

Differential scanning calorimeter DSC

DSC is a thermoanalytical technique in which the difference in the amount of heat required to increase the temperature of a sample and reference is measured as a function of temperature. DSC can be used to measure a number of characteristic properties of materials. Using this technique it is possible to observe fusion and crystallization events as well as glass transition temperatures and can be also used to study oxidation, as well as other chemical reactions.

It is widely used in industrial settings as a quality control instrument due to its applicability in evaluating sample purity and for studying polymer curing.

Basically, Rigaku has the lineup of two kinds of heat-flex DSC meeting market needs: standard type and high-temperature type. The standard DSC has further an extensive lineup of cooling systems.

We can set maximum 24 samples and aside from continuous measurements, it can also perform single measurement as well as interrupt-a-sequence measurement.

Mehrgan
Parto
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Features

- High sensitivity, high performance and low noise, realized by a compact furnace
- Quick gas substitution enabled by compact furnace
- Remarkable heating and cooling rates that enhance the efficiency of measurement
- Safety is emphasized on the entire system
- Measuring temperature range for DSC 8231: -150° to 725° (max. 750°)
 - An optional cooling unit is used for temperatures below ambient
 - Inert gas flow is required for temperatures above 500°

specification

Differential scanning calorimeter DSC	
Model	Standard type 8231
Measurement method	Heat flux method
Measurement temperature range ^{*1}	-150°C - 725°C (up to 750°C)
Measurement range	±100 μW - ±100 mW
Maximum heating rate	100°C/min
Noise level (RMS)	<0.5 μW
Measurement atmosphere	Air, inert gas, gas flow
Maximum sample amount	100 μL
Cooling unit	Siphon type, circulator type, LN ₂ auto feed type
Auto sample changer	Samples: 24 Reference samples: 3 Calibration samples: 5

Software

- 1. Measurement data protection function**

During measurement, when a connection error occurs between the station and the module, the module will continue to perform the on-going measurement and the data will be stored in the module. The stored data is retrieved using a PC after the measurement, protecting valuable measurement data.
- 2. End operation settings function**

The ECO mode or power OFF can be selected after the end of measurement. The temperature and time condition can be specified. We can select a variety of operation condition of the attached forced air-cooling fan such as cool up to room temperature, not in use on continuous usage.
- 3. ECO mode**

After completing measurement, the ECO mode can be selected in the stand-by condition reducing the electricity consumption. Especially in TG-DTA, the ECO mode facilitates immediate transition from stand-by to stable measurement conditions.
- 4. First aid function**

When an error or problem occurs in the module, the error number, error description as well as troubleshooting measures will be displayed facilitating a quick and smooth recovery condition. Also the error contents are stored in log files and can be readily sent to the technical service department for an immediate appropriate response.
- 5. ASCII data import function**

Using the conversion software, the Thermo plus EVO2 analysis software can analyze various ASCII converted measurement data.
- 6. E-mail function**

The Thermo plus EVO2 can transmit information by email such as end of measurement, measurement data, occurrence of an error to PC, mobile phones thru corporate LAN connection and can confirm the condition of an on-going measurement at remote locations.

7. Excel, Word output

From the menu directly, the measurement file can be directly exported in Word or Excel. Also, the output style can be modified thru the layout editing function. When exporting data in Excel, the numerical data will be automatically created in the worksheet 2 allowing a convenient data analysis in other application software.

8. Instrument usage history listing function

This function automatically records the module's usage. Information such as date of usage, module name, operator, temperature program and measurement results are filed and saved in the achieve list. The history use of the module and the time of use are clear and effective for management and maintenance.

Accessories

DSC Smart Loader

Compact and smart. Different types of sample crucibles according to the applications (uses) are selectable. Easy condition setting in a single operation window.

Liquid nitrogen auto feed type cooling unit

A liquid nitrogen auto feed system is connected to a cooling unit, allowing continuous feed of liquid nitrogen according to a temperature program. This option can be used for measurements of a wide range of heating and cooling rates.

Circulator type cooling unit

Cooling water from a circulator is flowed through a cooling unit, allowing continuous cooling. This option can be used for continuous measurements of heating and cooling. Tap water can also be used as cooling water.

Refrigerated cooling unit

A Stirling cooler with the latest cooling system is mounted, achieving a remarkable reduction in equipment size and weight, an improvement in cooling efficiency, and a reduction in power consumption. This option is environmentally friendly and fully CFC-free.

