

Fast scanning calorimetry for determining specific heat capacity

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Fast Scanning Calorimetry (FSC) allows preventing phase transitions during rapid cooling and rapid heating. In this way, supercooled or superheated states of matter can be investigated. Calorimetry, in general, allows the determination of the specific heat capacity - a fundamental thermodynamic property. Specific heat capacity defines the temperature dependence of essential thermodynamic functions such as enthalpy, entropy, and Gibbs energy. Therefore, the measurement of specific heat capacity by FSC is an exciting task, as it allows the investigation of samples in non-equilibrium states that are otherwise not easily accessible. However, such measurements require the solution of three problems:

1. calibration of the measured heat flow rate
2. correction for heat loss to the environment
3. determination of the sample mass

I will present my personal view of the different approaches available in the literature on how to solve the listed problems [1-8].

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