

SAFETY DATA SHEET

Preparation Date: 6/4/2014

Revision date 5/6/2019

Revision Number: G2

1. IDENTIFICATION

Product identifier

Product code: M1128
Product Name: MANNITOL, BIOTECHGRADE

Other means of identification

Synonyms: Manna sugar
Mannite
D-Mannitol
1,2,3,4,5,6-Hexanehexol
CAS #: 69-65-8
RTECS # OP2060000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: In Foods.
Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000

Order Online At: <https://www.spectrumchemical.com>
Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Tom Tyner (USA - West Coast)
Contact Person: Ibad Tirmiz (USA - East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Label elements

Not classified

Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Not available

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component | CAS No | Weight-% |
|-----------|---------|----------|
| Mannitol | 69-65-8 | 100 |

4. FIRST AID MEASURES

First aid measures

- General Advice:** National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222.
- Skin Contact:** Wash off immediately with soap and plenty of water removing all contaminated clothing and shoes. Get medical attention if irritation develops. Consult a physician if necessary.
- Eye Contact:** Flush eyes with water for 15 minutes. Get medical attention if irritation occurs. If symptoms persist, call a physician.
- Inhalation:** Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
- Ingestion:** Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

Most important symptoms and effects, both acute and delayed

- Symptoms**
- May cause eye/skin irritation
 - Ingestion may cause nausea, vomiting, and diarrhea
 - Dehydration
 - Thirst
 - May cause central nervous system effects

Indication of any immediate medical attention and special treatment needed

- Notes to Physician:** Treat symptomatically.

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Carbon dioxide (CO₂). Dry chemical. Water spray mist or foam.

Unsuitable Extinguishing Media: No information available.

Specific hazards arising from the chemical

Hazardous combustion products Carbon Monoxide, Carbon Dioxide.

Specific hazards May be combustible at high temperatures.

Special Protective Actions for Firefighters

Specific Methods: No information available

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Remove all sources of ignition.

Environmental precautions No information available.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. All equipment used when handling the product must be grounded. Keep away from incompatible materials.

Safe Handling Advice:

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Avoid dust formation. Do not ingest. Do not breathe dust. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials.

Incompatible Materials:

Strong oxidizing agents

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

| Component | CAS No | OSHA | NIOSH | ACGIH | AIHA WEEL |
|-----------|---------|------|-------|-------|-----------|
| Mannitol | 69-65-8 | None | None | None | None |

Canada

| Component | CAS No | Canada - Alberta | Canada - British Columbia | Canada - Ontario | Canada - Quebec |
|-----------|---------|------------------|---------------------------|------------------|-----------------|
| Mannitol | 69-65-8 | None | None | None | None |

Australia and Mexico

| Component | CAS No | Australia | Mexico |
|-----------|---------|-----------|--------|
| Mannitol | 69-65-8 | None | None |

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

| | |
|----------------------------------|--|
| Eye protection: | Safety glasses with side-shields. or Goggles |
| Skin and body protection: | Long sleeved clothing Chemical resistant apron Gloves |
| Respiratory protection: | Effective dust mask. or. Wear respirator with dust filter. Use a dust respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentration of dust (dust clouds) , inadequate ventilation, development of respiratory tract irritation), and engineering controls are not feasible. Be sure to use an approved/certified respirator or equivalent. |
| Hygiene measures: | Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product When using, do not eat, drink or smoke. |

9. PHYSICAL AND CHEMICAL PROPERTIES

| | | |
|--|---|--|
| Physical state: Solid | Appearance: Fine crystalline powder. | Color: White. |
| Odor: Odorless. | Taste Sweetish. | Formula C6-H14-O6 |
| Molecular/Formula weight (g/mole): 182.17 | Flammability (solid, gas) no data available | Flash point (°C): 149 |
| Flashpoint (°C/°F): 149 °C/300 °F | Flash Point Tested according to: Not available | Autoignition Temperature (°C/°F): No information available |
| Lower Explosion Limit (%): No information available | Upper Explosion Limit (%): No information available | Melting point/range(°C/°F): 166-170 °C/330.8-338 °F |
| Decomposition temperature(°C/°F): Boiling point/range(°C/°F): | | |

No information available

290-295 °C/554-563 °F

Bulk density:

No information available

Density (g/cm³):

No information available

Specific gravity:

1.52 @ 20 °C

pH

No information available

Vapor pressure @ 20°C (kPa):

No information available

Evaporation rate:

