

Ecosorb® Drives Improvements in a Central American Cane Sugar Refinery

Addition of Ecosorb® Improves Yield and Quality of Refined Sugar

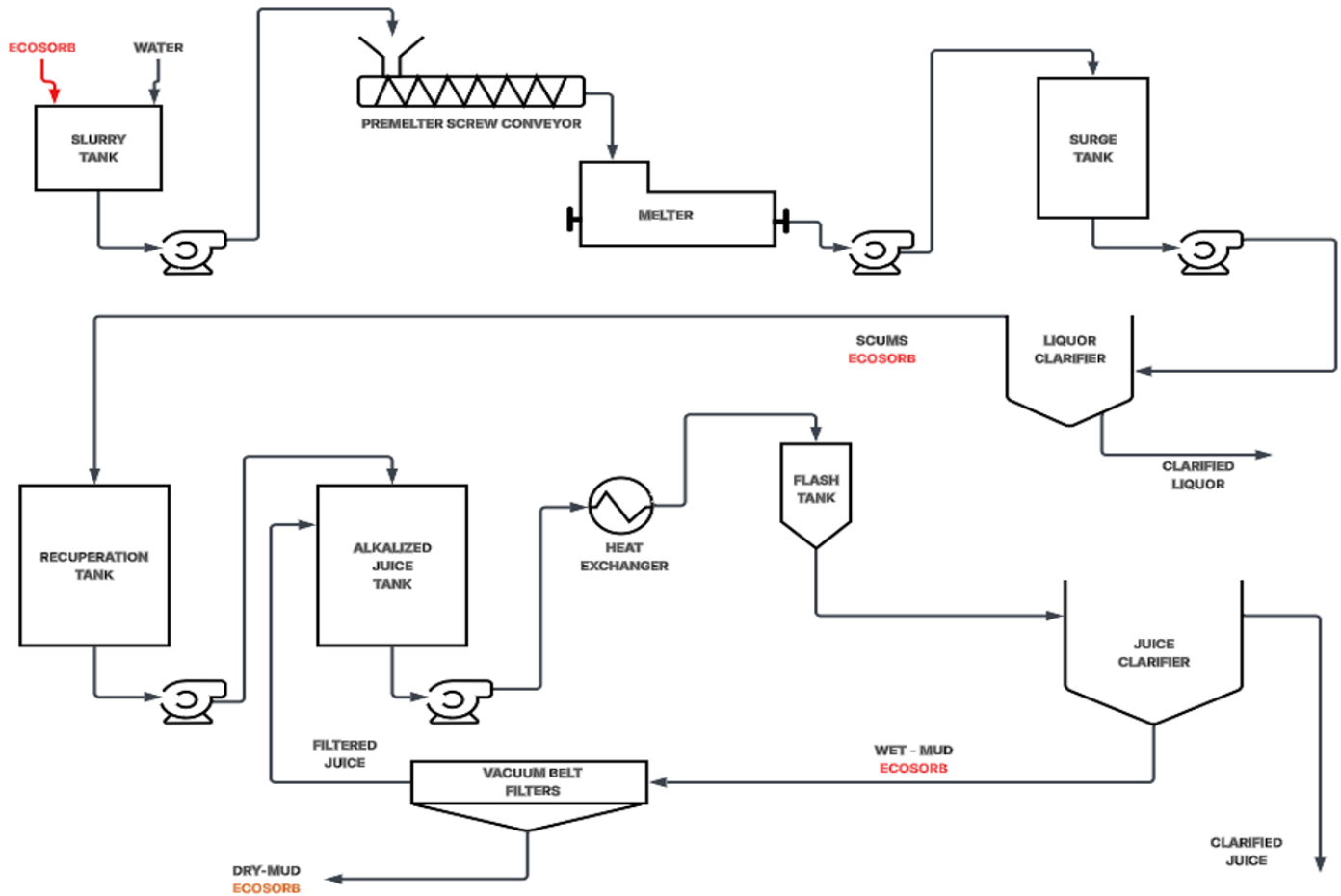
A cane sugar refinery in Central America recently achieved an improvement of over 80 tons/day produced refined sugar by adding Ecosorb S-1500 to the early part of their process. By adding Ecosorb to the raw sugar melter, sufficient color reduction was achieved by the time the adsorbent was removed in the phosphatation clarifier scum. This color reduction improved the crystallization step, and yielded both lower color refined sugar, and more of it.

In addition to the increased yield and improved quality, the refinery was able to lower key chemical inputs, such as phosphoric acid, calcium hydroxide, and activated carbon replacement. Once addition reached steady state, a gradual reducing of white sugar centrifuge washing timers gave the refinery a higher yield. Accompanying this reduced washing was lower water and energy consumption per ton of sugar produced.

Before & After Ecosorb® Addition

KEY VARIABLES	Units	Conventional	Ecosorb S-1500
Dosage (based on refined sugar)	kg/ton	-	0.94
Phosphoric Acid addition	ppm	260	140
Calcium Hydroxide addition	ppm	520	280
Melt liquor color	IU	600	653
Clarified liquor color	IU	407	290
Percolated liquor color	IU	276	162
Centrifuge Washing Time	s	15	6
First sugar color	IU	< 35	< 25
Second sugar color	IU	< 45	< 35
Third sugar color	IU	46-60	< 45
Fourth sugar color	IU	81-120	< 80
Average refined sugar production	tons/day	735	815
Net profit per day	USD	-	13,367
Estimated profit per crop season	USD	-	2,406,060

Refinery Flow Diagram with Ecosorb® addition



Conclusion

Adding Ecosorb S-1505 to a phosphatation refinery yields numerous benefits, as displayed at this refinery in Central America. The adsorbent addition alleviates significant pressure on all unit operations in the refinery, and generates value the moment it is added. Looking more long term, there are benefits realized in the attached mill as well (or recovery house if it is a stand-alone refinery). Lower washes yields lower runoff volumes and, therefore, less sugar sent to molasses. After persistent use of the adsorbent, even further benefits can be realized. The high moisture product can be dosed to the refinery dry or in a slurry with water, depending on where in the process it is added.

Ecosorb is produced in New Castle, Delaware, USA, by Graver Technologies, LLC, a Marmon Water and Berkshire Hathaway company