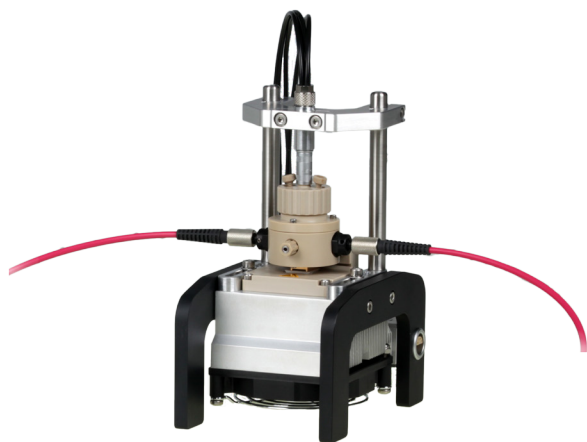


TSC spectro

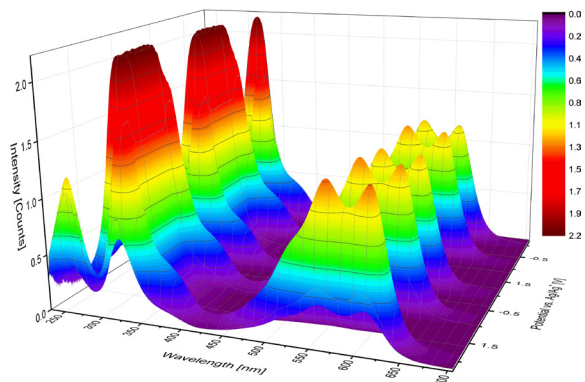
For combined electrochemical and spectroscopic studies



- Gold or platinum mesh electrode.
- Variable slit length: 1.4 mm to the thickness of the mesh electrode.
- Sample volume 0.5 to 2.0 mL depending on counter electrode. Standard: 2 mL.
- Wavelengths: 200 to 2500 nm

Selected applications:

- Spectroelectrochemistry: combined electrochemical (e.g. CV) and spectroscopic (UV/Vis, transmission mode) studies of dyes.



UV/Vis spectra recorded during spectroelectrochemical investigation of TMPD dissolved in 0.25 mol/l Bu₄NPF₆ in acetonitrile using measuring cell TSC spectro. The potentials depicted on the y-axis mark the vertex potentials in the CV.

rhd instruments is committed to supporting electrochemists and material scientists around the globe by designing and producing high-quality measuring setups for electrochemical material characterization with temperature control.

Liquid, gel-like, polymeric and solid samples can be investigated as well as heterogeneous samples, like half and full cells of lithium batteries containing components of different aggregation states. In all cases, a very small amount of sample, in some cases only few milligrams, is required. Due to this small sample amount and modern Peltier technique, the temperature can be adjusted precisely to the desired value within a very short time.

The combination with METROHM's high-quality measuring devices provides the user with the unique opportunity of embedding temperature control in almost fully automated electrochemical material characterization and can be seen as a turn key system.

For questions, quotes and orders, please contact us:

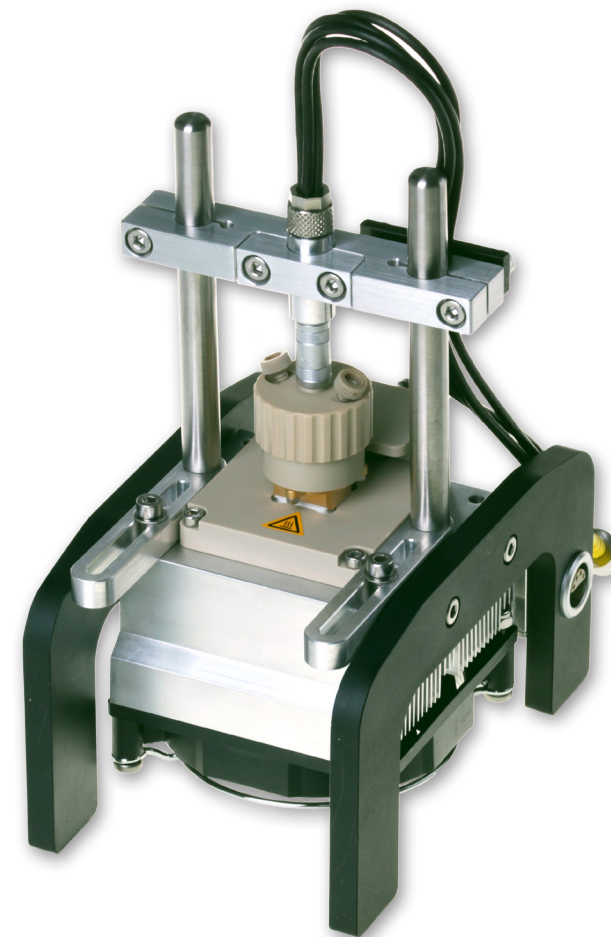
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Otto-Hesse-Straße 19
64293 Darmstadt
Germany

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T +49 6151 8707187
www.rhd-instruments.de

Microcell HC

Low volume electrochemistry with temperature control.

