GHS SAFETY DATA SHEET

AMERICAN CRYSTAL SUGAR COMPANY

Prepared to U.S. OSHA Standards in compliance with the GHS system (29 CFR 1910.1200(g), rev. 2012

Section 1	**Identification**	**POWDERED SUGAR** Manufacturer's Name **American Crystal Sugar Co.** **101 North 3rd Street** **Moorhead, MN 56560** Emergency Telephone Number: **(218) 236-4400** Telephone Number for Information **(218) 236-4324**	food additive, flavor enhancer, baking ingredient, intended for human consumption No restrictions on use Preparation Date: 21 November 2014 Revised: New
Section 2	**Hazard(s) Identification**	**No Hazardous Components** Sugar and starch support combustion only poorly and are not by themselves hazards unless they are involved as secondary fuels in an existing fire.	The **dust** generated by the **transportation and handling** of sugar is an **explosion hazard**; measures must be taken to avoid the creation of fugitive dust and to abate any dust created.
Section 3	**Composition / Information on Ingredients**	**Sucrose, sugar, saccharose;** **C_{12} H_{22} O_{11} : 97%** IUPAC: (2*R*,3*R*,4*S*,5*S*,6*R*)-2-[(2*S*,3*S*,4*S*,5*R*)-3,4-dihydroxy-2,5-bis(hydroxymethyl) oxolan-2-yl]oxy-6-(hydroxymethyl) oxane-3,4,5-triol] **Corn starch: 3%**	Table sugar, beet sugar, natural sweetener **CAS 57-50-1** **UNII C151H8M554** **EINECS 200-334-9** **RTECS WN6500000** **CAS 9005-25-8** **RTECS C151H8M554** **EINECS 232-679-6**
Section 4	**First Aid Measures**	**INHALED:** not expected to require first aid. Exposure to dust may aggravate pre-existing respiratory conditions. Remove to fresh air; get medical attention for any breathing difficulty.	**EYES:** Possible mechanical irritant. Flush granular material with running water, holding eyelids open. Get medical help if symptoms persist.

Section 5 ***Section 5***	**Fire-Fighting Measures**	**Use water or other approved media. Avoid creating airborne dust with high pressure water streams; the use of a fine spray to saturate the material is suitable for any firefighting.** **monoxide.** **Normal fire dept SOP for precautions and PPE.**	Sugar **dust** is **explosive**, similar to flour and grain products. Though sugar itself supports combustion poorly, the **relative explosion hazard of the dust is severe**. As with any finely divided organic (carbon-based) solid, dust **may be explosive if mixed with air in critical proportions and in the presence of an ignition source possibly resulting in chain reaction-style, serial explosions.**
Section 6	**Accidental Release Measures**	**To mitigate possible dust hazard:** • **remove ignition sources** • **avoid dispersing dust into the air** • **ventilate area of spill** **use non -sparking tools**	Clean-up personnel should wear non-slip footwear. Sweep or scoop up spill for recovery or disposal and place into a closed container. Non-toxic and biodegradable. Whatever cannot be saved for recovery may be discarded as permitted by applicable regulations.
Section 7	**Handling and Storage**	Avoid handling techniques which are capable of producing and/or dispersing fugitive dust. **Remove ignition sources.**	Store in doors in areas of low humidity away from sources of moisture.
Section 8	**Exposure Controls / Personal Protection**	None normally required. Inhalation of high concentrations of the dust may cause coughing and upper respiratory tract irritation. In dusty situation, a NIOSH-approved respirator for dust may be worn. **Pre-existing respiratory conditions: use approved mask.**	In cases of water being used to flush spilled material, floors and steps may become sticky; wear non-slip footwear and use caution when negotiating floors and steps. Wearing of contact lenses when handling product should be avoided. Wear protective goggles.

<table>
<tr><td rowspan="8">Section 9</td><td rowspan="8">Physical and Chemical Properties</td><td>Melting Point (sucrose)</td><td>160 - 186°C (320 - 367°F)</td><td>Flash Point</td><td>N/A</td></tr>
<tr><td>Boiling Point</td><td>N/A</td><td>Flammable Limits</td><td>N/A</td></tr>
<tr><td>Specific Gravity (H_2O = 1)</td><td>1.587 (sucrose)</td><td>LEL (sucrose)</td><td>dust 20 g/m3</td></tr>
<tr><td>Solubility in Water:</td><td></td><td>UEL (sucrose)</td><td>dust 15 k g/m3</td></tr>
<tr><td>Vapor Pressure (mm Hg.)</td><td>N/A</td><td colspan="2" rowspan="4">Appearance and Odor: Very finely-powdered, white, crystalline solid; odorless.</td></tr>
<tr><td>Vapor Density (AIR = 1)</td><td>N/A</td></tr>
<tr><td>Evaporation Rate Butyl Acetate = 1)</td><td>N/A</td></tr>
<tr><td colspan="2">Solubility in Water:

<u>Sucrose</u>: 2.07 grams per gram water @25° 331 grams per 100 grams water @ 70°C;

<u>Starch</u> gelatinizes in hot water.</td></tr>
<tr><td>Section 10</td><td>Stability and Reactivity</td><td>Stable under ordinary conditions of use and storage. Hazardous polymerization will NOT occur.

Avoid temperatures above 160°F (70°C); heat, flames, ignition sources, and incompatibles.</td><td colspan="2">Avoid strong oxidizers (e.g. nitric acid or sulfuric acid).

Thermal decomposition or burning dried material will produce carbon dioxide, carbon monoxide.</td></tr>
<tr><td>Section 11</td><td>Toxicological Information</td><td>Non-toxic

LD50 (sucrose):
29,700 mg/kg (oral, rat):
Respiratory cyanosis</td><td colspan="2">Product contains no ingredients currently classified as carcinogenic by NTP, IARC, or OSHA.</td></tr>
<tr><td>Section 12</td><td>Ecological Information (non-manditory)</td><td>Non-toxic and biodegradable.</td><td colspan="2"></td></tr>
<tr><td>Section 13</td><td>Disposal Considerations (non-manditory)</td><td>Whatever cannot be saved for recovery may be discarded as permitted by applicable regulations.</td><td colspan="2"></td></tr>
<tr><td>Section 14</td><td>Transport Information (non-manditory)</td><td>Not applicable</td><td colspan="2"></td></tr>
<tr><td>Section 15</td><td>Regulatory Information (non-manditory)</td><td>Not ordinarily regulated. (Note some countries do have import quotas which restrict total amount of sugar entering their borders.)</td><td colspan="2"></td></tr>
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Section 16	**Other Information**	

Note: sugar and starch dusts are explosive, similar to flour and grain products (values given here are for sucrose only)	
Ignition temperature of dust cloud	**350°C**
Minimum igniting energy	**< 10mJ**
Minimum explosion concentration	**0.035 oz / cu ft**
Maximum explosion pressure	**9 bar**
Maximum rate of pressure rise	**5,000 psi / sec**
Minimum exposable concentration in air:	**0.045 g/L**