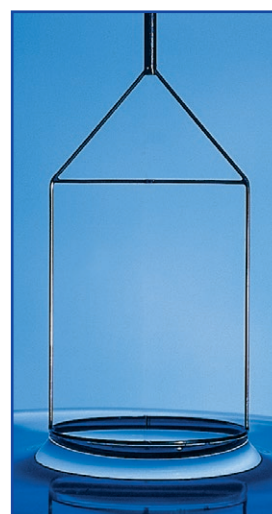
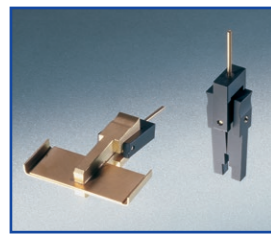


DCAT 11

Dynamic contact angle measuring instrument and tensiometer

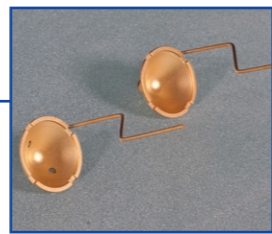




FO 11 — PSH 11



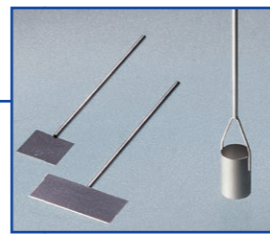
DIS 11 — RG 11 — RG 10



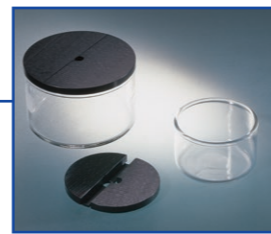
DSS 11 — DSS 12



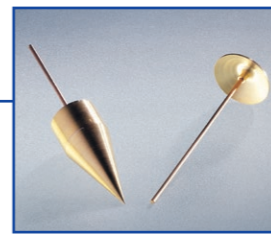
FH 11 — PUR 11



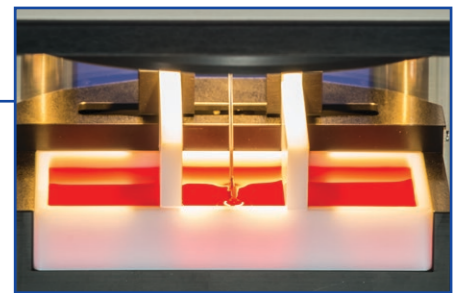
PT 9 — PT 11 — PT 9



GS 70/CP 70 — CP 50 — GS 50



PP 11 — SC 11

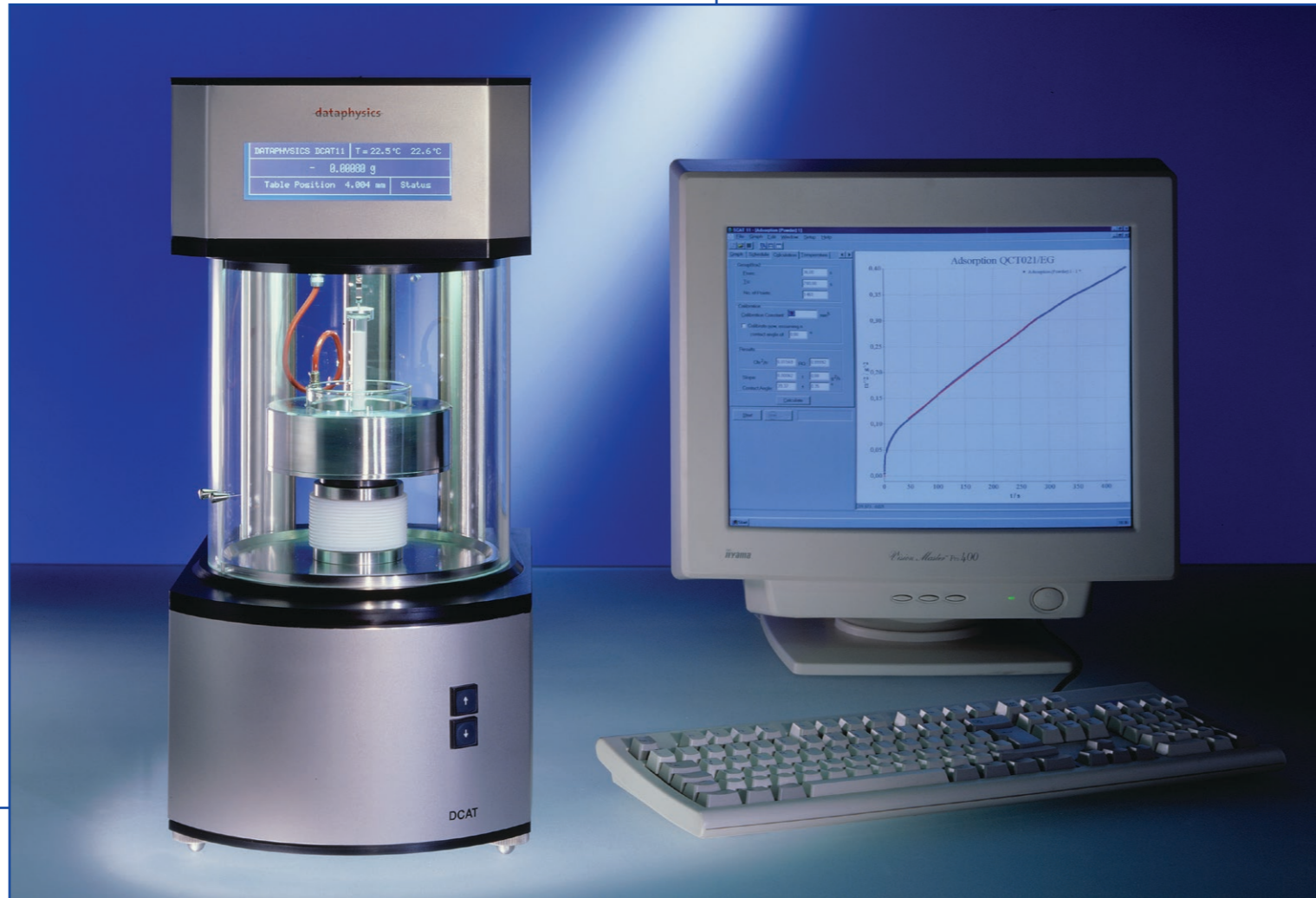


TLT — temperature controlled Langmuir trough

The dynamic contact angle measuring instrument and tensiometer DCAT 11 is the standard instrument for the weight-based measurement of contact angle, surface and interfacial tension, critical micelle formation concentration, density, sedimentation and penetration rate, plus penetration resistance.

Standard components

- high-precision electrodynamic compensation weighing system with automatic calibration
- software controlled, motor-driven height positioning of the sample receptacles with variable speed
- automatic electronic coupling lock for the balance
- integrated measurement and control electronics with connections for two Pt 100 temperature sensors
- display for weighing data, temperature and other information
- illuminated sample chamber with inert gas or vapor inlet



DCAT 11 with accessories kit for measurements of powder samples PUR 11



LDU 2/2 dosing system for measuring CMCs in standard and reversed mode

Accessories and measuring bodies

- liquid temperature control unit with integrated magnetic stirrer and Pt100 probe; optional available as a non-magnetic version with a removable microelectronic stirrer
- automatic dosing and refill system
- sample vessels made of glass and PTFE as well as cover plates
- wide range of measuring bodies like Du Noüy-rings, Wilhelmy- and cylindrical plates, density determination sets for liquids and solids, sedimentation cone, and penetration probe
- sample holders for single fibers, fiber bundles, plates, films, pigments and powders
