SECTION 1. IDENTIFICATION

Product Identifier: Fructose
Other Means of Identification: D-Fructose, Laevulose
Product Code(s): FR1010
Product Family: Organic solid
Recommended Use: Laboratory and industrial use.
Restrictions on Use: None known.
Supplier Identifier: Alphachem Limited, 2485 Milltower Court, Mississauga, Ontario, L5N 5Z6, (905) 821-2995
Emergency Phone No.: CANUTEC CANADA, 613-996-6666, 24 Hours
SDS No.: 0483

SECTION 2. HAZARD IDENTIFICATION

Classification
Not classified under any hazard class.

Label Elements
Not applicable

Other Hazards
May form combustible dust concentrations in air.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS No.</th>
<th>%</th>
<th>Other Identifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fructose</td>
<td>30237-26-4</td>
<td>&gt; 99</td>
<td>D-Fructose, Laevulose</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation
Remove source of exposure or move to fresh air. Keep at rest in a position comfortable for breathing.

Skin Contact
Wash gently and thoroughly with lukewarm, gently flowing water and mild soap for 5 minutes.

Eye Contact
Immediately rinse the contaminated eye(s) with lukewarm, gently flowing water for 15-20 minutes, while holding the eyelid(s) open.

Ingestion
Rinse mouth with water. Do not induce vomiting. Get medical advice or attention if you feel unwell.

First-aid Comments
All first aid procedures should be periodically reviewed by a doctor familiar with the material and its condition of use.
in the workplace.

**Most Important Symptoms and Effects, Acute and Delayed**
None known.

**Immediate Medical Attention and Special Treatment**

**Special Instructions**

- General advice
  - Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

### SECTION 5. FIRE-FIGHTING MEASURES

**Extinguishing Media**

- **Suitable Extinguishing Media**
  - Carbon dioxide, dry chemical powder, appropriate foam, water spray or fog.

- **Unsuitable Extinguishing Media**
  - None known.

**Specific Hazards Arising from the Product**

- Combustible dust. Powder may form explosive dust-air mixture. Heating increases the release of toxic vapour. Closed containers may rupture violently when heated releasing contents.
- In a fire, the following hazardous materials may be generated: very toxic carbon monoxide, carbon dioxide.

**Special Protective Equipment and Precautions for Fire-fighters**

- Fight fire from a safe distance or a protected location. Dust explosion hazard. Use water spray or fog to prevent dust formation and minimize risk of explosion. Knock down vapours or gases with water fog or fine water spray. For a massive fire, immediately evacuate the area and use unmanned hose holder or monitor nozzles. Dike and recover contaminated water for appropriate disposal.
- A full-body encapsulating chemical protective suit with positive pressure SCBA may be necessary.

### SECTION 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective Equipment, and Emergency Procedures**

- Emergency responders: use the personal protective equipment recommended in Section 8 of this safety data sheet. Increase ventilation to area or move leaking container to a well-ventilated and secure area. Eliminate all ignition sources if safe to do so. Remove or isolate incompatible materials as well as other hazardous materials.

**Environmental Precautions**

- Do not allow into any sewer, on the ground or into any waterway.

**Methods and Materials for Containment and Cleaning Up**

- Collect using shovel/scoop or approved HEPA vacuum and place in a suitable container for disposal. Contain and soak up spill with absorvent that does not react with spilled product. Place used absorvent into suitable, covered, labelled containers for disposal.

### SECTION 7. HANDLING AND STORAGE

**Precautions for Safe Handling**

- Avoid generating dusts. Only use where there is adequate ventilation. Do not get in eyes, on skin or on clothing. Wear personal protective equipment to avoid direct contact with this chemical. Prevent accidental contact with incompatible chemicals. Eliminate heat and ignition sources such as sparks, open flames, hot surfaces and static discharge. Post "No Smoking" signs. Keep containers tightly closed when not in use or empty.

**Conditions for Safe Storage**

- Store in an area that is: cool, dry, out of direct sunlight and away from heat and ignition sources, separate from incompatible materials (see Section 10: Stability and Reactivity). Protect from conditions listed in Conditions to Avoid in Section 10 (Stability and Reactivity). Store in a closed container.

### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Product Identifier: Fructose
- Date of Preparation: April 26, 2016
Control Parameters

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV®</th>
<th>OSHA PEL</th>
<th>AIHA WEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TWA</td>
<td>STEL</td>
<td>TWA</td>
</tr>
<tr>
<td>Fructose</td>
<td>10 mg/m3</td>
<td>15 mg/m3</td>
<td></td>
</tr>
</tbody>
</table>

Appropriate Engineering Controls
Use local exhaust ventilation and enclosure, if necessary, to control amount in the air.

Individual Protection Measures

Eye/Face Protection
Not required but it is good practice to wear safety glasses or chemical safety goggles.

Skin Protection
Not required, if used as directed. In case of an emergency (e.g. an uncontrolled release): wear chemical protective clothing e.g. gloves, aprons, boots.
No specific guidelines are available. Contact chemical manufacturer/supplier for advice.

Respiratory Protection
Wear a NIOSH approved air-purifying respirator with an appropriate cartridge.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance
White powder.

Odour
Odourless

Odour Threshold
Not available

pH
Not available

Melting Point/Freezing Point
103 °C (217 °F) (melting); 103 °C (217 °F) (freezing)

Initial Boiling Point/Range
Not applicable

Flash Point
Not applicable

Evaporation Rate
Not applicable

Flammability (solid, gas)
Not available

Upper/Lower Flammability or Explosive Limit
Not available (upper); Not available (lower)

Vapour Pressure
Not applicable

Vapour Density (air = 1)
Not applicable

Relative Density (water = 1)
Not available

Solubility
Soluble in water; Soluble in all proportions in alcohols (e.g. ethanol).

Partition Coefficient, n-Octanol/Water (Log Kow)
Not available

Auto-ignition Temperature
Not available

Decomposition Temperature
Not available

Viscosity
Not available (kinematic); Not available (dynamic)

Other Information

Physical State
Solid

SECTION 10. STABILITY AND REACTIVITY

Reactivity
None known.

Chemical Stability
Normally stable.

Possibility of Hazardous Reactions
None known.

Conditions to Avoid
Open flames, sparks, static discharge, heat and other ignition sources. Generation of dust. Temperatures above 100.0 °C (212.0 °F)

Incompatible Materials
Strong oxidizing agents (e.g. perchloric acid).

Hazardous Decomposition Products
Very toxic carbon monoxide, carbon dioxide.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure
Inhalation; skin contact; eye contact; ingestion.

Acute Toxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LC50</th>
<th>LD50 (oral)</th>
<th>LD50 (dermal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fructose</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
</tr>
</tbody>
</table>

Skin Corrosion/Irritation
Human experience and animal tests show no or very mild irritation.

Serious Eye Damage/Irritation
Human experience and animal tests show no or very mild irritation.

STOT (Specific Target Organ Toxicity) - Single Exposure

  Inhalation
  May cause nose and throat irritation.

  Ingestion
  No information was located.

Aspiration Hazard
No information was located.

STOT (Specific Target Organ Toxicity) - Repeated Exposure
No information was located.

Respiratory and/or Skin Sensitization
Not known to be a respiratory sensitizer. Not known to be a skin sensitizer.

Carcinogenicity
No information was located.

Reproductive Toxicity

  Development of Offspring
  No information was located.

  Sexual Function and Fertility
  No information was located.

  Effects on or via Lactation
  No information was located.

Germ Cell Mutagenicity
No information was located.

Interactive Effects
No information was located.

SECTION 12. ECOLOGICAL INFORMATION

This section is not required by WHMIS. This section is not required by OSHA HCS 2012.

Product Identifier: Fructose
Date of Preparation: April 26, 2016
SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of contents and container in accordance with local, regional, national and international regulations.

SECTION 14. TRANSPORT INFORMATION

Special Precautions Not applicable
Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations
Canada
Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)
Listed on the DSL.
USA
Toxic Substances Control Act (TSCA) Section 8(b)
Listed on the TSCA Inventory.

SECTION 16. OTHER INFORMATION

NFPA Rating Health - 0 Flammability - 1 Instability - 0
SDS Prepared By Alphachem Limited
Phone No. (905)-821-2995
Date of Preparation April 26, 2016
Date of Last Revision April 26, 2016
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