No information available

Vapor density:

No information available

VOC content (g/L):

No information available

Odor threshold (ppm):

No information available

Partition coefficient (n-octanol/water):

-3.10

Viscosity:

No information available

Miscibility:

No information available

Solubility:

Easily soluble in hot water.Soluble in cold water.Insoluble in diethyl ether.Solubility in Water: 1 g in 5.5 ml; 2.16 x 10 + 5 mg/l at 25 deg. C.; more soluble in hot water.Soluble in pyridine, aniline, aqueous solutions of alkalies.Solubility in Glycerol: 1 g in 18 ml.Solubility in alcohol: 1 g in about 83 ml

10. STABILITY AND REACTIVITY

Reactivity

Reactive with oxidizing agents

Chemical stability

Stability:

Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid:

Heat. Avoid dust formation. Incompatible materials.

Incompatible Materials:

Strong oxidizing agents

Hazardous decomposition products:

Carbon monoxide. Carbon dioxide.

Other Information

Corrosivity:

No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:

Ingestion. Inhalation.

Acute Toxicity

Component Information

Product code: M1128

Product name: MANNITOL,
BIOTECHGRADE

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| | |
|----------|---------|
| Mannitol | |
| CAS No | 69-65-8 |

LD50/oral/rat = 13500 mg/kg Oral LD50 Rat
LD50/oral/mouse = 22000 mg/kg
LD50/dermal/rabbit = No information available
LD50/dermal/rat = No information available
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No information available
Other LD50 or LC50 information = No information available

Product Information

LD50/oral/rat =
Value - Acute Toxicity = 13500 mg/kg

LD50/oral/mouse =
Value - Acute Tox = 22000 mg/kg

LD50/dermal/rabbit
Value - Acute Toxicity = No information available

LD50/dermal/rat
VALUE - Acute Tox = No information available

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: May cause skin irritation.

Eye Contact: May cause eye irritation.

Inhalation May cause irritation of respiratory tract.

Ingestion Low hazard. Ingestion of large quantities can cause nausea, vomiting, hypermotility, diarrhea, dehydration, excessive thirst, diuresis(increased formation of urine/increased urination). It may also affect behavior/central nervous system (somnolence, dizziness, agitation, disorientation, convulsions, lethargy, confusion, headache), cardiovascular system (sensation of constriction or pain in the chest, increase in intravascular volume resulting in congestive heart failure, blood pressure elevation), urinary system (changes in tubules - including acute renal failure, acute tubular necrosis).

Aspiration hazard No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity No information available.

Sensitization: No information available.

Mutagenic Effects: May affect genetic material

Carcinogenic effects: Not considered carcinogenic.

| Component | CAS No | IARC | ACGIH - Carcinogens | NTP | OSHA HCS - Carcinogens | Australia - Notifiable Carcinogenic Substances | Australia - Prohibited Carcinogenic Substances |
|-----------|---------|------------|---------------------|------------|------------------------|--|--|
| Mannitol | 69-65-8 | Not listed | Not listed | Not listed | Not listed | Not listed | Not listed |

ACGIH (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)

NTP (National Toxicology Program)

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

Reproductive toxicity No data is available

Reproductive Effects: No information available

Developmental Effects: No information available

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Target Organs: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available.

Mobility in soil No information available

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

| Component | CAS No | RCRA - F Series Wastes | RCRA - K Series Wastes | RCRA - P Series Wastes | RCRA - U Series Wastes |
|-----------|---------|------------------------|------------------------|------------------------|------------------------|
| Mannitol | 69-65-8 | None | None | None | None |

14. TRANSPORT INFORMATION

DOT

| | |
|--|--------------------------|
| UN-No: | Not Regulated |
| Proper Shipping Name: | No information available |
| Hazard Class | No information available |
| Subsidiary Class | No information available |
| Packing group: | No information available |
| Emergency Response Guide Number | No information available |
| Marine Pollutant | No data available |
| DOT RQ (lbs): | No information available |
| Special Provisions | No Information available |
| Symbol(s): | No information available |
| Description: | No information available |

TDG (Canada)

| | |
|------------------------------|--------------------------|
| UN-No: | Not Regulated |
| Proper Shipping Name: | No information available |
| Hazard Class | No information available |
| Subsidiary Risk: | No information available |
| Packing Group: | No information available |
| Marine Pollutant | No Information available |
| Description: | No information available |

