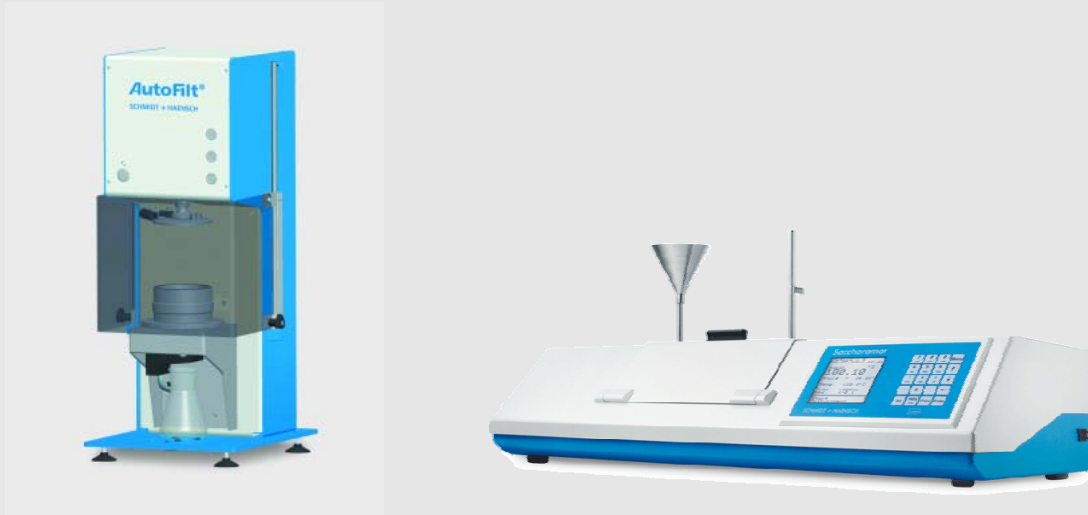


NIR Polarimetry

Analysis of dark samples without lead clarification



The standard versions of our polarimeter work at 589 nm wavelength. Sugar polarimeter are also available as NIR (882 nm) or so-called NIRW2 (589 and 882 nm) models.

The advantage of the NIR instruments being that **samples, if thoroughly filtered**, do not have to be clarified. At NIR wavelength, highly absorbant samples may also be measured easily.

NIR polarimetry was developed in co-operation between the PTB, several sugar institutes and Schmidt+Haensch.

NIR method is accepted by ICUMSA since 1998 (ICUMSA method GS1/2/3-2).

Sample Preparation

For easy and fast filtration of turbid and high coloured samples Schmidt+Haensch has developed an Automatic Filtration System, the

Autofilt Z^{unleaded}.

- Weigh out accurately 26.000 ± 0.002 g of the sugar in a 100 ml volumetric flask
- Add distilled water to 100 ml
- Allow to stand for at least 10 min to attain room temperature

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- Add filter acid to the sample solution
- Filter the sample by using Schmidt+Hanesch's Autofilt Z
- Fill the filtrate in polarimeter tube and measure in a polarimeter at 882 nm

Filtration parameters depending on the sample:

Parameter	Sugar beet (direct juice from beet mash)	Sugar beet (factory juice)	Sugar cane (Direct juice from Sugar cane)
Sample volume	200 ml	200 ml	200 ml
Filtration pressure	1,5 bar	< 1,0 bar	1,5 bar
Celite type	Porosil mp	Celite 512 (pore size 5 µm)	Porosil mp
Celite quantity (¹)	15g	15 g	15g
Filter type	3030 – 153 / 3MMCHR (²)	Whatman 910	3030 – 153 / 3MMCHR
Number of filters	1	1 - 2	1

Advantages:

- **Environment-friendly, lead-free sample preparation of first pressed juice (sugar beets and sugar canes)**
- **Reduction of sample preparation to 1/10 of time**



Left: original dark solution
Center: lead clarified sample
Right: celite filtrated sample in Autofilt

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