



## AlfaVap ensures high product quality and saves energy at Thai Glucose Co.

Thai Glucose Co., Ltd., Bangkok, Thailand

Case story

In 2002, Alfa Laval installed a 2-effect AlfaVap plate evaporator system for dextrose and maltose concentration at Thai Glucose Co. Ltd. The same customer later decided to invest in another AlfaVap system, with 3 effects, for fructose. Thai Glucose confirms that the AlfaVap gives high product quality while reducing energy costs and occupying much less space in the plant than other types of evaporator.

Located in Nakornpathom, a suburb of Bangkok, Thai Glucose Co., Ltd. supplies products to the specifications of large international customers. The production process involves hydrolysis of tapioca starch, an enzymatic process, and purification by activated carbon and ion exchange resin clarification, respectively. Some of the dextrose is then isomerised to fructose and separated through chromatography. This results in products of high quality and purity that meet international standards.

Established in 1987, Thai Glucose is continuously working to improve its production processes. Installing AlfaVap evaporators is part of this strategy.



Three-effect AlfaVap plate evaporator system for fructose installed at Thai Glucose Co. Bangkok.

### Demand for sweeteners

Robert Broad, Application Manager, Alfa Laval, explains that there is major demand from international producers

of food and soft drinks for sweeteners such as F42.

“F42 is glucose with a 42% concentration of fructose. It has the same sweetness as sugar but far less calories. The purification and concentration stage of the process, using evaporators, is extremely temperature sensitive and too much heat will colour the product and reduce its quality.”

### Plate heat exchangers offer highest thermal efficiency

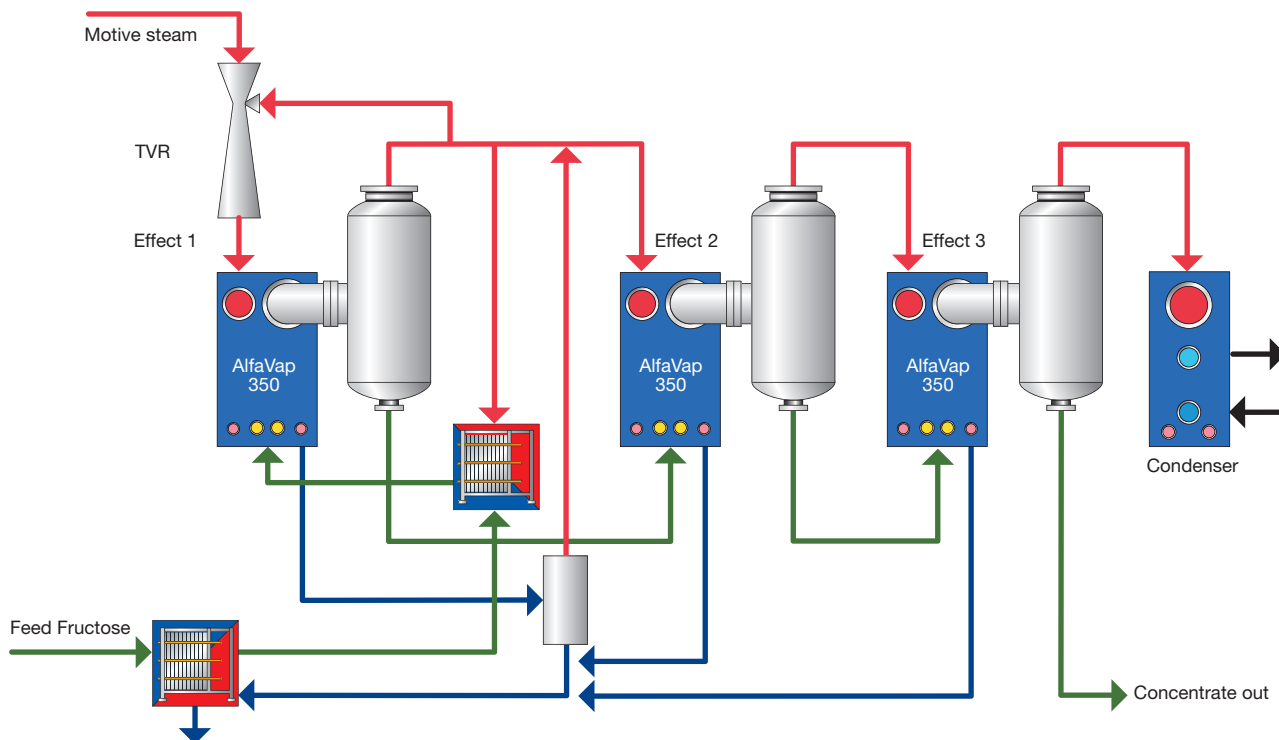
“The evaporator can be seen as the workhorse of the process,” says Robert Broad, “and compared with falling film and shell-and-tube technology, plate heat exchangers offer the best performance for this duty. The low hold-up volume of AlfaVap ensures a very short residence time for the concentrate in the unit and gives

### About the customer:

#### Thai Glucose Co.

Thai Glucose Co., Ltd., Bangkok, Thailand, is a manufacturer of glucose syrup (super high maltose syrup, high maltose syrup, maltose syrup, low DE maltose syrup), fructose syrup, and dextrose monohydrate.

## Process layout for glucose production



Two-effect AlfaVap plate evaporator system for dextrose and maltose.

accurate temperature control and, thus, high product quality.

“AlfaVap plate evaporators maintain a high thermal efficiency, even when dealing with viscous liquids. The temperatures can therefore be very low, resulting in a higher quality product. Pre-heating with plate heat exchangers contributes to considerable additional steam savings.”

### Compact design

According to Pornlert Thamkongka, president and owner of Thai Glucose Co., an important factor in the final decision to install AlfaVap plate evaporators was that they are extremely compact. “The complete plant was easily accommodated in the existing building, whereas for a traditional shell-and-tube evaporator, the roof would have had to be raised. Capacity can easily be increased by simply adding cassettes. This is also a major benefit compared to a traditional shell-and-tube evaporator.”

To increase the steam economy, Thai Glucose Co. also decided to add a third effect to the 2-effect AlfaVap system installed in 2002. At the same time, capacity was increased by 40%.

### Professional service

“After we bought the first AlfaVap system, we were satisfied with the professional service we received from Alfa Laval. This is very important in our business,” concludes Mr. Thamkongka.

### AlfaVap – tailor-made for evaporation



AlfaVap is equipped with two small inlet feed connections located centrally in the bottom of the frame plate, and large outlets for the vapour and concentrate at the top.

- There is one large inlet connection for the heating steam, and two small outlets for the condensate. AlfaVap uses the cassette concept with the plates welded in pairs.
- The heating steam is condensed in the welded channels while the evaporated product passes through the gasketed channels.

### How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at [www.alfalaval.com](http://www.alfalaval.com).