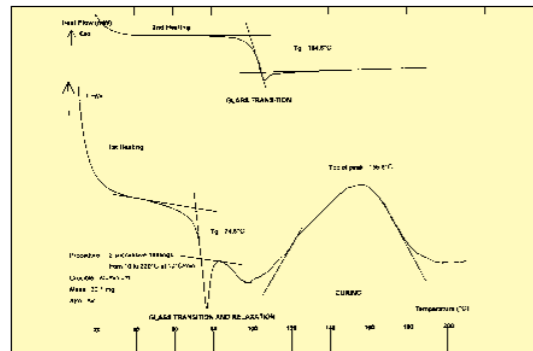
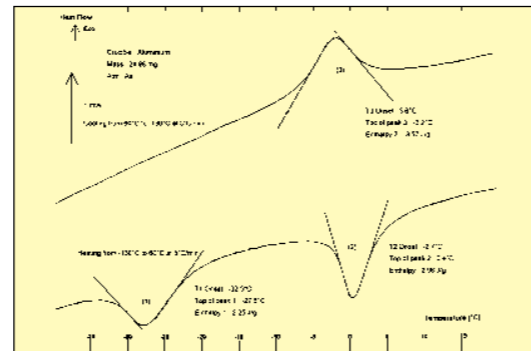


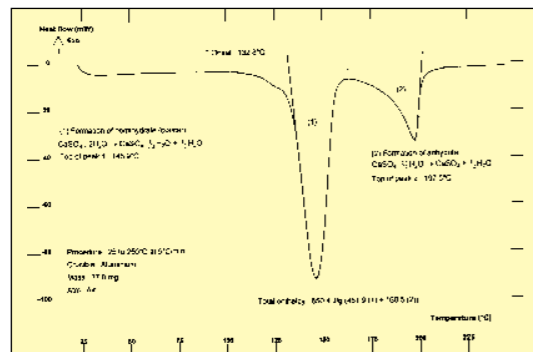
• DSC 131 ... some examples of applications



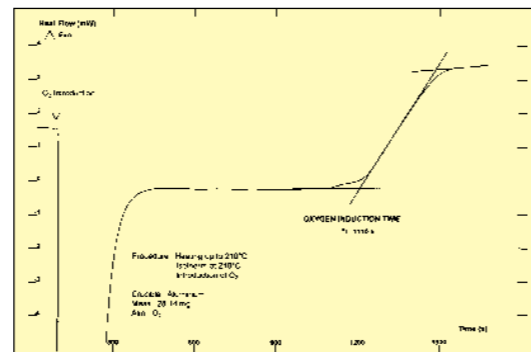
Analysis of an epoxy resin



Heating and cooling of a TiNi shape memory alloy



Dehydration of CaSO<sub>4</sub> · 2H<sub>2</sub>O



Oxygen induction time of a PE at 210°C

Temperature range	-170 / 700°C
Resolution	0.4 μW
Crucibles volume	30 to 100 μl
Noise RMS	0.8 μW
Specific noise RMS	0.008 μW/μl
Time constant	3 s

The DSC 131 is equipped with SETSOFT 2000, the thermal analysis software from SETARAM.

**SETARAM**  
Scientific & Industrial Equipment  
KEP TECHNOLOGIES  
Excellence in thermal analysis and calorimetry.  
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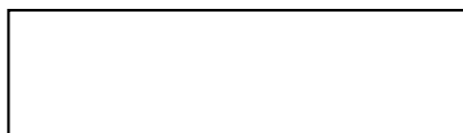
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# DSC 131