- temperature controlled Langmuir trough

Software for control, measurement, analysis and presentation

The SCAT software, developed for Windows® 7/8, is available in various discrete usable modules. Every software module includes the control of the DCAT and its accessories, the measurement, the analysis, and the presentation of the results, as well as the access to the gas-, liquids- and solids data base.

SCAT 31

- measurement of the static, time- and temperature-dependent surface and interfacial tensions according to the Du Noüy-ring method, the Wilhelmy plate and the wire hoop method
- lamella breakpoint test to determine the surface elasticity
- automatic ring corrections according to

Zuidema & Waters, Mason & Huh and Harkins & Jordan

SCAT 32

- force-based measurement of the dynamic contact angle of prismatic and cylindrical solids (e.g. plates, films, rods and single fibers) as well as the wetted length according to the Wilhelmy method
- adsorption measurement on powders and fiber bundles with the determination of the average contact angle according to the modified and the extended Washburn method
- analysis of the surface free energy of solids as well as their components (e.g. dispersive, polar and hydrogen bond parts, acid and base portions, respectively) according to nine different theories
- calculation of work of adhesion

SCAT 33

- fully automatic determination of the critical micelle formation concentration (CMC) of surfactants in forward, reversed and extended mode
- calculation of the minimum surface tension in case of synergistic effects of surfactant mixtures
- calculation of the space required by molecules on the surface
- calculation of the free adsorption energy after Gibbs
- calculation of the surface excess
- automatic control of the dosing devices LDU x/x for additive and subtractive dosing

SCAT 34

- determination of the density of liquids

SCAT 35

- determination of the sedimentation rate
- measuring of the yield forces on soft gels, pastes etc.
- measuring of the penetration resistance and penetration rate

