

Modular Circular Saccharimeters

MCP 5300 | 5500 Sucromat



Circular saccharimeters for high-quality sugar analysis



THE TWO OF US

MCP 5300 Sucromat

MCP 5500 Sucromat

Long-life LED light source

Standard wavelength 589 nm (Sodium D Line), 880 nm (optional)

Accuracy

0.01 °Z over the entire
measuring range of ± 259 °Z

0.006 °Z over the entire
measuring range of ± 259 °Z

Built-in cell temperature sensor with wireless data transfer

Wireless Toolmaster™ technology
(Automatic identification of sample cell and quartz control plate)

Full compliance with ICUMSA and other international standards
of the sugar industry

Options

(Can be retrofitted at any time, during purchase, or later)

Multi-wavelength option with 880 nm

Automatic Peltier temperature control in the range from 20 °C to 25 °C

FillingCheck™: A built-in camera shows a real image of the inside of the cell

Wide variety of applications



Starch



Sugar



Food flavors



Soft matter



Reliable partner for the sugar industry

The MCP Sucromat series provides a range of high-quality saccharimeters for the sugar industry and sugar institutes. The reliability of MCP Sucromat is appreciated by users in reception labs and payment analysis, quality control, and official institutions around the world. Anton Paar is renowned for its high-quality instruments, which are realized with a passion for precision, a love of science, and a shared enthusiasm every step of the way. With Anton Paar's global sales and service network, you have a reliable partner close to you for after-sales service and application support.

Modular to grow with your requirements

Your investment in an MCP Sucromat saccharimeter is secure, no matter which measurements you will face in the future. All the MCP Sucromat models can be upgraded to fit new or changed requirements, e.g., to add the second official ICUMSA wavelength of 880 nm for the analysis of samples clarified lead-free. Due to the use of high-intensity, but nonetheless long-life LEDs, the measurement of strongly colored filtrates is possible up to an unrivaled Optical Density. A fast and accurate Peltier temperature module for the temperature management of the sample can be added to the instrument during the purchasing process or later on. This makes temperature control possible in the range from 20 °C to 25 °C. Thus, the MCP Sucromat series is well-equipped for beet and cane sugar analysis in the reception laboratory as well as in the quality control laboratory.

100 % ICUMSA compliance

All MCP Sucromat saccharimeters provide the accuracy prescribed by the official ICUMSA methods and other national and international standards (e.g., OIML and Australian standard K157).

MCP Sucromats:

The most precise determination of sugar content



The right color

The MCP 5300/5500 Sucromats are single-wavelength saccharimeters, which measure at 589 nm (Sodium D line). Optionally, they can be equipped with the second official ICUMSA wavelength of 880 nm for the analysis of samples with high light absorbency, e.g., lead-free clarified samples, raw sugar, and other sugar products. For the highest light intensity and a long lifetime, these wavelengths are supported by LED light sources.

Automatic temperature control

Anton Paar's highly precise temperature measurement with an accuracy of up to 0.03 °C is the basis for accurate results and short measuring times. Moreover, the optionally available Peltier temperature control provides homogeneous temperature distribution inside the measuring cell. This ensures a stable reference temperature, which is the basis for all temperature-controlled measurements for quality control applications.

Toolmaster™ technology

The Toolmaster™ technology automatically recognizes exchanged sample cells and quartz plates within seconds – not only saving time but also preventing errors. Cell and quartz plate data, as well as temperature values, are quickly and securely transferred to the MCP Sucromat. This provides traceable documentation of the measurements.

Full ICUMSA compliance

All MCP Sucromats comply with the official ICUMSA methods as well as further national and international standards (e.g., OIML and Australian standard K157). Other scales such as the °Z International Sugar Scale (with and without temperature compensation), %Sucrose, %Glucose, %Purity, and °Optical rotation are integrated as standard.