... a rapid and sensitive DSC matching high performances with excellent value



**SETARAM**  
Scientific & Industrial Equipment  
KEP TECHNOLOGIES

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# DSC 131

## a rapid and sensitive DSC matching high performance and low price

-170°C  +700°C

### • DSC 131 ...excellent value for money

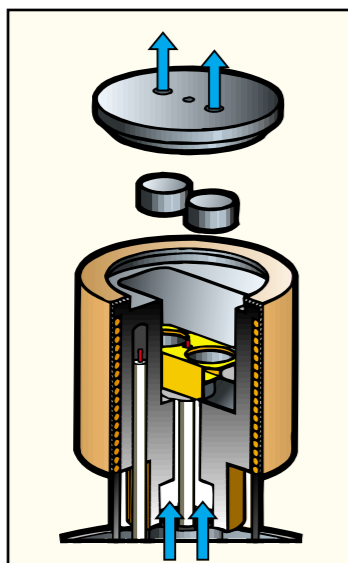
The thermal analysis requirements of testing and quality-control laboratories, as well as those of universities and higher education, mean that the instruments on offer must be of high performance, but simple to operate and maintain for a reasonable cost. In accepting this challenge SETARAM has profited from its experience in the design of various types of DSC transducers so as to perfect the new DSC 131, the state-of-the-art in plane-shaped, heat-flow-metering transducers. Designed to be accessible to all budgets the DSC 131 offers numerous advantages from a technical viewpoint :

- compact construction : the DSC 131 houses within the same structure the transducer and the controller for easier installation and operation,
- speed of operation : due to its low-thermal-inertia furnace the DSC 131 moves very quickly over all the temperature range (-170°C to 700°C),
- ease of operation : the DSC 131 is easy to operate, especially for people unskilled in thermal analysis,
- simplified maintenance : the transducer on the DSC 131 can be removed for quick and easy replacement by the operator. Its cost is low.

The DSC 131 complies with the requirements of the EMC directive (Electromagnetic Compatibility).

### • DSC 131... a high-performance transducer with low-cost replacement

The DSC 131's transducer has been designed using the technology of the plate-shaped DSC rods made of chromel®-constantan®. It is arranged in a small furnace with a metal resistor of low-thermal inertia so as to produce high heating and cooling rates, thereby providing for high-speed experiments. The furnace enjoys a wide area of homogeneous temperature, which is vital for good thermal measuring.



The DSC 131's transducer also possesses very good sensitivity over the whole temperature range (-170°C to 700°C). Its fitting has been so arranged as to enable its quick replacement at little cost to the operator.

As well as accurately measuring the thermal effects the DSC 131's transducer ensures accurate measurement of the transformation temperatures within the sample.

### • DSC 131... subambient temperatures

For subambient temperatures experiments, two types of cooling devices are available :

- a simple liquid nitrogen cooling accessory (down to -170°C)
- a cryostat cooling device (down to -75° C under He).

### • DSC 131 ...crucibles and experiments

The DSC 131 uses low-volume crucibles for analyzing the samples (identical to the crucibles used with the DSC 141). These aluminium crucibles, with a capacity of 30 mm<sup>3</sup>, can be crimped, thus ensuring good thermal transfer between the sample and the sensor. Using these crucibles imparts the DSC 131 with a low time constant (less than 3 seconds).

Aluminium crucibles, with a capacity of 100 mm<sup>3</sup>, are used for analyzing bulkier samples, as well as for studying liquids with low vapour pressure. When analyzing liquids with high vapour pressure stainless steel crucibles, with a crimpable seal and able to withstand to 100 bars, are available.

The experimenting chamber can be swept by a stream of an inert gas so as to protect the transducer or the crucible from oxidizing at high temperature. Oxidation-type experiments (induction time) can be carried out as well.



### • DSC 131 ...for testing and quality-control laboratories, for education

The DSC 131's simple design combined with its high outputs (low time constant, speed, good resolution) have made of this instrument an appropriate and cost-effective tool for testing and quality-control laboratories, as well as an easy-to-use instrument for students discovering thermal-analysis techniques. With its wide temperature range (-170°C to 700°C) the DSC 131 enjoys a wide field of applications, especially when dealing with polymers and plastics (characterization, quality-control) as well as with organic and pharmaceutical compounds (polymorphism, purity, thermal stability), with inorganic substances (dehydration, transition, decomposition), with metals (transition) ... from the raw or transformed materials.

As a teaching tool the DSC 131 helps initiate students into the thermodynamic notions of phase change (fusion, crystallization, evaporation), of transition (glass transition, order-disorder transition), of reaction kinetics (polymerization, decomposition), of heat capacity. Whilst specifying the phenomenon the DSC 131 provides accurate measurement of the transformation or reaction heat, as well as accurately measuring the thermal phenomenon's temperature.

