

Polarimeter—Refractometer

Purity-Analyser

The Purity Analyser is the unique combination of a circle polarimeter or the SACCHAROMAT (sugar polarimeter) and a refractometer PURE-01 (or PURE-02) measuring head to measure the sugar content in %, Brix and in °Z and to calculate the purity of the sugar. The electronic unit of the polarimeter can control the two instruments and the values are displayed in the same display.



Calculation of %Pol and Purity

Polartronic or Saccharomat with PURE 01 or 02 Measuring Head

Two modes are available :

A : Schmitz table

B : Direct Method

A: Schmitz table

If the Polartronic or Saccharomat of SCHMIDT + HAENSCH is combined with the measuring head of the PURE 01/02, there is an option to evaluate the %Pol and the Purity directly. It is both possible to show the values on the display and to print them out.

The calculation of the %Pol follows the data given by the ICUMSA in the SCHMITZ table (see ICUMSA Methods Book, Method GS 5/7-1(1994)). The values in that table are approximated by the formula

$$\%Pol = (\text{Factor1} - \text{Factor2} \cdot \text{Brix}) \cdot \text{Pol}$$

and the purity is defined as

$$\text{Purity} = \% \text{Pol} / \text{Brix} \cdot 100.0$$

The program calculates the %Pol and Purity continuously using the actual polarimetric and refractometric values. The units are „%Pol“ and „%“, respectively. There will be an error code 5, if the values of the Polarimeter (in °Z) and the Refractometer (in Brix) are outside the following validity ranges:

$$\begin{aligned} 1.0 < \text{°Z} < 110.0 \\ 1.0 < \text{Brix} < 28.5 \\ 0.06 < \text{°Z} / \text{Brix} < 4.5 \end{aligned}$$

B: Direct Method

If you are interested in the purity determination of an already prepared sugar solution then it is possible to use this menu position to determine the purity of the sample.

How to proceed:

Prepare a solution with your sugar material.
then dilute the sample down to a normal sugar solution; that means: weigh out 26 g sugar solution into a measuring flask and fill up with distilled water to 100ml
Measure the Brix value of your original sugar solution on a refractometer
fill the diluted solution into a polarimeter tube and start the measurement
the instrument will then calculate the purity in % and display.

The Purity is defined as

$$\text{Purity} = \text{°Z} / \text{Brix} \cdot 100.0$$

The program calculates the Purity continuously using the actual polarimetric and refractometric values. The unit is „%“.

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