ADR

| | |
|-----------------------------------|--------------------------|
| UN Number | Not regulated |
| Proper Shipping Name: | No information available |
| Transport hazard class(es) | No information available |
| Packing group | No information available |
| Subsidiary Risk: | No information available |

IMDG

| | |
|------------------------------|--------------------------|
| UN-No: | Not Regulated |
| Proper Shipping Name: | No information available |
| Hazard Class: | No information available |
| Subsidiary Risk: | No information available |
| Packing Group: | No information available |
| Marine Pollutant | No information available |

RID

| | |
|-----------------------------------|--------------------------|
| UN Number | Not Regulated |
| Proper Shipping Name: | No information available |
| Transport hazard class(es) | No information available |
| Subsidiary Risk: | No information available |
| Packing group | No information available |

ICAO (air)

| | |
|------------------------------|--------------------------|
| UN-No: | Not Regulated |
| Proper Shipping Name: | No information available |
| Hazard Class | No information available |
| Subsidiary Risk: | No information available |

Packing Group: No information available

IATA

UN Number Not Regulated
Proper Shipping Name: No information available
Transport hazard class(es) No information available
Subsidiary Risk: No information available
Packing group No information available
Precautionary Statements - Response No information available
Special Provisions No information available

15. REGULATORY INFORMATION

International Inventories

| Component | CAS No | U.S. TSCA | KOREA KECL | Philippines (PICCS) | Japan ENCS | China IECSC | Australia (AICS) | EINECS-No. |
|-----------|---------|---------------|------------------|---------------------|-------------------------|-------------|------------------|-------------------|
| Mannitol | 69-65-8 | PresentACTIVE | Present KE-23061 | Present | Present (8)-49,(9)-1375 | Present | Present | Present 200-711-8 |

U.S. Regulations

Mannitol

FDA - 21 CFR - Total Food Additives 100.130, 101.80, 101.9, 175.300, 175.320, 177.1390, 177.2420, 180.25
- List Sourced from EAFUS

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

| Component | CAS No | Carcinogen | Developmental Toxicity | Male Reproductive Toxicity | Female Reproductive Toxicity: |
|-----------|---------|------------|------------------------|----------------------------|-------------------------------|
| Mannitol | 69-65-8 | Not Listed | Not Listed | Not Listed | Not Listed |

CERCLA/SARA

| Component | CAS No | CERCLA - Hazardous Substances and their Reportable Quantities | Section 302 Extremely Hazardous Substances and TPQs | Section 302 Extremely Hazardous Substances and RQs | Section 313 - Chemical Category | Section 313 - Reporting de minimis |
|-----------|---------|---|---|--|---------------------------------|------------------------------------|
| Mannitol | 69-65-8 | None | None | None | None | None |

U.S. TSCA

| Component | CAS No | TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS) | TSCA 8(d) -Health and Safety Reporting |
|-----------|---------|---|--|
| Mannitol | 69-65-8 | Not Applicable | Not Applicable |

Canada

WHMIS 2015 - GHS Classifications

WHMIS 2015 Hazard Classification Information:

Component
Mannitol
69-65-8 (100)

WHMIS 2015 Hazard Classification
Combustible Dust - Category 1: May form combustible dust concentrations in air (factors such as combustibility and explosiveness of dusts including composition and shape and size of particles could cause substance to belong to 'Combustible dust' hazard class)

Canada Hazardous Products Regulation This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

DSL/NDSL

| Component | CAS No | Canada (DSL) | Canada (NDSL) |
|-----------|---------|--------------|---------------|
| Mannitol | 69-65-8 | Present | Not Listed |

| Component | CAS No | CEPA Schedule I - Toxic Substances |
|-----------|---------|---|
| Mannitol | 69-65-8 | Not listed |
| Component | CAS No | CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting |
| Mannitol | 69-65-8 | Not listed |

EU Classification

EU GHS - SV - CLP 1272/2008

| Component | CAS No | EU GHS - SV - CLP (1272/2008) |
|-----------|---------|-------------------------------|
| Mannitol | 69-65-8 | |

EU - CLP (1272/2008)

R-phrases(s)

none

S -phrase(s)

none

| Component | CAS No | Classification | Concentration Limits: | Safety Phrases |
|-----------|---------|----------------|-----------------------|----------------|
| Mannitol | 69-65-8 | | No information | |

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

Not dangerous

16. OTHER INFORMATION

Preparation Date: 6/4/2014
Revision date: 5/6/2019
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet