



On-Line Purity Analyser

Automatic purity analysing



SCHMIDT + HAENSCH

Opto-electronic measuring device since 1864

SCHMIDT+HAENSCH

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The first **analysis automat** for factory juices

Today's quality control of sugar products is mostly involving laboratory analysis. This causes a major amount of human work, is time consuming and results are available only after a certain time lag.

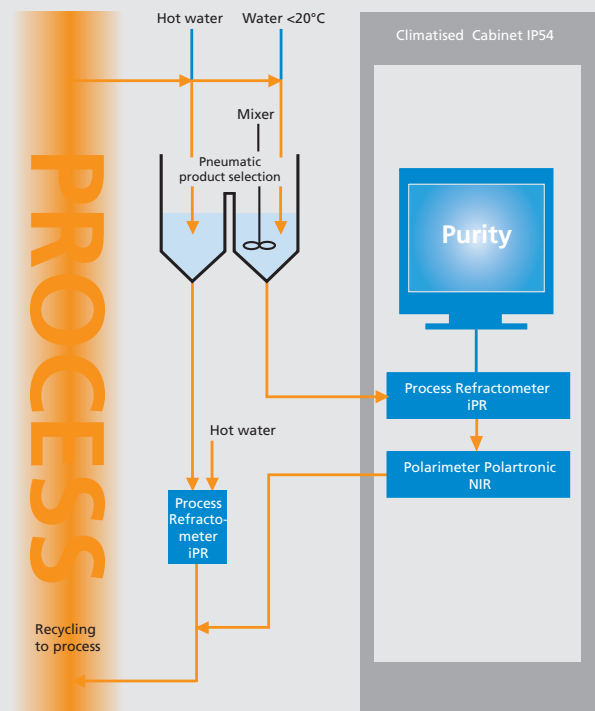
The automatic Purity Analyser of SCHMIDT+HAENSCH is the first system worldwide capable of online measurements of sugar factory juices.

Samples out of continuous sugar production will be taken via pipelines into the analyser and being measured in a 10 minutes cycle. Fully automatic and completely!

The Purity Analyser combines refractometric concentration measurements (Brix) with NIR polarimetry. Juices after purification such as thin and thick juice, mixed liquor, raw sugar run-off, white sugar feed syrup and others can be measured with the purity analyser.

The system consists of an air conditioned industrial splash proof rack, containing all sample preparation, a refractometer and an NIR polarimeter as well as the control PC. An additional process refractometer is provided outside of the system to measure dry substance content (Brix) of original juices.

The measured samples will be returned back to the factory pipeline system without any loss.





A proprietary automatic sample selection system allows up to 6 samples to be fed into the system. The factory juices to be analysed are selected by pneumatic means into the so called "reactor". At this stage the samples display a dry substance content of up to 80 Brix and a temperature of over 70°C. In the reactor the sample is automatically diluted with water to a ratio of 1:4 lowering its temperature at the same time.

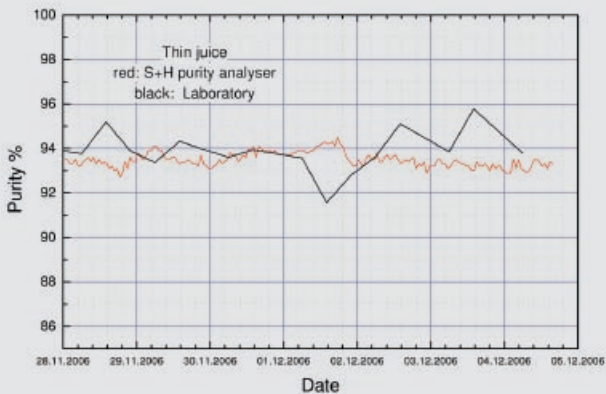
The liquid will then be pumped into the analyser rack. Refractometric and polarimetric measurements are then performed sequentially. For each sample the purity is calculated and all data together with original dry substance value is transmitted to the control room. Selection of special samples to be measured more often or a different measurement sequence is easily accessible by the systems control software.

The Purity Analyser is programmed to run automatic rinse cycles after each measurement. Subsequent "zero checks" after rinsing the system with water guarantee secure and reliable functioning of the analyser. Cleaning nozzles installed in front of each refractometer efficiently avoids a possible build up of contamination.

One of the most important advantages of the Purity Analyser is its narrow measuring grid. This results in a tight process control if the data is also transmitted to the control house.

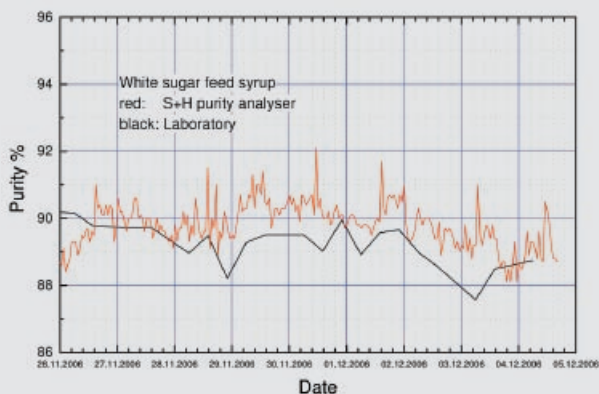
The graph below shows data for thin juice acquired over a week in comparison to manually gained laboratory data. As clearly seen the data of purity analyser displays a much more detailed picture while being more stable compared to manual data.

The automatic Purity Analyser opens up a huge range of revolutionary possibilities. And they are adaptable to your special needs. Ask us, together we can find out what we can do to improve your production process.



Purity is calculated according to **ICUMSA** methods book Method GS 5/7-1(1994) with density correction

$$\text{Purity \%} = (0.2607 - 0.00099 \cdot \text{Brix}) \text{ Pol} / \text{Brix} \cdot 100$$



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