



NETZSCH offers a broad variety of techniques for determining thermal properties such as heat capacity, thermal conductivity and thermal expansion. When combined with thermodynamic and kinetic information from calorimetry, these methods provide the means for designing thermal models for batteries. This in turn allows one to explore the many different aspects of battery research, such as material optimization, reliability, safety analysis and long-term stability.

CALORIMETRY

- Adiabatic (ARC)
- Differential Scanning (DSC)
- Isothermal
- Constant Power

THERMAL ANALYSIS

- DSC/TGA-FTIR
- DSC/TGA-Mass Spec
- TMA, DMA, DSC, TGA, DEA

PROPERTIES

- Thermal Expansion
- Thermal Conductivity
- Heat Capacity

SOFTWARE

- Kinetics
- Thermal Modeling
- Safety Analysis

Differential Scanning Calorimetry

Five different instruments for testing:

- Safety screening
- Melting of separators
- Cathode/Anode stability



www.dsc204.info

Simultaneous Thermal Analysis

Four different instruments for testing:

- Oxidation of anode
- Cathode decomposition analysis
- SEI decomposition



www.sta449.info

Multiple Mode Calorimetry

Modular instrument for testing:

- Thermal testing of coin cells
- Compatibility (cathode materials, electrolytes)
- Effect of SOC



www.mmc274.info

Adiabatic Calorimetry

Three different instruments for testing:

- Full cell
- PTC, CID, vent design
- Thermal management data

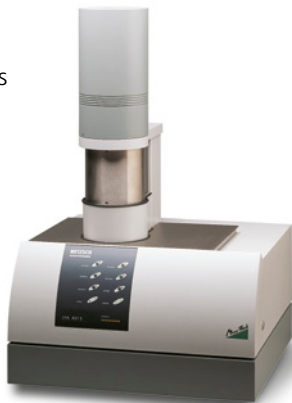


www.arc2.info

Laser Flash Analysis

Three different instruments for determination of:

- Thermal diffusivity
- Thermal conductivity
- "Jelly-roll" thermal transport



www.lfa457.info

Dilatometry

Three different instruments for testing:

- Anode/Cathode dimensional changes
- Gas generation in coin cells



www.dil402.info