



Southern Minnesota Beet Sugar
Cooperative

**NATIONAL
SUGAR**
MARKETING

Renville Factory Food Safety Plan

Doc. No.: FSP-10 R2 Date: 5/17/2023

Liquid Sucrose

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Plan Approval

Facility Management:

Date:

5/17/23

Local HACCP Coordinator:

Date:

5/17/23

Facility Information

Facility Name:	Southern Minnesota Beet Sugar Cooperative, Renville Factory
Facility Address:	83550 Country Rd. 21, Renville, MN 56284
Phone:	(320) 522-4477
Plant/Facility Manager:	Kelly Scheffler
Local HACCP Coordinator:	Dan Dumas
HACCP Coordinator (PCQI):	Dan Dumas
Number of Employees:	Approximately 350
Temporary Employees:	Yes
Facility Description:	The Renville facility was constructed in 1975 and extracts and refines sugar from domestically grown sugar beets. This facility produces granulated sugar, which is conditioned and stored in bulk silos. Sugar is screened and loaded into bulk rail-cars and trailers or packaged into 50 lb. bags and 2000 lb. flexible intermediate bulk container (FIBC) supersacks (totes). Bags and totes are shipped via truck to forward warehouses or direct to customers.

Food Safety

Products:	Liquid Sucrose															
Third Party Audit Standard:	SQF Food Safety Code: Food Manufacturing															
Certification Body:	CICS Americas															
Import Capability:	Facility can import raw sugar (non-food) on a case-by-case basis for refining.															
Ingredients/Raw Materials:	Granulated sugar extracted from domestic sugar beets.															
Packaging:	Liquid sucrose is loaded into freshly washed liquid tankers (50,000 lbs.).															
Prerequisite Programs :	<table border="0"> <tr> <td>1. Employee Training</td> <td>2. Personnel Practices</td> <td>3. Integrated Pest Management</td> </tr> <tr> <td>4. Equipment Calibration: Food Safety</td> <td>5. Facility & Equipment Maintenance</td> <td>6. Cleaning, Sanitation, and Waste Management</td> </tr> <tr> <td>7. Water & Air Monitoring</td> <td>8. Physical Contaminant Control</td> <td>9. Product Storage & Warehousing</td> </tr> <tr> <td>10. Product Distribution</td> <td>11. Allergen Management</td> <td>12. Chemical Control</td> </tr> <tr> <td>13. Supplier Approval</td> <td>14. Visitors</td> <td></td> </tr> </table>	1. Employee Training	2. Personnel Practices	3. Integrated Pest Management	4. Equipment Calibration: Food Safety	5. Facility & Equipment Maintenance	6. Cleaning, Sanitation, and Waste Management	7. Water & Air Monitoring	8. Physical Contaminant Control	9. Product Storage & Warehousing	10. Product Distribution	11. Allergen Management	12. Chemical Control	13. Supplier Approval	14. Visitors	
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Team

Dan Dumas	Director of Technical Services	PCQI, HACCP Certified (Primary)
Darvin Hauptli	Co-Products Manager	PCQI, HACCP Certified (Secondary)
Dominic Johnson	Warehouse Manager	PCQI, HACCP Certified (Alternate)
Gary Cornelius	Executive Director Risk Management	In-House Training
Greg Martin	Vice President of Operations	HACCP Certified
Luke Rust	Chief Operating Officer	In-House Training
Larry Blume	Director of Engineering and Maintenance	In-House Training
Kelly Scheffler	Factory Manager	PCQI, HACCP Certified
Patrick Dawn	Operations Manager	In-House Training
Craig Glaeser	Supply Chain Director	In-House Training



Product Description

General Product Information

Product Name:	Liquid Sucrose (Liquid Sugar)
Technical Name:	Sucrose
Product Description:	Solution of dissolved sucrose in water
Ingredients:	Crystalline sucrose and water
Intended Use:	This product is used as an ingredient in many food products and functions as a sweetener.
Intended Consumer:	Liquid Sucrose is distributed to food processors that provide products to the general public, including high-risk groups
Shelf Life:	30 Days
Labeling Instructions:	No labeling requirements for consumer safety or bioengineering disclosure (validated refinement).
FDA Classification:	GRAS 21 CFR 184.1854
Storage:	Stored in bulk tanks
Distribution:	Distributed by liquid tanker

