

UMF Equipment - Thermogravimetric / Differential Scanning Calorimeter

Mettler Toledo TGA/DSC3+

TGA/DSC is an exceptionally versatile instrument for the characterization of physical and chemical material properties. Thermogravimetry (TGA) is a technique that measures the mass change of the sample when going through thermal processes in a defined atmosphere. The TGA/DSC3+ system equipped with an ultra-micro balance and includes unique built-in calibration ring weights and provides sub-microgram resolution. The system also allow simultaneous measurement of Differential Scanning Calorimetry (DSC) heat flow data beside TGA weight loss data. DSC measures enthalpy changes associated with transitions / reactions and the temperatures allows the instrument to detect thermal events that are not accompanied by a change in mass, such as melting, glass transitions, and solid-solid transitions. Application areas include plastics, elastomers and thermosets, mineral compounds and ceramics.

Features:

- MultiSTAR® permit simultaneous capture of TGA weight loss and DSC heat flow data
- Built-in mass flow controller (MFC) gas supply units and gas delivery close to the sample, allows accurate and repeatable investigation of material properties under a variety of atmospheres
- Temperature range from ambient temperature to 1600 °C and heating rates up to 100 °C /min
- Balance sensitivity 0.01 µg; calorimetric sensitivity 0.1 mW
- Examples of thermal events and processes that can be determined by TGA / DSC
 - Quantitative content analysis (moisture, fillers, polymer content, etc.)
 - Sublimation, evaporation and vaporization
 - Thermal stability
 - Kinetics of decomposition
 - Stoichiometry of reactions
 - Desorption / adsorption of gases
 - Oxidation reactions and oxidation stability
 - Reaction and transition enthalpies

Please refer to supplier information page for further details of the system:

https://www.mt.com/hk/en/home/products/Laboratory_Analytics_Browse/TA_Family_Browse/TGA_DSC/TGADSC3Plus_HT.html

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