SCAT 36

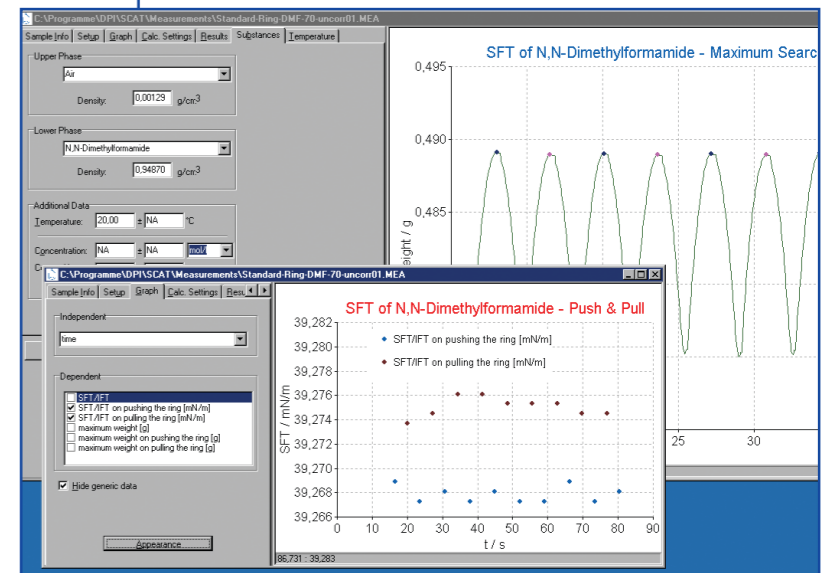
- determination of the density of solids with the optional available density determination set DSS 11 / 12

SCAT 37

- determination of the contact lamella detachment force from molten toner or molten polymer from solid surfaces in combination with the optional available RG 10 VS

SCAT 38

- determination of the surface pressure of a monolayer during its compression and relaxation in the TLT.
- kinetic measurements under isobaric or isochoric conditions to analyse dynamic processes in a monolayer in the TLT
- temperature control of the TLT



SCAT 31 – measuring the surface tension with a ring

Technical data

Measuring range for contact angles:	• 0 ... 180°; ± 0.01° resolution
Measuring range for surface and interfacial tensions:	• 1 ... 1000 mN/m; ± 0.001 mN/m resolution
Measuring range for densities:	• 0.50 ... 2.50 g/cm ³ ; ± 0.002 g/cm ³ resolution
Weighing range:	• 10 µg ... 210 g
Measuring value range:	• up to 50 weighing values per second
Travel speed of sample table:	• 0.7 µm/s ... 500 mm/min
Programmable travel for sample table:	• 74 mm
Travel resolution:	• 0.1 µm
Receiver for sample receptacles:	• optional 50 mm, 70 mm, or 100 mm diameter (TV 50 / 70 / 100)
Display for status, weight, and temperature:	• integrated
Self-check and system diagnostics:	• integrated
Automatic stirrer for CMC measurements:	• magnetic stirrer integrated in TV 50 / 70 / 100; (optional non-magnetic version TV 70-NM with a removable microelectronic stirrer system)
Temperature range:	• -10...130 °C with optional refrigerated and heating circulator • integrated temperature measurement and digital display
Temperature measurement and range:	• 2 x Pt 100 inputs for -60...+450 °C (Pt 100 as option); ± 0.01 K resolution; precision 1/3 DIN IEC 751 (±0.03%), Class B
Dimensions (L x W x H):	• 340 x 230 x 500 mm
Weight:	• 23 kg
Power supply:	• 100 ... 240 VAC; 50 ... 60 Hz; 55 W

Standards

The high degree of accuracy of the DCAT 21 complies with all related international standards, for example:

- **ISO 6295** Determination of interfacial tension of oil against water
- **ISO 6889** Surface active agents - determination of interfacial tension by drawing up liquid films
- **ASTM D971-99a** Standard test method for interfacial tension of oil against water by the ring method
- **ASTM D1417-03a** Standard method of testing rubber latices - synthetic
- **DIN EN 14210** Surface active substances; determination of interfacial tension of surface active solutions by frame and ring method

Accessories

- liquid temperature control unit for sample vessels with diameters of 50 mm (**TV 50**), 70 mm (**TV 70**), and 100 mm (**TV 100**) with integrated magnetic stirrer and Pt100 probe; available as a non-magnetic version **TV 70NM** with a removable microelectronic stirrer
- automatic dosing and refill system **LDU xx**
- sample vessels made of glass **GS xx** and PTFE **GS xxP** as well as cover plates **CP xx**
- sample vessel with inert gas connector **GTR 70**
- Du Noüy-rings **RG 11**, **RG 10** and **RG 2**
- Aligning tool **R-AT**
- Wilhelmy plate **PT 11** and **PT 9**
- cylindrical plate **PT 10**
- density determination set **DIS 11**
- density determination set for solids **DIS 11/12**
- sedimentation cone **SC 11**
- penetration probe **PP 11**
- kit for measurement of powder samples **PUR 11**
- single fibre holder **FH 12** and **FH 13**
- holder for powders, pigments, fibers and fiber bundles **FH 11**
- plate holder **PSH 11**
- film holder **FO 11**
- glue for FH 12 and FH 13 **Glue FH 12**
- filter papers for PUR 11 **FP 11** and FH 11 **FP 12**

For more information about a tailor-made solution to your surface chemistry requirements, please contact us.
We will be pleased to provide a quotation, obligation free, for your instrument system.

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