Technical Information

Chemical Formula:	$C_{12}H_{22}O_{11} + H_2O$
Water Activity (a_w):	0.86 ¹
Moisture:	32.5 to 33.5.
Sulfites:	2 to 6 ppm. Must be less than 10 ppm for regulatory labeling.
Microbiological:	Will not support the growth of vegetative pathogens. ^{2,3} Meets ISBT ⁴ and NFP ⁵ standards for use in carbonated beverages and canned foods. Classified as low risk by the ICMSF 2005 ⁶ .

Preventive Controls

Process Control:	CCP Liquid Filtration (Porosity of 100 microns or less)
Allergen Control:	None
Sanitation Control:	None
Supply-Chain Control:	None

¹ Water Activity Values of Select Food Ingredients and Products

² Microbial Risk Assessment: Pathogen Challenge Evaluations of Granulated and Liquid Sugar

³ Fate of Bacterial Pathogens and Indicator Organisms in Liquid Sweeteners

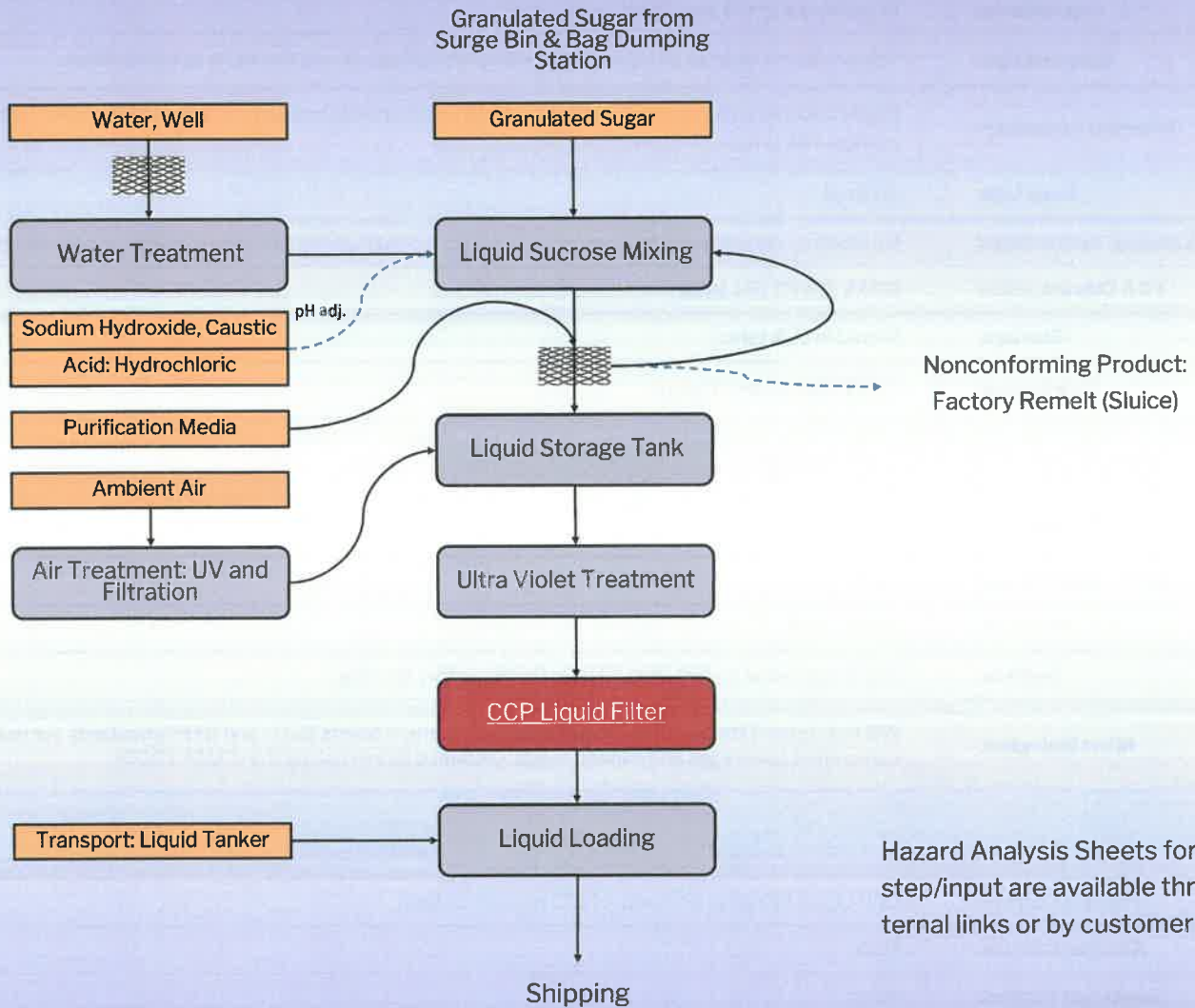
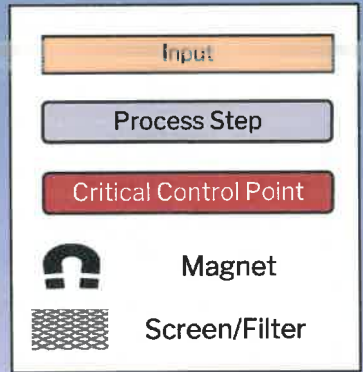
⁴ International Society of Beverage Technologists (ISBT)

