



## **Solution Overview**

### **Target Audience**

International beet and cane sugar factories, refineries, engineering firms and equipment suppliers.

### **Customer Situation**

Model sugar processes to make improvements and evaluate investment decisions

### **Scenario and Solution**

Sugar companies are under pressure to reduce their energy consumption and increase their efficiency. Modeling the process and making changes to the model is the quickest and most efficient way to evaluate changes and make Improvements.

### **Customer Satisfaction**

Comments from users of Sugars Include:

"...there is no substitute for the ease of use and accurateness of the Sugars program at such a reasonable cost."

"Sugars helps us avoid those unforeseen problems that can occur with a new project."

"...we were able to model a unique approach to processing. The factory was modified according to the model and it exactly produced the results predicted by Sugars."

"Developing models now is as easy as drag and drop. We developed a model of our whole factory and refinery, starting with milling and going through the refined sugar driers."

"...we use it for our daily operations. It gives us an opportunity to test possibilities prior to implementing them. The model is built so that it mirrors our factory conditions almost exactly."

"In our opinion, Sugars is one of the most useful tools for simulation, calculation and teaching that we have ever used, in the works for improvement of our facilities."

"A great added value of Sugars is that you can learn with it."

### **Industry Perspective**

- Engineering
- Chemical
- Industrial Equipment
- Consulting

***Sugars for Windows is a process modeling and simulation program for the international sugar industry.***

***Sugars is a powerful program to analyze and improve sugar factories and refineries and to evaluate the performance of equipment used in the process.***

## **Sugars International LLC**

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Sugar companies, engineering firms and equipment suppliers have used the Sugars program since 1986 to improve their factories, design new factories and to evaluate process equipment. The Sugars for Windows program uses Microsoft Visio to provide a graphical interface to design models and simulate the process to evaluate the financial advantages of different improvements. The program is very fast and user-friendly. A mouse is used to drag and drop shapes of stations on to the drawing surface and to route flow streams to and from stations. Data controlling the performance of each station in the model is entered on dialogs that are displayed by double clicking on the station shape. After the model is built, the balance calculations simulate the results of the actual process to give the material, energy and color balances. The results can be displayed as revenues generated by the process, or the sugar yield, steam consumption, molasses characteristics, color and other engineering data (e.g., enthalpy, boiling point elevation, sucrose supersaturation, etc) can be displayed and/or printed out for each flow stream in the model.

The program can quickly evaluate changes to the process before the change is actually made in the factory. For example, change imbibition water in milling to see the change in sucrose content in bagasse and sugar yield and exhaust steam consumption for the factory. Or, change the vapor to a pan or heat exchanger to see the change in exhaust steam consumption by the multiple effect evaporators. Molasses desugarization with chromatographic separation can be added to evaluate the economics of producing more sugar against the additional process costs. Different boiling schemes can be evaluated to determine the most efficient, and centrifugal stations can be evaluated to determine their separation efficiency. Changes in beet or cane characteristics can be imposed on the model and changes can be made to the process to improve its efficiency when different characteristics occur. The possibilities are endless, and Sugars can quickly look at each one to see which has the highest potential for improving the factory and increasing its profitability.

Companies in more than 40 countries have purchased Sugars. Companies using the program include: Amalgamated Sugar Company, American Crystal Sugar Company, APRO Polska Sp. z o.o., Audubon Sugar Institute, AB Azucarera Ileria, S.L.U., Booker Tate Ltd., British Sugar plc, Cosun Food Technology Center, ESCON GmbH, Illovo Sugar Ltd., Imperial Sugar Co., Industrieprojekt (IPRO) GmbH, ISGEC Heavy Equipment Ltd., Michigan Sugar Company, Nordic Sugar A/S, Pantaleon S.A., Queensland University of Technology, Rogers Sugar Ltd., SiVEST SA (Pty) Ltd., Sucros Ltd., Sugar Knowledge International Ltd. (SKIL), Sugar Milling Research Institute, , The Western Sugar Company, TSB Sugar RSA, VEI Global, Wilmar Sugar Australia Ltd., Zuckerforschung Tulln GmbH, and many others.