



AMERICAN CRYSTAL SUGAR COMPANY

# GHS SAFETY DATA SHEET

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

<p><b>Section 1</b></p>	<p><b>Identification</b></p>	<p style="text-align: center;"><b><u>GRANULATED SUGAR</u></b></p> <p>Manufacturer's Name  <b>American Crystal Sugar Co.</b>  <b>101 North 3<sup>rd</sup> Street</b>  <b>Moorhead, MN 56560</b></p> <p>Emergency Telephone Number:  <b>(218) 236-4400</b></p> <p>Telephone Number for Information  <b>(218) 236-4324</b></p>	<p>food additive, flavor enhancer, baking ingredient, intended for human consumption</p> <p>No restrictions on use</p> <p>Preparation Date: 14 Aug 2014</p> <p>Revised: <span style="border: 1px solid black; padding: 2px;">21 Nov 2014</span></p>
<p><b>Section 2</b></p>	<p><b>Hazard(s) Identification</b></p>	<p><b>No Hazardous Components</b></p> <p>Sugar itself <b>supports combustion only poorly</b> and is not by itself a hazard unless it is involved as a <b>secondary fuel</b> in an existing fire.</p>	<p>The <b>dust</b> generated by the <b>transportation and handling</b> of sugar is an <b>explosion hazard</b>; measures must be taken to avoid the creation of fugitive dust and to abate any dust created.</p>
<p><b>Section 3</b></p>	<p><b>Composition / Information on Ingredients</b></p>	<p><b>Sucrose, sugar, D(+)</b>Saccharose;  <b>C<sub>12</sub> H<sub>22</sub> O<sub>11</sub></b></p> <p>IUPAC: (2<i>R</i>,3<i>R</i>,4<i>S</i>,5<i>S</i>,6<i>R</i>)-2-[(2<i>S</i>,3<i>S</i>,4<i>S</i>,5<i>R</i>)-3,4-dihydroxy-2,5-bis(hydroxymethyl)oxolan-2-yl]oxy-6-(hydroxymethyl)oxane-3,4,5-triol ]</p> <p>beta-D-Fructofuranosyl-alpha D glucopyranoside</p> <p>alpha-D-Gluco pyranosyl beta-D-fructofuranoside</p>	<p>Table sugar, white sugar, fine gran sugar, beet sugar, natural sweetener</p> <p><b>CAS 57-50-1</b>  <b>UNII C151H8M554</b>  <b>EINECS 200-334-9</b>  <b>RTECS WN6500000</b>  <b>CHEMBL 253582</b></p> <p>Pure product (organic compound)</p>
<p><b>Section 4</b></p>	<p><b>First Aid Measures</b></p>	<p><b>INHALED:</b> not expected to require first aid. Exposure to dust may cause coughing or aggravate pre-existing respiratory conditions (asthma). Remove to fresh air; get medical attention for any breathing difficulty.</p>	<p><b>EYES:</b> Mechanical irritant (red, watery, sore eyes). Flush granular material with running water, holding eyelids open. Get medical help if symptoms persist.</p>

<p><b>Section 5</b></p>	<p><b>Fire-Fighting Measures</b></p>	<p>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. Thermal decomposition or burning will produce carbon dioxide, carbon monoxide.</p> <p>Normal fire dept SOP for precautions and PPE.</p>	<p>Sugar dust is <b>explosive</b>, similar to flour and grain products. Though sugar itself supports combustion poorly, the <b>relative explosion hazard of the dust is severe</b>. As with any finely divided organic (carbon-based) solid, dust <b>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</b>.</p>
<p><b>Section 6</b></p>	<p><b>Accidental Release Measures</b></p>	<p>To mitigate possible dust hazard:</p> <ul style="list-style-type: none"> <li>• remove ignition sources</li> <li>• avoid dispersing dust into the air</li> <li>• ventilate area of spill</li> <li>• use non -sparking tools</li> </ul>	<p>Clean-up personnel should wear proper protective equipment. 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.</p>
<p><b>Section 7</b></p>	<p><b>Handling and Storage</b></p>	<p>Avoid handling techniques which are capable of producing and/or dispersing fugitive dust.</p> <p><b>Remove ignition sources.</b></p>	<p>Store in doors in areas of low humidity away from sources of moisture to avoid caking.</p> <p>In case of caking in large capacity storage vessels, personnel working inside the vessel should not stand under large cakes of sugar which could break loose and fall on those personnel.</p>

Section 8	<b>Exposure Controls / Personal Protection</b>	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. <b>Pre-existing respiratory conditions: use approved mask.</b>	In cases of water being used to flush spilled material, floors and steps may become sticky. Use proper footwear when negotiating floors and steps.  Wearing of contact lenses when handling product should be avoided. Wear protective goggles.		
Section 9	<b>Physical and Chemical Properties</b>	Melting Point	Decomposes >185 °C	<b>Flash Point</b>	N/A
		Boiling Point	N/A	<b>Flammable Limits</b>	N/A
		Specific Gravity (H <sub>2</sub> O = 1)	1.587	<b>LEL</b>	dust 20 g/m <sup>3</sup>
		Vapor Pressure (mm Hg.)	5.15E-17	<b>UEL</b>	dust 15 kg/m <sup>3</sup>
		Vapor Density (AIR = 1)	N/A	<b>Appearance and Odor:</b> White, crystalline solid (monoclinic sphenoidal); odorless to a characteristic caramel odor.	
		Evaporation Rate Butyl Acetate = 1)	N/A		
		<b>Solubility in Water:</b> <ul style="list-style-type: none"> <li>• 2.07 grams per gram water @25°</li> <li>• 331 grams per 100 grams water @ 70°C</li> </ul>			
Section 10	<b>Stability and Reactivity</b>	<b>Stable under ordinary conditions of use and storage. Hazardous polymerization will NOT occur.</b>  <b>Avoid temperatures above 160F; heat, flames, ignition sources, and incompatibles.</b>		<b>Avoid strong oxidizers (e.g. nitric acid or sulfuric acid).</b>  <b>Thermal decomposition or burning will produce carbon dioxide, carbon monoxide.</b>	
Section 11	<b>Toxicological Information</b>	Non-toxic  LD50 29,700 mg/kg (oral, rat): Respiratory cyanosis		Product contains no ingredients currently classified as carcinogenic by NTP, IARC, or OSHA.	
Section 12	<b>Ecological Information (non-mandatory)</b>	Non-toxic and biodegradable.			
Section 13	<b>Disposal Considerations (non-mandatory)</b>	Whatever cannot be saved for recovery may be discarded as permitted by applicable regulations.			

<b>Section 14</b>	<b>Transport Information (non-mandatory)</b>	Not applicable															
<b>Section 15</b>	<b>Regulatory Information (non-mandatory)</b>	Not ordinarily regulated. (Note some countries do have import quotas which restrict total amount of sugar entering their borders.)															
<b>Section 16</b>	<b>Other Information</b>	<table border="1"> <tr> <td colspan="2" style="text-align: center;"><b>Note: sugar dust is explosive, similar to flour and grain products</b></td> </tr> <tr> <td><b>Ignition temperature of dust cloud</b></td> <td><b>350 °C</b></td> </tr> <tr> <td><b>Minimum igniting energy</b></td> <td><b>&lt; 10mJ</b></td> </tr> <tr> <td><b>Minimum explosion concentration</b></td> <td><b>0.035 oz / cu ft</b></td> </tr> <tr> <td><b>Maximum explosion pressure</b></td> <td><b>9 bar</b></td> </tr> <tr> <td><b>Maximum rate of pressure rise</b></td> <td><b>5,000 psi / sec</b></td> </tr> <tr> <td><b>Minimum exposable concentration in air:</b></td> <td><b>0.045 g/L</b></td> </tr> </table>		<b>Note: sugar dust is explosive, similar to flour and grain products</b>		<b>Ignition temperature of dust cloud</b>	<b>350 °C</b>	<b>Minimum igniting energy</b>	<b>&lt; 10mJ</b>	<b>Minimum explosion concentration</b>	<b>0.035 oz / cu ft</b>	<b>Maximum explosion pressure</b>	<b>9 bar</b>	<b>Maximum rate of pressure rise</b>	<b>5,000 psi / sec</b>	<b>Minimum exposable concentration in air:</b>	<b>0.045 g/L</b>
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