THE **DSC** SERIES

Differential Scanning Calorimeter

CALORIMETRY
SCIENCES CORPORATION

CSC 6300 *Nano DSC III*

The CSC 6300 Nano III Differential Scanning Calorimeter is designed to determine the thermal stability and heat capacity of proteins and other macromolecules in dilute solution.

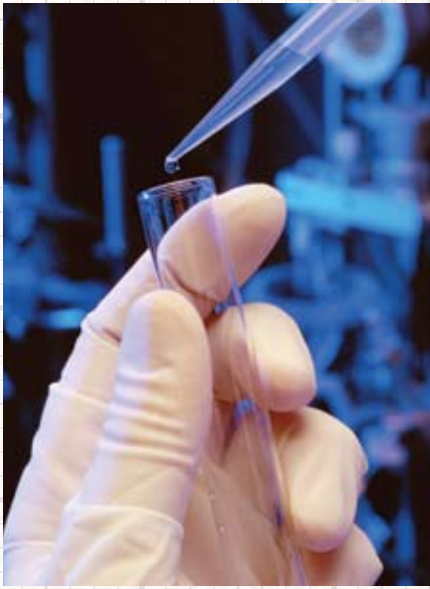
Applications

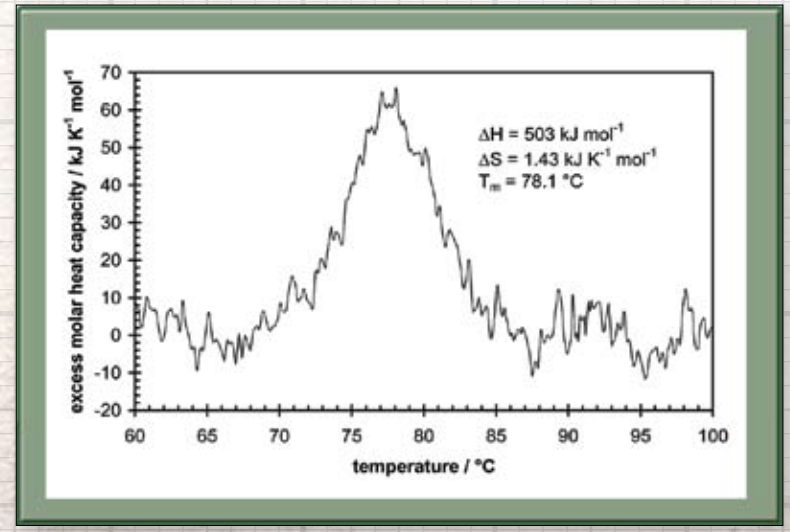
Biological processes depend on molecular recognition. Recognition can be either intermolecular, for example between a DNA binding protein and its target nucleotide sequence, or intramolecular, such as between amino acid side chains during protein folding. Recognition profoundly affects the stability of the macromolecule, so understanding the relationship between stability and the energetics driving recognition has very practical implications.

The Model 6300 Nano II Differential Scanning Calorimeter is specifically designed to determine the thermal stability and heat capacity of proteins and other macromolecules in dilute solution. The versatility of the N-DSC III also allows the screening of ligands, and measuring the effects of pressure changes on a sample.

The N-DSC III can probe binding events by measuring the effect of an interaction on the stability of a macromolecule (*e.g.*, drug binding to a target nucleic acid). The N-DSC III is a fully automated instrument, requiring less than one hour per sample and only nanomoles of biological material.

- **Protein Folding and Stability**
- **Protein Domain Structure**
- **Protein/Ligand Interactions**
- **Nucleic Acid Stability**
- **Nucleic Acid/Drug Interactions**
- **Membrane Stability**





Raw data from a single scan of only **2 µg** of lysozyme.

