1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Glucose Monohydrate

Synonyms/Generic Names: D-(+)-Glucose Monohydrate; Dextrose

SDS Number: 308.10

Product Use: For Educational Use Only

Manufacturer: Columbus Chemical Industries, Inc.
N4335 Temkin Rd.
Columbus, WI. 53925

For More Information Contact: Ward's Science
5100 West Henrietta Rd.
PO Box 92912-9012
Rochester, NY 14692
(800) 962-2660 (Monday-Friday 7:30-7:00 Eastern Time)

In Case of Emergency Call: CHEMTREC - 800-424-9300 or 703-527-3887 (24 Hours/Day, 7 Days/Week)

2. HAZARDS IDENTIFICATION

OSHA Hazards: No known OSHA hazards.

Target Organs: None

Signal Words: None

Pictograms: None

GHS Classification:

Not a dangerous substance according to GHS.

GHS Label Elements, including precautionary statements:

Hazard Statements:
None

Precautionary Statements:
None

Potential Health Effects

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td>May cause eye irritation.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>May be harmful if inhaled. Causes respiratory tract irritation.</td>
</tr>
<tr>
<td>Skin</td>
<td>May be harmful if absorbed through skin. Causes skin irritation.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>May be harmful if swallowed.</td>
</tr>
</tbody>
</table>
NFPA Ratings

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flammability</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Reactivity</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Specific hazard</td>
<td>Not Available</td>
<td></td>
</tr>
</tbody>
</table>

HMIS Ratings

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Reactivity</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Personal</td>
<td>A</td>
<td></td>
</tr>
</tbody>
</table>

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight %</th>
<th>CAS #</th>
<th>EINECS# / ELINCS#</th>
<th>Formula</th>
<th>Molecular Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dextrose, Monohydrate</td>
<td>100</td>
<td>5996-10-1</td>
<td>Not Available</td>
<td>C₆H₁₂O₆ • H₂O</td>
<td>198.17 g/mol</td>
</tr>
</tbody>
</table>

4. FIRST-AID MEASURES

<table>
<thead>
<tr>
<th></th>
<th>In case of eye contact, rinse with plenty of water.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td>Move casualty to fresh air and keep at rest. If breathing is difficult, give oxygen. If not breathing, give artificial respiration.</td>
</tr>
<tr>
<td>Skin</td>
<td>Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and wash using soap.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Do Not Induce Vomiting! Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water.</td>
</tr>
</tbody>
</table>

5. FIRE-FIGHTING MEASURES

<table>
<thead>
<tr>
<th>Suitable (and unsuitable) extinguishing media</th>
<th>Product may be flammable at high temperatures. Use water spray, alcohol-resistant foam, dry chemicals or carbon dioxide to extinguish fire. Use appropriate media for adjacent fire. Cool containers with water.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special protective equipment and precautions for firefighters</td>
<td>Wear self-contained, approved breathing apparatus and full protective clothing, including eye protection and boots.</td>
</tr>
<tr>
<td>Specific hazards arising from the chemical</td>
<td>Emits toxic fumes (carbon oxides) under fire conditions. (See also Stability and Reactivity section).</td>
</tr>
</tbody>
</table>

6. ACCIDENTAL RELEASE MEASURES

<table>
<thead>
<tr>
<th>Personal precautions, protective equipment and emergency procedures</th>
<th>See section 8 for recommendations on the use of personal protective equipment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental precautions</td>
<td>Prevent spillage from entering drains. Any release to the environment may be subject to federal/national or local reporting requirements.</td>
</tr>
<tr>
<td>Methods and materials for containment and cleaning up</td>
<td>Pick up and arrange spill without creating dust. Sweep up and place in suitable, closed containers for disposal. Clean surfaces thoroughly with water to remove residual contamination. Dispose of all waste and cleanup materials in accordance with regulations.</td>
</tr>
</tbody>
</table>

7. HANDLING AND STORAGE

Precautions for safe handling
See section 8 for recommendations on the use of personal protective equipment. Use with adequate ventilation. Wash thoroughly after using. Keep container closed when not in use. Avoid formation of dusts.
Conditions for safe storage, including any incompatibilities
Store in cool, dry well ventilated area. Keep away from incompatible materials (see section 10 for incompatibilities).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure controls: Contains no substances with occupational exposure limit values.