A flexible setup for versatile applications.

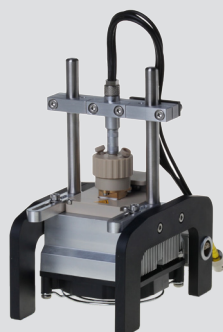
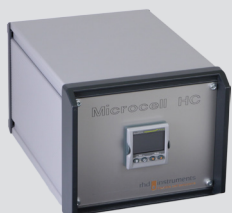


flexible cell solutions for your electrochemical research

rhd instruments
flexible cell solutions

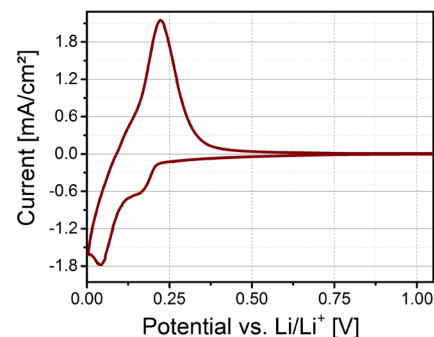
Main Features:

- Modular and flexible concept: easy and quick switchover between measuring cells for different applications.
- Large temperature range from -40 °C to +100 °C (depending on samples' mass and ambient conditions).
- Precise temperature control with tolerance of 0.1 °C.
- Fast temperature ramps up to 60 °C/min.
- Measurement of air- and/or moisture-sensitive samples (inside and outside a glove-box!).
- Small sample volumes of min. 70 µL to max. 1.6 mL (depending on measuring cell).
- Compatible to all major brands' electrochemical measuring devices.
- Turn key system and fully-automated measurements with METROHM Autolab devices.



TSC battery

For study of (lithium ion) batteries and other solid, gel-like, polymeric or heterogeneous samples

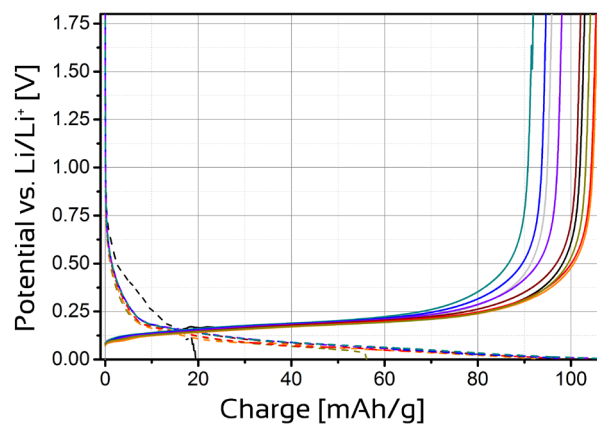


Cyclic voltammogram of a graphite half cell using measuring cell TSC battery.

- Reproducible pressure adjustment.
- Assembly of full and half cells.
- 2- and 3-electrode configuration.
- Preparation of lithium electrodes directly from foil by simple punching.

Selected applications:

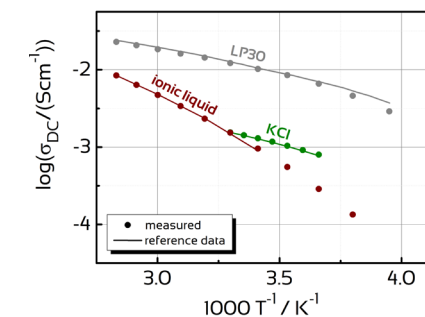
- Battery cycling.
- Investigation of separator foils (MacMullin number).
- Determination of transfer numbers.



Charge-discharge curves of a graphite half cell using measuring cell TSC battery.

TSC 1600 closed

For liquid samples



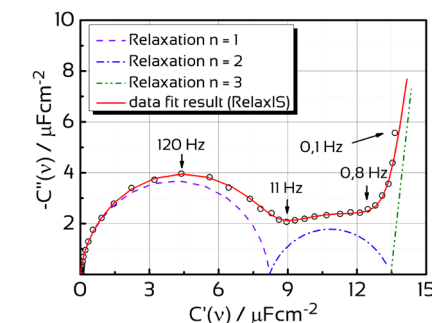
Temperature dependent dc-ion conductivity data of three different electrolytes depicted as Arrhenius plot using measuring cell TSC 1600 closed.

Selected applications:

- Fully automated determination of the temperature dependent dc-ion conductivity of battery electrolytes.
- Determination of the electrochemical window of liquid electrolytes.
- Studies of organometallic complexes, DSSC or OLED dyes.

TSC surface

For solid/liquid interface studies



Investigation of the electrochemistry of solid/liquid interfaces using measuring cell TSC surface.

Selected applications:

- Investigation of the temperature and potential dependent electrochemical double layer structure and dynamics.
- Corrosion studies.
- Measurements using the quartz microbalance.