourless

Odour threshold : N.A.

pH @ 20° C : 9.3 (3 % solution)
Melting point : 146° C
Boiling point : N.A
Flash point : Non flammable
Evaporation rate : N.A.
Flammability : N.A.
Upper/lower flammability or explosive limits : Non explosive
Vapour pressure : Negligible @ 20° C
Vapour density : N.A.
Relative density : 1.54 g/cm^3
Solubility in water : 0.91% @ 20° C
Partition coefficient: n-octanol/water : N.A
Auto-ignition temperature : N.A.
Decomposition temperature : H_2O @ 120° C
Viscosity : N.A.

9.2. Other information

Molecular weight : 198.17 g/mol
Specific gravity : 1.56 @ 20° C

Section 10 – Stability and Reactivity

10.1. Reactivity

Dextrose monohydrate is a stable product.

10.2. Chemical stability

Dextrose monohydrate is a stable product.

10.3. Possibility of hazardous reactions

N.A

10.4. Conditions to avoid:

Avoid humid air as dextrose monohydrate may react with water.

10.5. Incompatible materials

N.A

10.6. Hazardous decomposition products

Dextrose monohydrate decomposes into carbon dioxide and water.

Section 11 – Toxicological Information

11.1. Information on toxicological effect

11.1.1. Substances

Acute toxicity[1]

Low acute oral toxicity; LD50 in rats > 25800 mg/kg of body weight. (Sciencelab, 2013)

Skin corrosion / irritation

Non-irritant. (INC, 2012)

Serious eye damage/ irritation

Dextrose monohydrate can be an eye irritant.

Respiratory or skin sensitization

Dextrose monohydrate is not a skin sensitizer.

Germcell mutagenicity

Dextrose monohydrate is not mutagenic.

Carcinogenicity

Dextrose monohydrate is not carcinegenic

Reproductive toxicity

Dextrose monohydrate does not have reproductive toxicity

STOT-single exposure

N.A.

STOT-repeated exposure

N.A.

Aspiration Hazard

Dextrose monohydrate has no aspiration hazard.

Section 12 – Ecological Information

12.1.Toxicity

Dextrose monohydrate occurs naturally in many organisms like plants and animals.

Phytotoxicity

Dextrose monohydrate is an essential metabolite in organisms like animals and plants to produce energy. However, it can cause hyperglycemia and hypokalemia in animals and hyperosmolar in plants in high concentrations.

Algal toxicity

No known algal toxicity.

Invertebrate toxicity

No known invertebrate toxicity.

Fish toxicity

No known fish toxicity.

12.2. Persistence and degradability

Dextrose monohydrate is naturally occurring and ubiquitous in the environment. Dextrose monohydrate decomposes in the environment to carbon oxides and water.

12.3. Bioaccumulative potential

Not significantly bioaccumulative.

12.4. Mobility in soil

The product is soluble in water and is leachable through normal soil.

12.5. Other adverse effects

No Data Available

Section 13 – Disposal Considerations

13.1. Disposal methods

Small quantities of dextrose monohydrate can usually be disposed of at landfill sites. No special disposal treatment is required, but local authorities should be consulted about any specific local requirements. Tonnage quantities of product are not recommended to be sent to landfills. Such product should, if possible, be used for an appropriate application.

Section 14 – Transport Information

Dextrose monohydrate has no UN Number, and is not regulated under international rail, road, water or air transport regulations.

14.1. UN number : N.A.

14.2. UN proper shipping name : N.A

14.3. Transport of hazard classes : N.A

14.4. Packing group : N.A

14.5. Environmental hazards : N.A.

14.6. Special precautions for user : N.A

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: N.A.

Section 15 – Regulatory Information

15.1. Safety, health and environmental regulations

It should be noted that dextrose monohydrate are safe under conditions of normal handling and use, besides, they are essential nutrients to plants, and research shows that they play a beneficial role in human health. **Clean Air Act (Montreal Protocol)**

Dextrose monohydrate was not manufactured with and does not contain any Class I or Class II ozone depleting substances.

Chemical inventory listing

U.S. EPA TSCA Inventory	1330-43-4
Canadian DSL	1330-43-4
EINECS	215-540-4
South Korea	1-760
Japanese MITI	(1)-69

Ensure all national/local regulations are observed.

Section 16 : Additional Information

16.1. Mainly changes made to the previous version of this Material Safety Data Sheet (MSDS):

• This MSDS complies with ISO 11014; the requirements of UN-GHS

Revision No	Revision content
05	• This SDS is updated in accordance with the GHS (Rev.6) (2015)-Guidance on the Compilation of Safety data Sheets. • This SDS is updated in line with Eti Maden Corporate identity.

16.2. List of abbreviation and acronyms used in this MSDS

SDS : Safety Data Sheets

Index N° : atomic number of the element most characteristic of the properties of the substance

CAS No : Chemical Abstracts Service number

EC No : EINECS Number : European Inventory of Existing Commercial Substances

GHS : Globally Harmonised System of Classification and Labelling

LD_{50} : Median Lethal Dose

LC_{50} : Lethal Concentration, 50%

N.A. : Not Applicable

OSHA : Occupational Safety & Health Administration

Cal OSHA : The State of California Division of Occupational Safety and Health (DOSH)

PEL : Permissible Exposure Limits

ACGIH : American Conference of Governmental Industrial Hygienists

TLV : Threshold Limit Value

Japanese MITI : Japanese Ministry of International Trade and Industry

EC_{50} : Half maximal effective concentration

UN : United Nations

U.S. EPA TSCA Inventory: Inventory of the chemical substances manufactured or processed in the United States according to Toxic Substances Control Act compiled and published under the autority of the Environmental Protection Agency

Canadian DSL: Canadian Domestic Substances List

16.3. List of relevant hazard statements and precautionary statements used in this MSDS

Hazard Statement

Dextrose monohydrate is not hazardous according to GHS.

Cautionary Statement

Read label before use

Keep out of reach of children

16.4. References

1. Sciencelab. (2013). *Material Safety Data Sheet - Dextrose monohydrate.* Texas.

2. INC, C. C. (2012). *Safety Data Sheet.* Columbus.

16.5. Disclaimer of Liability

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