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IMPROVED PRODUCT QUALITY CASE STUDY

Sugar Refinery, Portugal

The refinery's objective was to reduce lump formation in 50 kg and 1 ton bags. Sugar at the refinery was being cooled with ambient air so the sugar temperature leaving the dryer was dependent on the ambient temperature which fluctuated between a maximum of 45°C in summer and a minimum of 20°C in winter. Relative humidity remained fairly constant at 60 percent. During the summer, the temperature difference between sugar leaving the dryer and storage ambient was higher than 20°C. The result was agglomeration in the warehouse resulting in a high number of complaints from customers, subsequent returns and associated reprocessing costs.

The facility was looking for a cooler to process 30 tph of white sugar from 45°C to 30°C. Adding a cooling air conditioning system to the existing rotary dryer entailed unacceptably high energy consumption (164 kW). Space restrictions in the refinery made it unfeasible to install a fluid bed dryer, and construction of a silo was not considered because of the high capital cost.

Outcome

The refinery chose to install Solex indirect cooling technology. The Solex cooling unit offered low installation costs and low energy requirements with a total electrical consumption of only 15 kW. The new system produced effective cooling of the product, eliminated agglomeration problems, and increased customer satisfaction.