

# Material Safety Data Sheet

May be used to comply with

OSHA's Hazard Communication Standard, 29 CFR 1910.1200. This Standard must be consulted for specific requirements.

# U.S. Department of Labor

Occupational Safety and Health Administration

(Non-Mandatory Form)

Form Approved

OMB No. 1218-0072

<p>IDENTITY (As Used on Label and List)</p> <p><b>Liquid Total Invert Sugar (92%)</b></p>	<p>Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.</p>
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## Section I

<p>Manufacturer's Name <b>United Sugars Corporation</b></p>	<p>Emergency Telephone Number <b>(952) 896-0426</b></p>
<p>Address (Number, Street, City, State, and ZIP Code) <b>7803 Glenroy Road Suite 300 Bloomington, MN 55439</b></p>	<p>Telephone Number for Information <b>(2952) 896-0426</b></p>
<p>Signature <i>Joe Waller</i> (optional)</p>	<p>Date Prepared <b>7/21/2010</b></p>

## Section II - Hazard Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s)):	OSHA PEL	ACGIH TLV	Other Limits Recommended	% <sup>1</sup> (optional)
<b>No Hazardous Components</b>	N/A	N/A	N/A	N/A
<b>Sugar (Sucrose), CAS 57-50-1</b>				<b>5.0 – 5.9 %</b>
<b>Glucose (Dextrose), CAS 50-99-7</b>				<b>32.9 – 34.2 %</b>
<b>Fructose (Levulose), CAS 57-48-7</b>				<b>32.9 – 34.2 %</b>
<b>Water, CAS 7732-18-5</b>				<b>26.5 – 28.5%</b>

<sup>1</sup> Material is **71.5 – 73.5 % solids**; percentage data based upon calculations of data from Pennington, N. and Baker, C. *Sugar: A User's Guide to Sucrose*. Van Nostrand Rheinhold, New York, 1990. p 90.

### Section III - Physical/Chemical Characteristics

Boiling Point	N/A	Specific Gravity (H <sub>2</sub> O = 1)	1.348 – 1.385
Vapor Pressure (mm Hg.)	N/A	Melting Point	N/A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A
Solubility in Water: <b>infinitely soluble</b>			
Appearance and Odor: <b>A clear, colorless to amber-colored liquid with little or no odor.</b>			

### Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used): N/A	Flammable Limits N/A	LEL N/A	UEL N/A
Extinguishing media: <b>Water or other approved media.</b>			
<b>Note: SUGAR DUST is explosive, similar to flour and grain products</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 explosible concentration in air:</b>		<b>0.045 g/l.</b>	
Special Fire Fighting Procedures: <b>If material has solidified, avoid creating airborne dust with high pressure water streams; use fine spray to saturate spill.</b>			
Unusual Fire and Explosion Hazards: <b>Dried material supports combustion only poorly; however, the relative explosion hazard of the dust is severe. As with any finely divided organic solid, dust may be explosive if mixed with air in critical proportions and in the presence of an ignition source. Also, see §VII – Precautions for Safe Handling and Use, “Other Precautions.”</b>			

### Section V - Reactivity Data

Stability:	Unstable N/A	Conditions to Avoid:
<b>Stable under ordinary conditions of use and storage</b>	Stable v <b>(Conditionally; see §VII – Precautions for Safe Handling and Use, “Other Precautions.”)</b>	<b>Excessive temperatures above 160°F; heat, flames, ignition sources, and incompatibles. Avoid any conditions where dust may be created.</b>

Incompatibility ( <i>Materials to Avoid</i> ): <b>Strong oxidizers such as nitric acid or sulphuric acid</b>		
Hazardous Decomposition or Byproducts: <b>Thermal decomposition or burning will produce carbon dioxide, carbon monoxide.</b>		
Hazardous Polymerization	May Occur <b>N/A</b>	Conditions to Avoid:
<b>N/A</b>	Will Not Occur <b>v</b>	

**Section VI - Health Hazard Data**

Route(s) of Entry:	Inhalation? <b>None except that exposure to dust or mold may aggravate respiratory conditions.</b>	Skin? <b>Avoid contact with hot material—causes thermal burns.</b>	Ingestion? <b>Non-toxic</b>
Health Hazards ( <i>Acute and Chronic</i> ): <b>Eye irritation: dust may cause mechanical irritation. Allergies due to mold formation.</b>			
Carcinogenicity: <b>Product contains no ingredients currently classified as carcinogenic by NTP, IARC, or OSHA.</b>	NTP? <b>N/A</b>	IARC Monographs? <b>N/A</b>	OSHA Regulated? <b>N/A</b>
Signs and Symptoms of Exposure: <b>Mechanical irritation of eyes. Inhalation of high concentrations of the dust may cause coughing and upper respiratory tract irritation. Redness of skin.</b>			
Medical Conditions Generally Aggravated by Exposure: <b>Pre-existing respiratory conditions: use approved mask.</b>			
Emergency and First Aid Procedures: <b>INHALED dust: not expected to require first aid. Remove to fresh air. Get medical attention for any breathing difficulty. EYES: flush with running water, holding eyelids open. Get medical help if symptoms persist. SKIN: If hot material gets on skin, flush affected area with cool water; seek medical attention in case of thermal burns.</b>			

## Section VII - Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled: <b>Material may be washed down with water. Clean-up personnel should wear proper protective equipment. Spilled material may be pumped into a closed tank for recovery or disposal. Material may be hot and is slippery.</b>
Waste Disposal Method: <b>Non-toxic and biodegradable. Whatever cannot be saved for recovery may be discarded as permitted by applicable regulations.</b>
Precautions to Be taken in Handling and Storing: <b>Gloves to protect from heat and non-slip footwear in case of spills.</b>
Other Precautions: <b>Material should be maintained in liquid state.</b> Conditions to Avoid: <b>Very rarely, hot sugar products and their syrups have been known to exhibit “runaway behavior” under the <u>combined conditions</u> of (1) presence of amino acids; (2) enclosed space including piping where pressure can build up; (3) temperatures above 110 °C; (4) extended periods of time (generally less than 5 hours); (5) lowered pH; (6) increased viscosity; (7) lack of adequate thermal transfer. Explosions have been known to occur under these <u>combined conditions</u>.</b>

## Section VIII - Control Measures

Respiratory Protection ( <i>Specify Type</i> ): <b>None normally required. In dusty situation or in the case of molds, a NIOSH-approved respirator for dust may be worn.</b>		
Ventilation:	Local Exhaust <b>N/A</b>	Special <b>N/A</b>
	Mechanical ( <i>General</i> ) <b>Dilution ventilation is a satisfactory control if there is dust.</b>	Other <b>N/A</b>
Protective Gloves: <b>When handling hot material.</b>	Eye Protection: <b>Goggles when working with hot material or in a dusty situation.</b>	
Other Protective Clothing or Equipment: <b>N/A</b>		
Work/Hygienic Practices: <b>Wearing of contact lenses when handling product should be avoided.</b>		

**Section IX - Special Precautions**

<p>Precautions to be taken in Handling and Storing: <b>Avoid conditions which might create dust. Avoid dispersing dust into the air; remove ignition sources. Avoid touching hot material without wearing gloves.</b></p>
<p>Other Precautions: <b>Avoid using steam to loosen material in plugged pipes due to possible exothermic “run away behavior” referenced earlier in this document: §VII – Precautions for Safe Handling and Use, “Other Precautions.”</b></p>

Each MSDS must be reviewed for correctness and completeness every three years.

Reviewed by	_____	Reviewed by	_____
Revision date	_____	Revision date	_____