Solid, stable, strong

The MCP Sucromat's optical bench is the base on which all optical components are mounted. It is machined from one solid block of aluminum and fixed on flexible mounts. This is the reason why it never bends, twists, or deforms. Sensitive optical and electronic components, like the interference filters, analyzer, hollow-shaft encoder, and photodiode, are located in a sealed housing, which is resistant to dust and spillage.

Built-in trust in the results

Filling errors will strongly influence the measurement result, so it must be ensured that the sample is homogeneously distributed inside the cell to provide correct measurements and full traceability of the results. To meet this goal, the FillingCheck™ camera gives you a real-time image of the sample in the cell during and after filling. Each filling process can therefore be monitored and photographed.



For efficient purity analysis

Combining an MCP Sucromat for determining sugar content (Pol, °Z) with Anton Paar's Abbe-mat refractometer for measuring dry substance (°Brix) results in a system, which can significantly enhance sugar factories' performance. The raw, intermediate, and final products of sugar manufacturing can be analyzed for sugar content (Pol, °Z), dry substance (°Brix), and apparent purity, all in one cycle. Lead-clarified, lead-free clarified, or non-clarified samples can be measured.

Top features

- Connection of MCP Sucromat and Abbe-mat
- Automatic calculation of % apparent purity
- All data is shown on the MCP Sucromat screen and recorded in one report

Applications

- Payment analysis at the cane reception laboratory (commercial cane sugar, CCS)
- Apparent purity measurement in the factory control laboratory

For automated laboratory analysis

An MCP Sucromat can be integrated into Betalyser, a complete sugar analysis system. Beet samples can be measured at a sample rate of 120 samples per hour in compliance with the latest ICUMSA standards.

Top features

- Calculation of sugar yield and sugar molasses loss
- Measurement of lead- and aluminum-clarified samples
- Compliance with ICUMSA GS6-1, GS6-3, GS6-5, and GS6-7

Applications

- Quality control of sugar beet at the beet reception laboratory
- Determination of sugar, sodium, potassium, α-amino nitrogen (α-N), and (optionally) glucose



	MCP 5300 Sucromat	MCP 5500 Sucromat
Measuring range	±259 °Z (±89.9 °OR)	±259 °Z (±89.9 °OR)
Resolution	0.001 °OR	0.001 °OR
Accuracy*	±0.003 °OR ±0.01 °Z	<0.002 °OR <0.006 °Z
Repeatability	±0.003 °OR ±0.01 °Z	±0.001 °OR ±0.003 °Z
Response time	12 seconds	15 seconds
Wavelengths	589 nm and optionally 880 nm	
Light source	LED light source with a lifetime of 100,000 hours	
Sensitivity	Optical Density (OD) of 4.0, equivalent to OD 7.0 at 880 nm	

Temperature control and measurement		
Sensor	PT100 sensor for sample temperature measurement inside the cell or quartz control plate; wireless transfer to the instrument	
Resolution	0.1 °C	0.1 °C
Accuracy**	±0.1 °C	±0.1 °C
Temperature control range (optional Peltier temperature control)	20 °C and 25 °C	

Dimensions, power requirements, interfaces	
Dimensions (L x W x H)	797 mm x 437 mm x 231 mm
Weight	33.5 kg
Power management	Power supply self-adapting to any mains voltage, 100 VAC to 240 VAC, 50/60 Hz
Power consumption	185 VA
Interfaces	4 USB, RS232, Ethernet, VGA, CAN bus. Connection of keyboard, mouse, printer, bar code reader, and networks.

Accessories	
Sample cells	ToolMaster™: Wireless automatic identification of sample cells via RFID, sample cell path length from 2.5 mm to 200 mm
Quartz control plates	Automatic identification of the quartz control plate and automated wireless transfer or reference parameters into the instrument

Features		
Peltier	○	○
Toolmaster™ wireless	●	●
FillingCheck™	○	○
Air pump	○	○
Multi-wavelength options (880 nm)	○	○
VNC module	○	○

○ not available | ○ partly available | ● standard
* Under physical standard conditions | ** With Peltier module and Toolmaster™ sample cell (50/100/200 mm)

