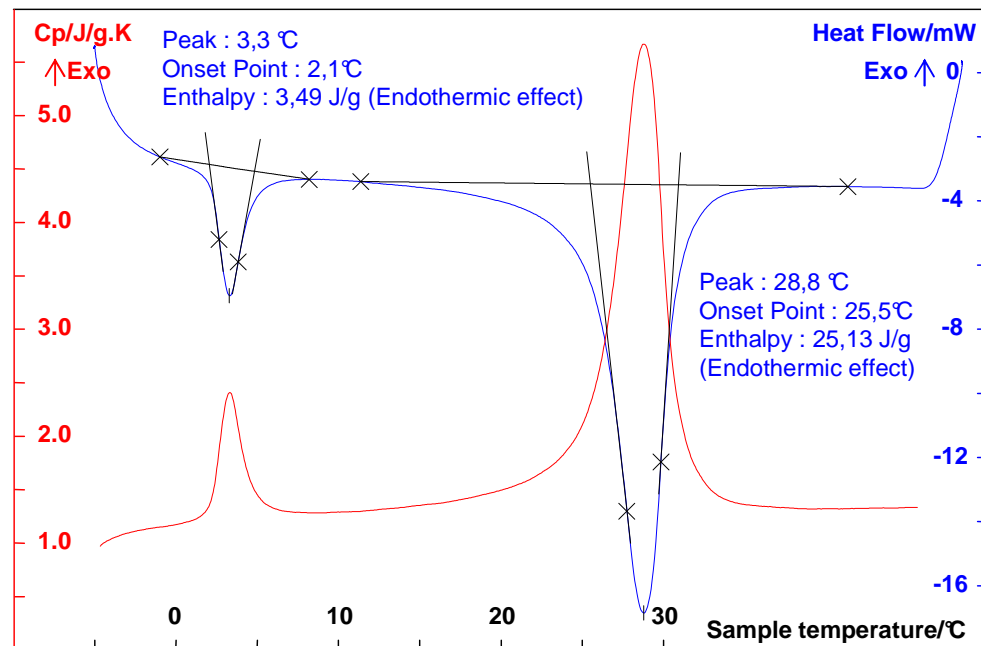


DSC analysis of a plaster containing phase change materials

Introduction: Phase change materials (PCM) are substances with high heats of fusion which can store or release large amounts of energy before melting or solidifying. Therefore, they have been employed, for example, in thermal energy storage, conditioning of building, off peak power utilization...

Thus, many analyses are realized to determine the variation of enthalpy of the materials, for example with the integral of the Cp in DSC.



Experimental

The sample of plaster containing PCM is appeared as a very compact white powder.

Approximately 50 mg of sample was analyzed in order to determine the Cp.

Experiments were conducted on a DSC 131 into aluminum crucibles (100 μ L) at a heating rate of 3K/min between -5°C and 45°C and under nitrogen.

Moreover, a blank was realized in the same condition.

Results

On the DSC curve, two endotherms are observed at 3.3 and 25.5°C. The first peak probably corresponds to the fusion of the water contained in the sample. The second shows the phase change of the PCM.

Instrument
DSC 131 evo
-170°C up to 700°C

