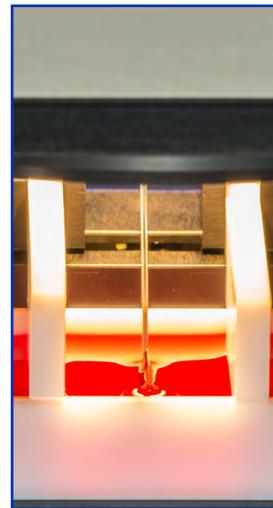
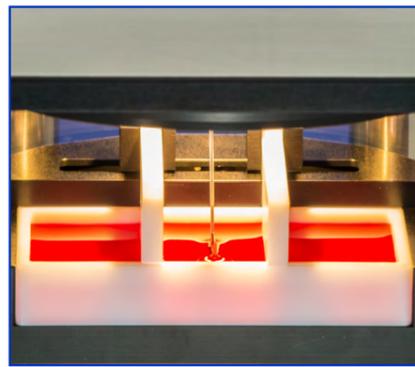


DCAT 21

The multifunctional dynamic contact angle measuring instrument and tensiometer

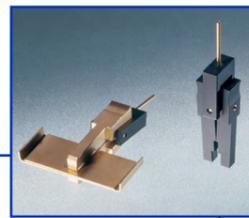




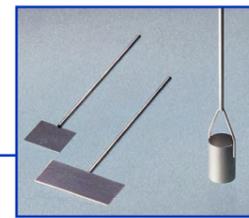
Langmuir trough module LTM with Langmuir trough LT-S



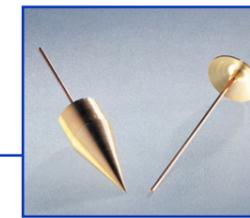
holders for fibre bundles FH 11 and powders PUR 11



