SUGARSLETTER

Issue No. 1 July 1993

Version 2.70 released

A completely new interface was introduced with the release of version 2.70 of *SUGARS*™. Now each station is shown as an image with all input and output flow streams (see Pan station in figure below) and a mouse can be used to select options, display flow stream details and move from station-to-station. Drop down menus are used to save a model, print and display calculated results, and change: units, model name, iteration accuracy, etc.. Models now can have up to 500 flow streams and the allowable quantities of many stations are greater than in previous versions.

New centrifugal station module features

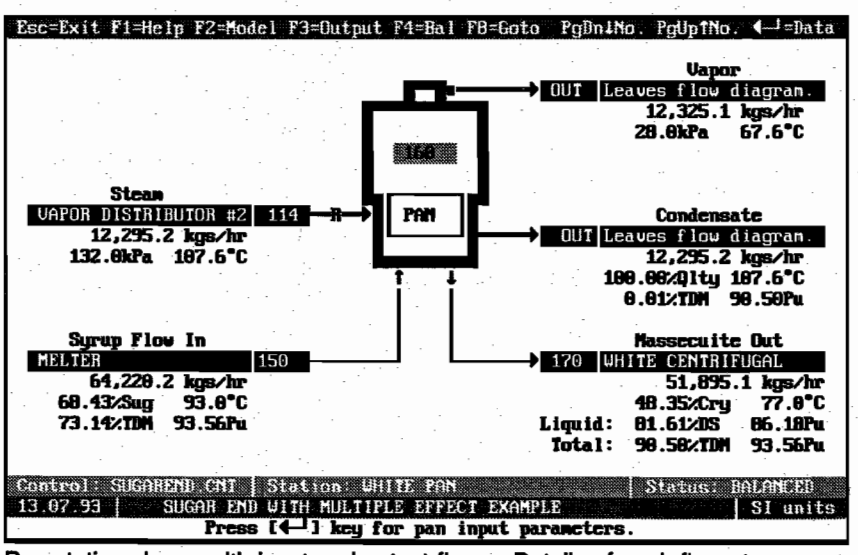
Extensive redesign of the centrifugal station now allows: calculation of massecuite supersaturation from mother liquor %DS and purity, syrup washing, steam heating with wash, change in green/wash split for batch centrifugals, editing of centrifugal performance parameters, and selection of either sugar residues, or performance parameters held during a simulation.

New heater station module feature

In version 2.70, a condensing heater station will automatically calculate the quantity of steam and temperature of the output flow stream when heat transfer coefficient and heating surface area are entered. This new feature is very powerful for evaluating the impact on exhaust steam consumption due to changes in exchanger heat transfer coefficient and/or heating surface area. Temperature settings and effectiveness can still be used for heaters.

Other new features

The vapor compression station module now can be used as a pump, or as a pressure reducing station (desuperheating is done with a blender station). Supersaturation of massecuite leaving pans and crystallizers now can be calculated from the mother liquor %DS and purity and many new help screens were added.



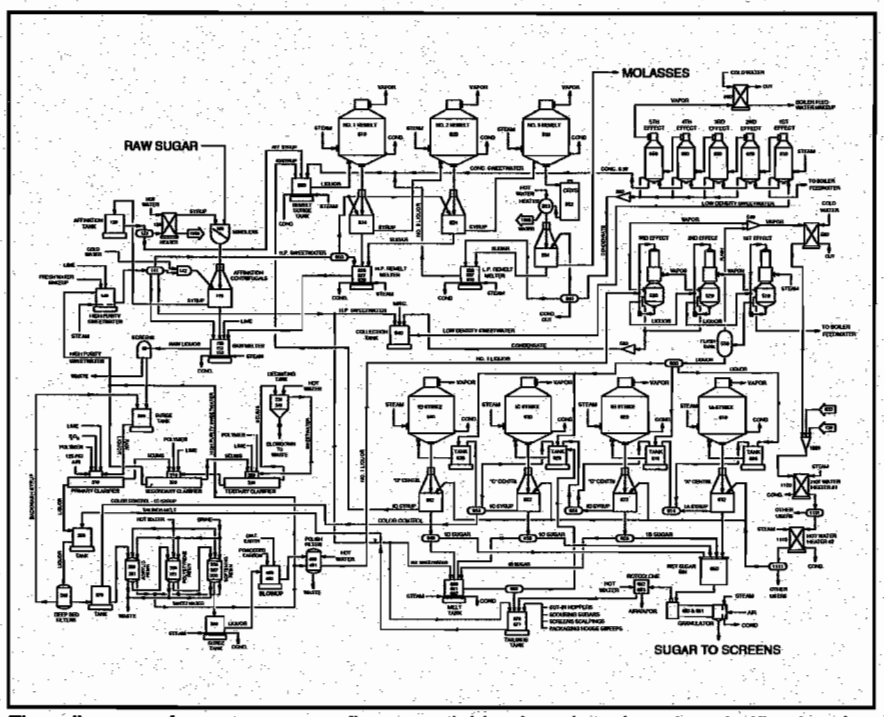
Pan station shown with input and output flows. Details of each flow stream are available by double clicking on the flow stream.

SUGARS and AutoCAD®

BC Sugar, Vancouver, British Columbia, Canada is using *SUGARS* with version 12 of AutoCAD to automatically update the information on their flow diagrams. They use a small program that writes the results from *SUGARS* to a data base file that is read by AutoCAD. Entries on the flow diagram are linked to specific records in the database to provide a unique match between the flow streams in *SUGARS* and those shown on the diagram in AutoCAD. Bryon Karren at BC Sugar can provide further details.

Cane Refinery Model

A complete model of a cane sugar refinery was built using *SUGARS*. The flow diagram for the model is shown above on the right. As shown, raw sugar is affinated and then sent to the raw melter to produce raw liquor. The raw liquor is clarified, filtered, decolored and softened using ion exchange, and polish filtered using powered carbon to produce No. 1 liquor which is then concentrated in a triple effect countercurrent falling film evaporator. Four strikes are used to make sugar that is blended to produce the final white sugar product. 'D' strike syrup is sent to remelt where crystallization is done in three boilings to produce a remelt syrup that is used in the raw melter for making raw liquor. Excess sweetwater from the process is concentrated in a five effect calandria evaporator and the concentrated sweetwater is sent to remelt. Full details (i.e., quantity, temperature, pressure, component fractions, specific weight, enthalpy, supersaturation, boiling point, etc.) about all flow streams are given by the model. Changes to the process are easily simulated to improve recovery and reduce energy and/or water consumption. This model will be included as an example in a future version of the User's Guide.



Flow diagram of a cane sugar refinery model having phosphatation clarification, ion exchange decoloration/deashing, and four strikes for white sugar production.

New Users

Several new companies have ordered *SUGARS* during the last year. These companies are located in Denmark, England, Jamaica, Turkey and the United States. *SUGARS* is now used for modeling beet and cane sugar factories and refineries in eleven countries. It is used to model complete factories, portions of a factory and new process concepts.

Sugars International
10129 E. Powers Avenue
Englewood, CO 80111 USA
Tel: 303-770-2630
Fax: 303-770-2831