Personal Protection

<table>
<thead>
<tr>
<th>Eyes</th>
<th>Wear chemical safety glasses or goggles.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>Provide local exhaust, preferably mechanical. If exposure levels are excessive, use an approved respirator.</td>
</tr>
<tr>
<td>Skin</td>
<td>Wear nitrile or rubber gloves, apron or lab coat.</td>
</tr>
<tr>
<td>Other</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

Other Recommendations
Provide eyewash stations, quick-drench showers and washing facilities accessible to areas of use and handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Appearance (physical state, color, etc.)</th>
<th>White, crystalline solid.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor</td>
<td>Not Available</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not Available</td>
</tr>
<tr>
<td>pH</td>
<td>Not Available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>86° (186.8°F)</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>Not Available</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not Available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not Available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limit</td>
<td>Not Available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not Available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not Available</td>
</tr>
<tr>
<td>Density</td>
<td>1.54 g/cm³</td>
</tr>
<tr>
<td>Solubility (ies)</td>
<td>Soluble in water.</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not Available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not Available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

| Chemical Stability                      | Stable                    |
| Possibility of Hazardous Reactions      | Will not occur.           |
| Conditions to Avoid                     | Not Available             |
| Incompatible Materials                  | Strong oxidizing agents.  |
| Hazardous Decomposition Products        | Carbon oxides.            |
### 11. TOXICOLOGICAL INFORMATION

#### Acute Toxicity

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin</td>
<td>Not Available</td>
</tr>
<tr>
<td>Eyes</td>
<td>Not Available</td>
</tr>
<tr>
<td>Respiratory</td>
<td>Not Available</td>
</tr>
<tr>
<td>Ingestion</td>
<td>LC50 – Rat – 25,800 mg/kg</td>
</tr>
</tbody>
</table>

#### Carcinogenicity

<table>
<thead>
<tr>
<th>Agency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IARC</td>
<td>No components of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.</td>
</tr>
<tr>
<td>ACGIH</td>
<td>No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.</td>
</tr>
<tr>
<td>NTP</td>
<td>No components of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.</td>
</tr>
<tr>
<td>OSHA</td>
<td>No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.</td>
</tr>
</tbody>
</table>

#### Signs & Symptoms of Exposure

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin</td>
<td>Redness, swelling, pain, itchiness, rash.</td>
</tr>
<tr>
<td>Eyes</td>
<td>Redness, pain, tearing, conjunctivitis.</td>
</tr>
<tr>
<td>Respiratory</td>
<td>Pain, inflammation of mucous membranes, wheezing, coughing.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Gastrointestinal pain.</td>
</tr>
</tbody>
</table>

#### Chronic Toxicity

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td></td>
</tr>
</tbody>
</table>

#### Teratogenicity

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td></td>
</tr>
</tbody>
</table>

#### Mutagenicity

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td></td>
</tr>
</tbody>
</table>

#### Embryotoxicity

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td></td>
</tr>
</tbody>
</table>

#### Specific Target Organ Toxicity

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td></td>
</tr>
</tbody>
</table>

### 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Vertebrate</td>
<td>Not Available</td>
</tr>
<tr>
<td>Aquatic Invertebrate</td>
<td>Not Available</td>
</tr>
<tr>
<td>Terrestrial</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

#### Persistence and Degradability

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td></td>
</tr>
</tbody>
</table>

#### Bioaccumulative Potential

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td></td>
</tr>
</tbody>
</table>

#### Mobility in Soil

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td></td>
</tr>
</tbody>
</table>

#### PBT and vPvB Assessment

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td></td>
</tr>
</tbody>
</table>

#### Other Adverse Effects

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td></td>
</tr>
</tbody>
</table>

### 13. DISPOSAL CONSIDERATIONS

#### Waste Residues

Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste products or residues.

#### Product Containers

Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product container.
The information offered in section 13 is for the product as shipped. Use and/or alterations to the product may significantly change the characteristics of the material and alter the waste classification and proper disposal methods.

14. TRANSPORTATION INFORMATION

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>US DOT</td>
<td>Not Dangerous Goods</td>
</tr>
<tr>
<td>TDG</td>
<td>Not Dangerous Goods</td>
</tr>
<tr>
<td>IMDG</td>
<td>Not Dangerous Goods</td>
</tr>
<tr>
<td>Marine Pollutant</td>
<td>No</td>
</tr>
<tr>
<td>IATA/ICAO</td>
<td>Not Dangerous Goods</td>
</tr>
</tbody>
</table>

15. REGULATORY INFORMATION

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA Inventory Status</td>
<td>All ingredients are listed on the TSCA inventory.</td>
</tr>
<tr>
<td>DSCL (EEC)</td>
<td>All ingredients are listed on the DSCL inventory.</td>
</tr>
<tr>
<td>California Proposition 65</td>
<td>Not Listed</td>
</tr>
<tr>
<td>SARA 302</td>
<td>Not Listed</td>
</tr>
<tr>
<td>SARA 304</td>
<td>Not Listed</td>
</tr>
<tr>
<td>SARA 311</td>
<td>No SARA hazards</td>
</tr>
<tr>
<td>SARA 312</td>
<td>No SARA hazards</td>
</tr>
<tr>
<td>SARA 313</td>
<td>Not Listed</td>
</tr>
<tr>
<td>WHMIS Canada</td>
<td>Not Listed</td>
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</tbody>
</table>

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision 1</td>
<td>01/08/2013</td>
</tr>
</tbody>
</table>

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