

Hall Effect Characterization System (HCS1, LINSEIS, Messgeräte GmbH)

The Hall Characterization System use the Van-der Pauw technique and is designed to measure the temperature dependent electrical transport properties of bulk and thin film samples.

Resistivity

Conductivity

Sheet resistance

Hall constant

Charge carrier concentration

Hall mobility



- Magnetic flux density – up to 0.7 T;
- Hall tension 1 μ V-2.5 V;
- Resistivity range 10^{-4} up to 10^7 (Ohm/cm);
- Carrier density 10^7 up to 10^{21} ($1/\text{cm}^3$);
- Mobility range 1 up to 10^7 ($\text{cm}^2/\text{Volt sec}$).

Drop Shape Analyzer DSA30

Operates in two modes: pendant drop and sessile drop.

- enables measuring the static and dynamic contact angle from 0 ° to 180 ° (resolution 0.01 °)
- calculation of free surface energy and surface tension of liquids
- suitable for comprehensive analysis of solids and liquids in wetting and coating processes.



- ❑ Equipped with a software controlled drop dosing system (dosing speed 10-900 μl / min, resolution of 0.1 μl)
- ❑ Set of needles (diameter of 0.5 mm, 0.7 mm, 1.0 mm, 1.8 mm and 2.0 mm)
- ❑ Optical system with 6X optical zoom
- ❑ Video camera for capturing images
- ❑ LED monochromatic lighting system
- ❑ Operating temperature - room

A ball mill PULVERISETTE 23 for dry and wet grinding of solid particles



To avoid unwanted contamination of the sample by abrasion, the mill has two different types of grinding bowls and grinding balls:

- ZrO_2 grinding bowl 15ml
- Stainless steel grinding bowl 15 ml

Cary 7000 Universal Measurement Spectrophotometer (UMS)



- Spectral range: from 175 nm to 3300 nm
- Wavelength accuracy: 0.08 nm in VIS and 0.4 nm in NIR range
- Spectral resolution: UV-VIS: <0.048 nm; NIR: <0.2 nm
- Photometric range 10 Abs
- Photometric accuracy at 0.3 Abs: <0.00025 Abs
- Maximum scan rate: UV-Vis 2000 nm/min; NIR 8000 nm/min;



Samples: coatings, thin films, optical components, solar cells, glass etc.

Equipped with Peltier controlled cuvette holder (0-100°C)

Equipped with external diffuse reflectance sphere 150 mm

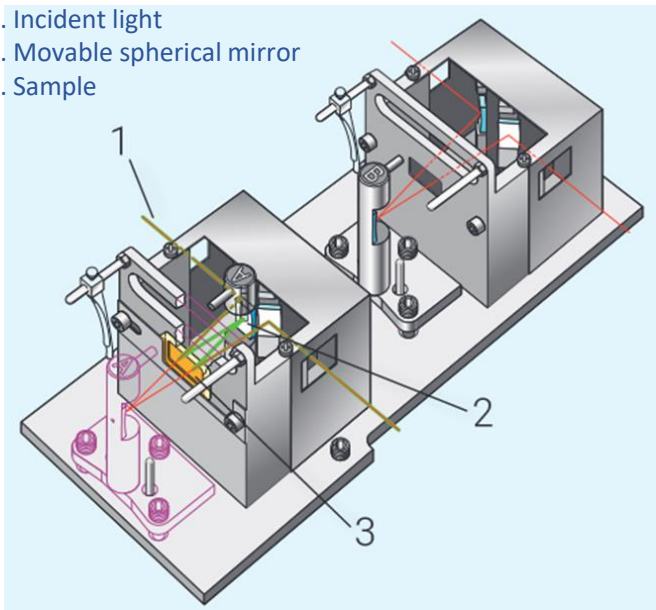
Enables measurement of big samples with diameter up to 275 mm (10.8 in)

It has a unique accessory , the so-called UMA (Universal Measurement Accessory), which enables measurements of direct and diffuse transmission and reflection in the spectral range of 250-2500 nm at angles from 5 to 85° without moving the sample.

VW Absolute Specular Reflectance Accessory for Cary 7000



1. Incident light
2. Movable spherical mirror
3. Sample



The VW SRA optical design provides the functionality for:

- Real time comparison of coated and uncoated substrates
- Reflectance, transmittance, and absorptance measurements of nonscattering transparent materials, without touching the sample
- Transmittance measurements of highly transparent films, using a double pass through the sample when in the “V” measurement position
- Single bounce reflectance measurement configuration for extreme antireflection coatings ($< 0.1 \%R$)

VW Absolute Specular Reflectance Accessory for measuring specular reflection when unpolarized light falls at normal incidence (i.e. at an angle of incidence below 10 degrees) and in the entire spectral range - from the UV region to the near infrared region without the need for a reference mirror.