

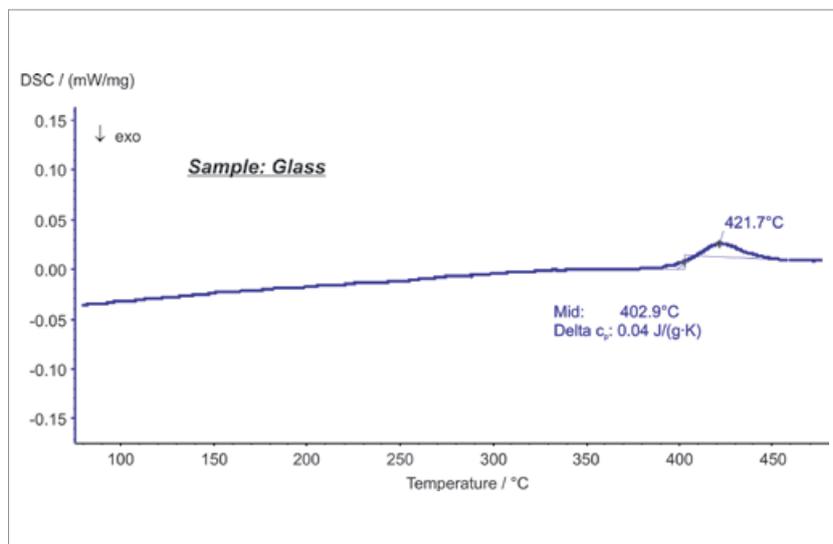
# APPLICATION SHEET

## INORGANICS – BUILDING MATERIALS

### GLASS

By traditional convention, the term glass is reserved for an amorphous solid which has been formed by quenching a glass forming liquid (or melt) through its glass transition temperature sufficiently quickly that a regular crystal lattice cannot form. However, amor-

phous solids may be formed by methods other than melt quenching, such as ion implantation or the sol-gel method, and since they exhibit the same disordered atomic structure. The glass transition of glass can be measured with DSC.



#### Instrument

DSC 204 **F1** Phoenix®

#### Test Conditions

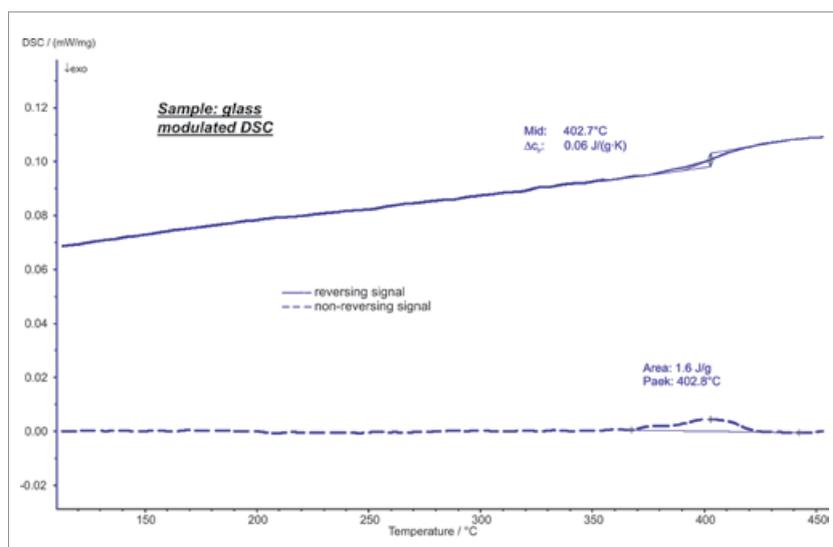
Temperature range	30 ... 600°C
Heating rate	20 K/min
Atmosphere	nitrogen (20 ml/min)
Sample mass	6.97 mg
Crucible	Al, pierced lid

#### Results

The change in specific heat detected at 402.9°C (midpoint) is due to the glass transition of the material. It is overlapped with a relaxation peak. A measurement with modulated DSC was carried out in order to separate glass transition and relaxation. The glass transition occurred in the reversing part and the relaxation effect in the non-reversing part. Both effects can then be evaluated with excellent accuracy. The glass transition was measured at 402.7°C (midpoint) and the relaxation peak at 402.8°C (peak temperature) with an enthalpy of 1.6 J/g.

# APPLICATION SHEET

## INORGANICS – BUILDING MATERIALS



### Instrument

DSC 204 **F1** Phoenix®

### Test Conditions

Temperature range	30°C ... 600°C
Heating/cooling rates	5 K/min
Amplitude	0.5 K, period 60s
Atmosphere	nitrogen (20 ml/min)
Sample mass	7.55 mg
Crucible	Al, pierced lid