film holder FO 11 and plate holder PSH 11



Wilhelmy plates PT 11/9 and cylindrical plate PT 10

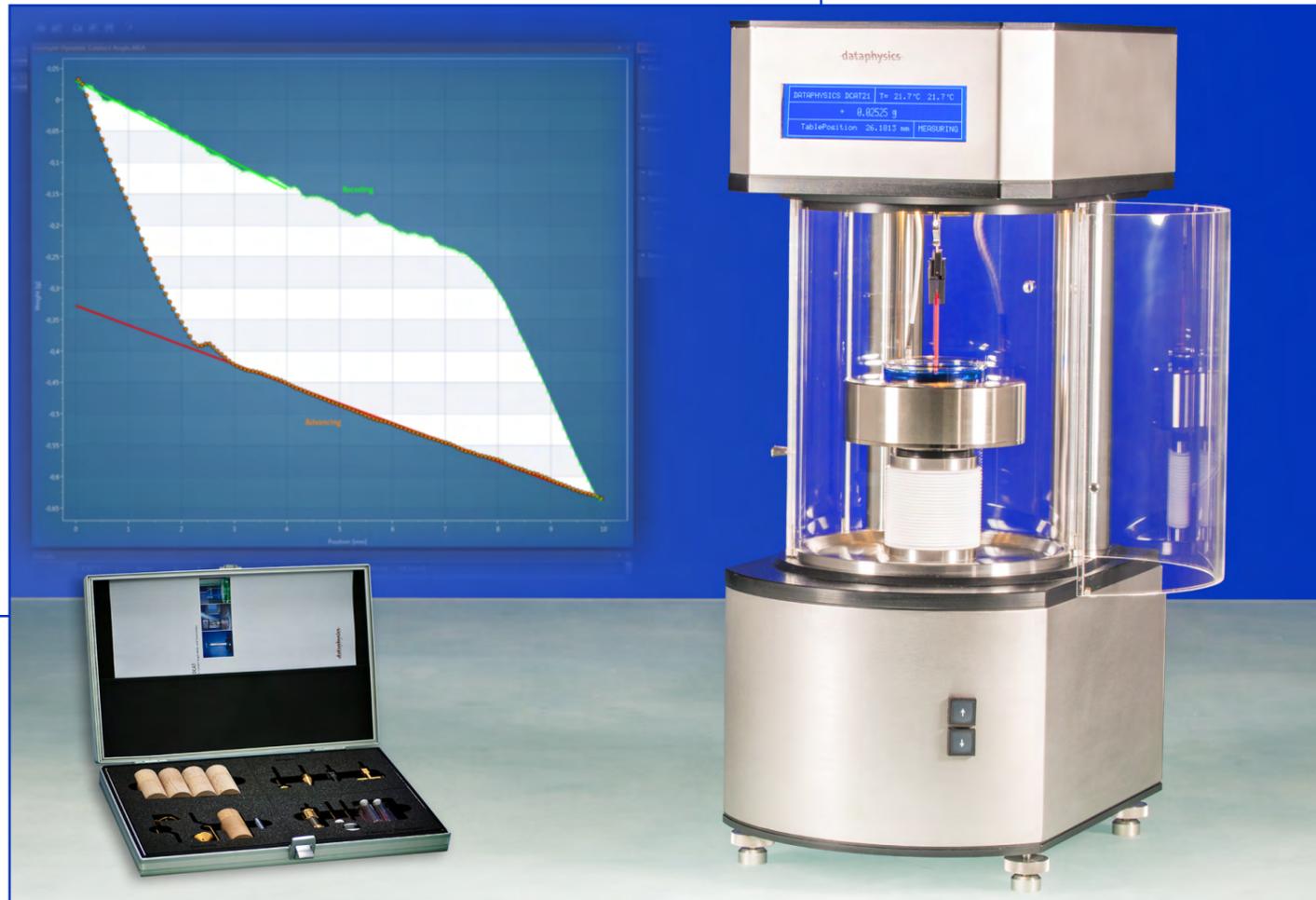


penetration probe PP 11 and sedimentation cone SC 11



temperature control unit TEC 250/DCAT with accessories

The dynamic contact angle measuring instrument and tensiometer **DCAT 21** is the multifunctional instrument for the weight-based measurement of contact angle, surface and interfacial tension, critical micelle formation concentration, density, sedimentation, penetration, adhesive force and surface pressure.



DCAT 21 with accessories case

Main features of the DCAT 21

- high-precision electrodynamic compensation weighing system with automatic calibration
- software controlled, motor-driven height positioning of the sample receptacles with variable speed
- automatic coupling lock for the balance
- illuminated sample chamber with inert gas or vapor inlet
- integrated magnetic stirrer
- digital thermometer with connections for two Pt 100 temperature sensors
- expandable with special accessories like video system and Langmuir through module



Upgrade video system UpVideo DCAT



density determination set for solids DSS 11/12



density determination set DIS 11 and Du Noüy rings RG 11/10

Software for efficient work

The newly developed, Windows® based, **DCATSoftware** is available in various discretely usable modules, and is operable traditionally, using mouse and keyboard, or on multi-touch notebooks/pads by finger/pen. The available software modules for the DCAT 21 are:

DCATS 31 — surface/interfacial tension

- determination of the surface and interfacial tension according to the Du Noüy ring and the Wilhelmy plate method

DCATS 32 — dynamic contact angle

- determination of the dynamic contact angle of solids (e.g. plates, films, rods and fibres)
- sorption measurements on powders and fibre bundles
- analysis of the surface free energy of solids as well as its components according to nine different theories

DCATS 33 — CMC

- automated determination of the critical micelle formation concentration (CMC) of surfactants, using the dosing unit LDU x/x for additive and subtractive dosing

DCATS 34 — liquid density

- determination of the density of liquids

DCATS 35 — sedimentation/penetration

- determination of the sedimentation rate, yield forces, the penetration resistance and rate

DCATS 36 — solid density

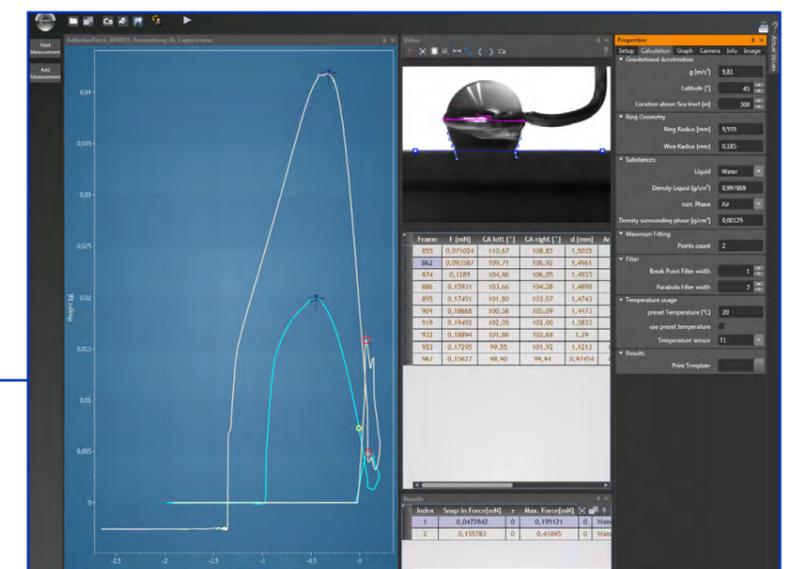
- determination of the density of solids

DCATS 37 — adhesive force

- measurement of force-distance diagrams during pressing on and pulling off of liquid drops on solid surfaces for adhesion analysis
- image processing (contact angle, contact area, etc.) of video sequences correlated with the measurement (optional Up-Video DCAT required)

DCATS 38 — surface pressure

- determination of the surface pressure of a monolayer during its compression and relaxation in the Langmuir trough module LTM
- kinetic measurements under isobaric or isochoric conditions to analyse dynamic processes in a monolayer in the LTM
- interfacial rheological analysis of viscoelastic monolayers in the LTM



DCATS 37 — determination of the adhesive force

Technical data

Measuring range for surface and interfacial tensions:	• 1 ... 2000 mN/m; ± 0.001 mN/m resolution
Measuring range for contact angles:	• 0 ... 180°; $\pm 0.01^\circ$ resolution
Measuring range for densities:	• 0.50 ... 2.50 g/cm ³ ; ± 0.002 g/cm ³ resolution
Weighing range:	• 10 μ g... 210 g
Measuring value range:	• up to 50 weighing values per second
Traversing range and speed for sample table:	• 105 mm • 0.7 μ m/s ... 500 mm/s
Travel resolution:	• 0.1 μ m
Balance calibration:	• automatic internal
Automatic stirrer:	• integrated, software controlled
Temperature measurement and range:	• -10 ... 130 °C (liquid temperature control unit TV xx) • room temperature ... 250 °C (temperature control unit TEC 250/DCAT) • 2 x Pt 100 inputs for -60 ... +450 °C (Pt 100 as option); ± 0.01 K resolution; precision 1/3 DIN IEC 751 ($\pm 0.03\%$), Class B
Dimensions (L x W x H):	• 340 x 230 x 565 mm
Weight:	• 25 kg
Power supply:	• 100 ... 240 VAC; 50 ... 60 Hz; 70 W

Standards

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

- **ISO 6295** Petroleum products -- Mineral oils -- Determination of interfacial tension of oil against water -- Ring method
- **ISO 6889** Surface active agents; Determination of interfacial tension by drawing up liquid films
- **ASTM D971** Standard Test Method for Interfacial Tension of Oil Against Water by the Ring Method
- **ASTM D1417** Standard Test Methods for Rubber Latices-Synthetic
- **DIN EN 14210** Surface active agents - Determination of interfacial tension of solutions of surface active agents by the stirrup or ring method
- **ASTM D1331** Standard Test Methods for Surface and Interfacial Tension of Solutions of Paints, Solvents, Solutions of Surface-Active Agents, and Related Materials
- **ISO 304** Surface active agents; Determination of surface tension by drawing up liquid films
- **DIN ISO 1409** Plastics/rubber - Polymer dispersions and rubber latices (natural and synthetic) - Determination of surface tension by the ring method
- **OECD 115** OECD Guidelines for the Testing of Chemicals: Surface Tension of Aqueous Solutions

Accessories (excerpt)

liquid temperature control unit for sample vessels with diameters of 50 mm (**TV 50**) and 70 mm (**TV 70**) with integrated 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** • Du Noüy rings **RG 11/10** • Aligning tool **R-AT** • Wilhelmy plates **PT 11/9** • cylindrical plate **PT 10** • density determination set for liquids **DIS 11** • density determination set for solids **DSS 11/12** • sedimentation cone **SC 11** • penetration probe **PP 11** • kit for measurement of powder samples **PUR 11** • holder for powders, pigments, fibres and fibre bundles **FH 11** • single fibre holder **FH 12** and **FH 13** • plate holder **PSH 11** • film holder **FO 11** • filter papers for PUR 11 **FP 11** and FH 11 **FP 12** • glue for FH 12 and FH 13 **Glue FH 12** • Langmuir trough module **LTM** • Langmuir troughs **LT-S/LT-I** • Upgrade video system **UpVideo DCAT**

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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