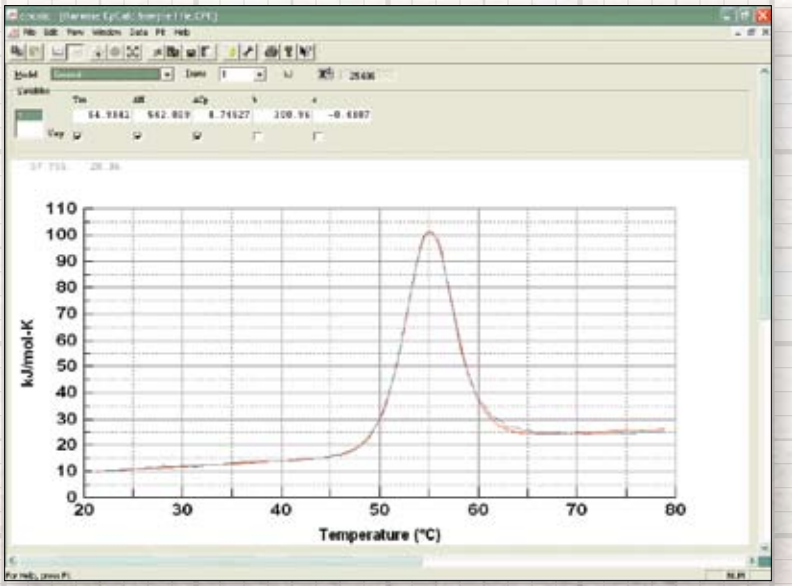
Features & Specifications

The N-DSC III obtains accurate data with less sample than any other DSC because of its very low noise (±15 nW) and precise baseline repeatability (±28 nW). Equal sensitivity is obtained in upward and downward scans.

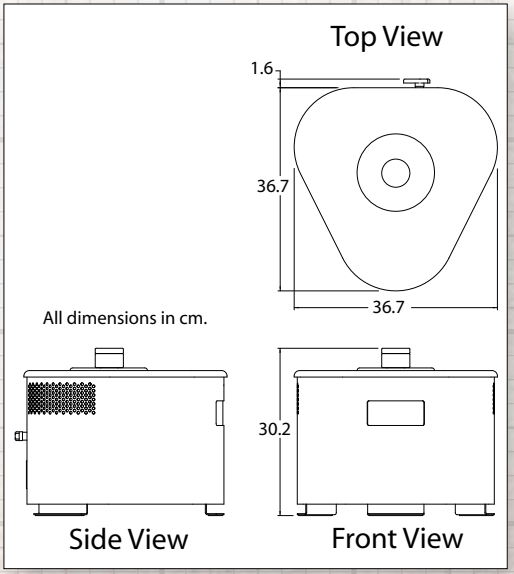
The N-DSC III uses a high-pressure piston driven by a computer-controlled precision linear actuator to control pressure in the cell. Constant pressure is applied during DSC experiments to obtain constant pressure heat capacity data and to prevent bubble formation or boiling.

The capillary cell in the N-DSC III delays the thermal effects of aggregation and precipitation, often until unfolding of the protein is complete. Data are routinely obtained on the N-DSC III that cannot be obtained with calorimeters equipped with non-capillary sample cells.

- **Short-term Noise–** 0.015 µW/min (0.2 µcal /min)
- **Baseline Repeatability–** 0.028 µW/min (0.4 µcal/min)
- **Response Time–** 5 seconds
- **Cell Volume–** 0.33 mL
- **Cell Geometry–** Fixed-in-place, continuous capillary (cylindrical cells available)
- **Operating Temperature–** -10 to 130 °C (standard temperature) -10 to 160 °C (high temperature)
- **Scan Rate–** 0.001 to 2.0 °C/min
- **Pressure Peturbation–** Built-in (up to 6 atmospheres)
- **Heat Measurement Type–** Power Compensation
- **AC Power Requirement–** 100 – 240 VAC, 50/60 Hz



Fitting the data to provided models using *CpCalc*.



Other Products from Calorimetry Sciences Corporation

CSC has several other calorimeters and accessories that complement the 6300 N-DSC III or address needs in other application areas. Please call for information on applications and specifications on these other outstanding CSC products.

CSC 6100 Nano DSC II

CSC 5300 Nano ITC III

CSC 4500 INC

CSC 4400 IMC

CSC 4300 RSC

CSC 4200 ITC

CSC 4100 MC-DSC

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