measuring the unknown sample temperature at a point that is located on the support member and is close to the unknown sample; and

recording the first temperature difference, the second temperature difference and the unknown sample temperature as a function of one of time and temperature of the unknown sample.

11. The method of claim **10**, wherein the alternating component is a sinusoidal wave.

12. The method of claim **10**, wherein a difference between the first temperature difference and the second temperature difference is used to provide a signal for differential scanning calorimetry.

13. The method of claim **10**, further comprising filtering signals representing the first temperature difference, the second temperature difference and the unknown sample temperature, whereby each signal is divided into an AC component corresponding to the frequency of the alternating component, the AC component having an AC amplitude, and a low-frequency component independent of that frequency.

14. The method of claim **13**, further comprising deriving an indication of a heat capacity of the unknown sample according to a ratio of a difference between the AC amplitude of the signal representing the first temperature difference and the AC amplitude of the signal representing the second temperature difference to the AC amplitude of the signal representing the unknown sample temperature.

15. The method of claim **13**, further comprising producing a total heat flow component signal which is a function of a difference between the low-frequency component of the signal representing the first temperature difference and the low-frequency component of the signal representing the second temperature difference.

16. The method of claim **15**, further comprising deriving an indication of a heat capacity of the unknown sample according to a ratio of a difference between the AC amplitude of the signal representing the first temperature difference and the AC amplitude of the signal representing the second temperature difference to the AC amplitude of the signal representing the unknown sample temperature.

17. The method of claim **16**, further comprising deriving an indication of heat flow delivered as a signal indicative of a component of the heat capacity based on the derived indication of heat capacity of the unknown sample multiplied by an average change rate of the low-frequency component of the signal representing the unknown sample temperature.

18. The method of claim **17**, further comprising deriving a kinetic component signal based on a difference between the value of the total heat flow component signal and the value of the signal indicative of a component of the heat capacity.

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