



Instrument
Specialists
Incorporated

Differential Scanning Calorimeter DSC

Description

The Differential Scanning Calorimeter (DSC) is a powerful instrument that measures the energy absorbed or released as a function of time or a controlled temperature profile. The sensor of the DSC is the heat flux plate which is designed to give superior performance and reliability. The heat flux plate is capable of measuring small energy changes over the entire temperature range. Examples of measurements with DSC are Melt enthalpy, Glass transition, Heat of Crystallization, Purity Determination and Heat Capacity.

The DSC has been developed in conjunction with the powerful Infinity Pro software to provide superior performance. The new 24 bit high resolution electronics with USB interface has been designed from the ground up to offer years of reliability.



Applications

- Thermoplastics
- Thermosets
- Rubbers
- Phenolics
- Cosmetics
- Foods
- Pharmaceuticals
- Chemicals
- Petrochemicals
- Coals and other fuels
- Nuclear Research
- Propellants
- Explosives
- Dental materials
- Catalysts
- Waxes

Hardware

- High sensitivity heat flux plate
- Very low mass furnace
- Multiple sensor plate designs available
- Integral cooling jacket
- Solid silver block for superior heat transfer
- Mineral insulated furnace
- Type K thermocouple
- Dual PID loops for temperature control
- Heating rates up to 200C per minute
- Manual or automatic cooling
- Preheated purge gas
- Multiple types of sample pans
- Small instrument footprint

Options

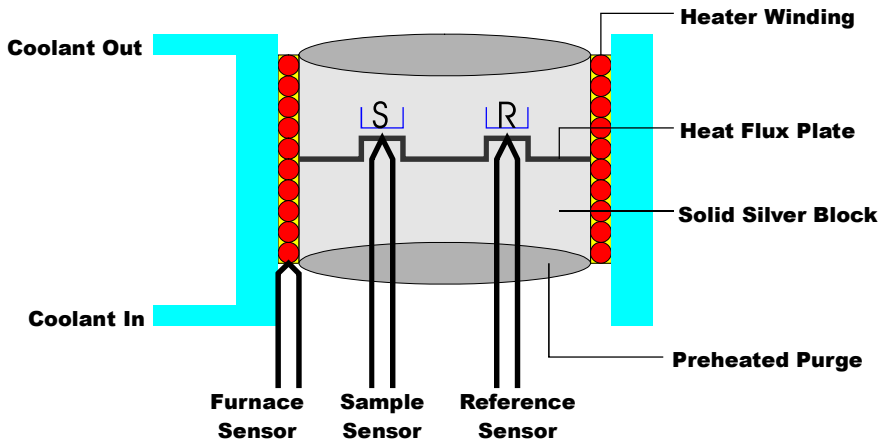
- Liquid Nitrogen Cooling
- Refrigerated Cooling
- Sample crimper and sealer
- Computer systems
- Gas switching accessory



Differential Scanning Calorimeter

DSC

DSC Measuring Cell



Specifications

Windows 7 & 10

Temperature range: Typically -150 C to 600 C

Temperature accuracy: 0.1 C

Temperature Precision: 0.1 C

Noise: .5 uW

Stability: < 1 mW ambient to 550 C

Heat flux plate material: Chromel or Constantan

Sample and reference thermocouples: Type K

Furnace thermocouple: Type K

Dual PID control with USB Interface

10 temperature segments each has 1 Ramp, 1 Isotherm, Gas switch

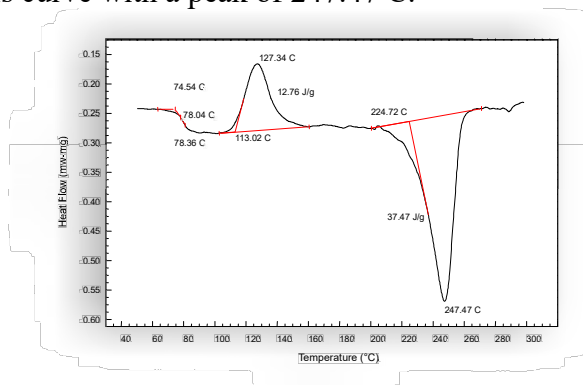
Program rates of 0.1 - 200 degrees C/min

Infinity Pro Software

Applications

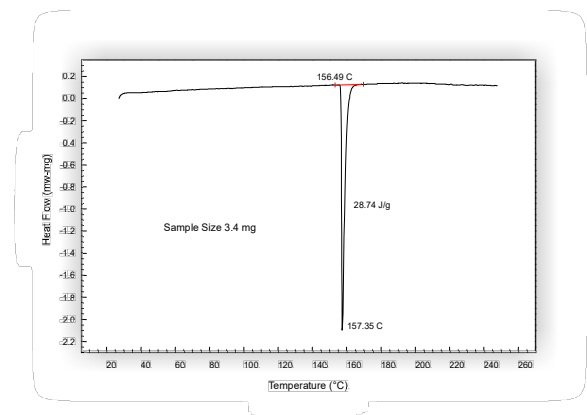
Modified PET

This modified PET is an excellent example of the types of analysis that can be done in the DSC. The glass transition is analyzed showing onset, midpoint and a selected endpoint. Crystallization is the second peak with temperature of 127.34 C showing area analysis as well as temperatures. Finally the melt on this curve with a peak of 247.47 C.



Indium

This indium standard shows a stable baseline with excellent temperature accuracy. Indium has a theoretical melt onset of 156.6 C with endothermic values of 28.5 Joules per gram.



Instrument Specialists Inc.
133 East Main Street
PO Box 280
Twin Lakes, WI 53181-0280 USA

Phone: 1-262-877-3600
Fax: 1-262-877-3699
info@instrument-specialists.com
www.instrument-specialists.com