⁵ GMA Canner's Standard

⁶ International Commission for the Microbiological Specifications for Food: 12 Sugar, Syrups, and Honey (2005).

Process Flowchart: Granulated Sugar

This flowchart outlines the steps from massecuite through shipping.



Hazard Analysis Sheets for each step/input are available through internal links or by customer request.

- Product Conveying Equipment & Hazard Analysis**
- Bucket Elevator
 - Screw Conveyor
 - Liquid Pump

Process Preventive Control: Critical Control Point Summary

Process Control Step:		CCP Liquid Filter (Sock Filter)
Hazard(s):		Foreign Material (Physical Hazards)
Critical limits:		Filter is intact and in place throughout product loading.
Monitoring:	What:	Final filter with a porosity of 100 microns or less.
	How:	Monitor the final filter according to SOP 6.3-02 CCP Monitoring: Liquid Filter.
	Frequency:	Conduct the inspection of the sock filter once per shift.
	Who:	Trained warehouse operator (qualified individual).
Corrective Action:		Operator notifies supervisory personnel. Supervisory personnel place affected product on hold, complete corrective action and determine final disposition.
Verification:	Monitoring Activity:	Supervisory staff verify the monitoring activity through record review within 7 days of record generation indicated by a signature and date.
	Food Safety Plan:	The food safety plan is incorporated into annual internal audits. The plan, CCP selection, and CL determination are reviewed/assessed annually.
Validation:	Critical Control Point:	CCP selection is reevaluated annually in light of emerging technological and regulatory information; documented on record 7.1-03 Validation.
	Critical Limits:	CL or parameter selection is reevaluated annually in light of emerging technological and regulatory information; documented on record 7.1-03 Validation.
	Scientific & Technical:	Decisions for the hazard analysis, CCP selection, and CL selection have been based on scientific and technical information. This information is available upon request.
Records:		Monitoring Activity: Documented in sock filter check preload checklist. Records are retained for three years.

Procedural documentation is available to customers upon request.

Amendments

5/17/23	R2	Updated Personnel
02/06/2023	R1	Updated personnel including Primary HACCP Coordinator, updated Corrective Action to include product hold. Updated facility information. Training information updated.
10/24/2022	R0	Modified formatting for multi-facility alignment. Hazard Analysis files have been separated and maintained independently.
03/21/2022		Removed remelt from source of sugar
12/09/2019		Added caustic and hydrochloric acid to hazard analysis, removed caustic/acid from melting step.
08/16/2016		Changed to FSMA format and added references.
11/05/2014		Added CCP failure statement.

Training Log
