

Client Success Story: L&S Sweetener Company

Company profile

Application: L&S Sweeteners of Honey Brook, Pennsylvania, had wastewater disposal issues resulting from the cleaning process for trucks bearing various liquid sweeteners, which must be cleaned between shipments per USDA requirements.

Wastewater Description: The company's wastewater was derived from the cleaning of liquid sugar products from tank trucks and tank cars. Contaminants include sucrose, fructose, molasses and honey.

Waste Disposal Goals: The client's goal was to decommission an existing wastewater treatment plant, eliminate most permitting and regulatory influences, reclaim sugars as an after-market product that was beneficial to the local farming community and reclaim water for other plant washing processes.

Wastewater treatment challenge

The client operated a WAS wastewater treatment plant. The final plant effluent required a permit for BOD5 and TSS discharge. BOD5 and TSS limits were <500 PPM and <200 PPM respectively. The plant could not consistently reduce the incoming BOD5 and TSS to below the stated discharge limits. Monthly fines and surcharges were subsequently imposed, and these fines and surcharges affected the client's bottom-line.

CASTion solution

CASTion helped the client meet their wastewater treatment and recovery goals with a CAST 6500 Flash Vacuum Distillation System, FRP, PVC and CPVC with an acid resistant design. Ancillary equipment included: one steam jacketed degassing tank, hot water boiler, cooling tower, distillate collection tank and one concentrate tank. The system has a 6,500 gallons per day throughput.

After treatment, the GAC removes trace ethanol dissolved in the distillate. GAC is used during the summer months when fermentation becomes a problem in the primary holding tank.

Trucks bearing various liquid sweeteners must be cleaned between shipments as per USDA requirements. Trucks enter the cleaning bay and are injected with high temperature water under pressure. Residual sugars are dissolved from the tank wall surfaces,



discharged from the tanker and collected in floor grates. The cleaning fractions are then pumped and stabilized in 25,000 gallon holding tank located in the rear of the process building. Stabilized wastewater from the holding tank is filtered, transferred to a carbon dioxide degassing tank then delivered to the CAST system. The sugars are concentrated in the CAST system to a 60% brix endpoint (1 brix = 1 %).

The CAST distillate is post-treated with GAC to scavenge trace concentrations of ethanol that naturally occur from retention in the equalization tank. The distillate is then directed to the POTW sewer line or used as wash-down water. The concentrate contains 60 brix liquid sucrose and is sold locally as a silage enhancer. The higher sugar content of the feed promotes increased milk production in dairy cows.

The CASTion solution allowed the client to decommission its existing wastewater treatment plant. It eliminated most permitting and regulatory influences and allowed the client to reclaim the sugars formerly lost in the cleaning process. This creates a valuable after-market product that is beneficial to the local farming community. The new process also allows the client to reclaim water for other plant washing processes and to offer tanker cleaning to similar companies and then reselling those concentrated sugar slurries.

Parameter Raw Distillate Concentrate

pH	6.30	6.8	5.32
TSS	650 ppm	< 1 ppm	—
TDS	700-1900 ppm	<50 ppm	—
BOD5	>10,000 ppm	<95 ppm	—
Sucrose (% Brix)	7-12	ND	50-60

Contact CASTion

With CASTion's help, L&S Sweetener Company now uses its resources more effectively, which provides a competitive edge. Contact CASTion today to learn how we can help your company operate more efficiently.