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**	**CONCENTRATED BETAINE SOLUTION,** **BETAINE LIQUID SOLUTION,** **AMIX –C,** **CNS (CROSS-OVER NON-SUGARS)** 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**	Used for supplemental dietary nitrogen in livestock (not for human consumption) No restrictions on use Preparation Date: 14 Jan 2015 Revised: 21 Jan 2015
Section 2	**Hazard(s) Identification**	• **No Hazardous Components** • CNS is non-hazardous under normal conditions of use, storage, and handling. • CNS is not considered combustible though in a dried state the organic components may provide **secondary fuel** for an existing fire.	
Section 3	**Composition / Information on Ingredients**	**No Hazardous Components; it is a concentrated mixture of aqueous soluble material (composition may vary: betaine and other amino acids) from the processing of the sugar beet root (*Beta vulgaris*) from which virtually all the sucrose and salts have been removed.**	
		Betaine *(glycine betaine; Oxyneurine; N,N,N-trimethylglycine; Carboxymethyl)trimethylammonium inner salt*): **30 – 40%**	
		anhydrous **$C_5H_{11}NO_2$** **Molecular Weight : 117.15 g/mol** **CAS-No. : 107-43-7** **EC-No. : 203-490-6**	**monohydrate** **$C_5H_{11}NO_2 \cdot H_2O$** **Molecular Weight : 135.16 g/mol** **CAS-No. : 590-47-6** **EC-No. : 203-490-6**
		Water, 30 – 45% **CAS: 7732-18-5** **Miscellaneous Organics, including other Amino Acids ~25%**	

Section 4	**First Aid Measures**	**SKIN**: Redness and/or blistering of skin. If hot material gets on skin, flush affected area with cool water; seek medical attention in case of thermal burns. Sensitive skin may be irritated by continued contact with product. **EYES** (irritation of eyes): immediately flush with running water, holding eyelids open. Get medical help if symptoms persist.	**ALLERGIC REACTIONS:** It is conceivable spore-forming molds could grow under conditions required for their growth. In the event of exposure to these spores, susceptible individuals may require specialized medical attention. Non-toxic, but non-palatable; contains bitter-tasting organics.
Section 5	**Fire-Fighting Measures**	**If material has solidified, use hot water or other approved media.** **Normal fire dept SOP for precautions and PPE.**	**Thermal decomposition or burning may produce oxides of carbon and nitrogen, and ammonia.**
Section 6	**Accidental Release Measures**	Material is non-toxic and biodegradable. Barricade tape slippery floor spills and clean up immediately. Collect with some mechanical device; dilute and wash down with warm water. Material may be hot and is slippery. Clean-up personnel should wear proper protective equipment: goggles or face shield, thermal insulating gloves and non-slip boots.	Spilled material may be pumped into a closed tank for recovery or disposal, or return to manufacturer for reprocessing. Whatever cannot be saved for recovery may be discarded as permitted by applicable regulations.
Section 7	**Handling and Storage**	**Conditions to Avoid:** Avoid excessively high temperatures. However, cold conditions will increase viscosity. If product temperature is kept between 80 to 120 °F (27 to 50 °C) flowability will be maintained and decomposition prevented.	Caked-up material may "set up" when using steam to clean out tanks and tank cars; hot water is a preferred solvent for cleaning out tanks.
Section 8	**Exposure Controls / Personal Protection**	None normally required. In case of hot material, wear goggles, and thermal-protective gloves and boots. **Sensitive skin may be irritated by continued contact with product; transferring product using high temperatures may cause burns.**	In cases of water being used to flush spilled material, floors and steps may become sticky. Use proper footwear when negotiating floors and steps.

<table>
<tr><td rowspan="6">Section 9</td><td rowspan="6">Physical and Chemical Properties</td><td>Melting Point</td><td>N/A</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 (H2O = 1)</td><td>1.15 – 1.19</td><td>LEL</td><td>N/A</td></tr>
<tr><td>Evaporation Rate (Butyl Acetate = 1)</td><td>N/A</td><td>UEL</td><td>N/A</td></tr>
<tr><td>Vapor Pressure (mm Hg)</td><td>N/A</td><td colspan="2" rowspan="2">Appearance and Odor: Dark brown- to black-colored viscous mass, bitter taste, amine odor.</td></tr>
<tr><td>pH</td><td>7 – 9</td></tr>
<tr><td colspan="2">Solubility in Water: infinitely soluble</td></tr>
<tr><td>Section 10</td><td>Stability and Reactivity</td><td colspan="2">Stable under ordinary conditions of use and storage. Hazardous polymerization will NOT occur.

Avoid temperatures above 120 °F, pH less than 7, and incompatibles.</td><td colspan="2">Avoid strong oxidizers such as nitric acid or sulfuric acid, hot acids.

Thermal decomposition or burning of dried material may produce ammonia gas, carbon dioxide, and carbon monoxide.</td></tr>
<tr><td>Section 11</td><td>Toxicological Information</td><td colspan="2">Non-toxic

LD50 830 mg/kg (mouse –intravenous)</td><td colspan="2">Product contains no ingredients currently classified as carcinogenic by NTP, IARC, ACGIH, or OSHA.</td></tr>
<tr><td>Section 12</td><td>Ecological Information (non-manditory)</td><td colspan="4">Non-toxic and biodegradable.</td></tr>
<tr><td>Section 13</td><td>Disposal Considerations (non-manditory)</td><td colspan="4">Whatever cannot be saved for recovery may be discarded as permitted by applicable regulations.</td></tr>
<tr><td>Section 14</td><td>Transport Information (non-manditory)</td><td colspan="4">Not dangerous goods.</td></tr>
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Section 15	**Regulatory Information (non-manditory)**	**SARA 302 Components** SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302. **SARA 313 Components** SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313. **SARA 311/312 Hazards** No SARA Hazards **Massachusetts Right To Know Components** No components are subject to the Massachusetts Right to Know Act. **Pennsylvania Right To Know Components** Betaine CAS-No. 107-43-7 **New Jersey Right To Know Components** Betaine CAS-No.107-43-7 **California Prop. 65 Components** This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
Section 16	**Other Information**	**Slippery! Avoid excessively high temperatures. However, cold conditions will increase viscosity. If product temperature is kept between 80 – 120 °F (27 – 50 °C), flowability will be maintained and decomposition prevented.** **Caked-up material may "set up" when using steam to clean out tanks and tank cars; hot water is a preferred solvent for cleaning out tanks.**