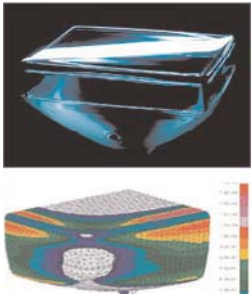


Slag Sample Holder - CRT Panel Glass

AS-020-2006

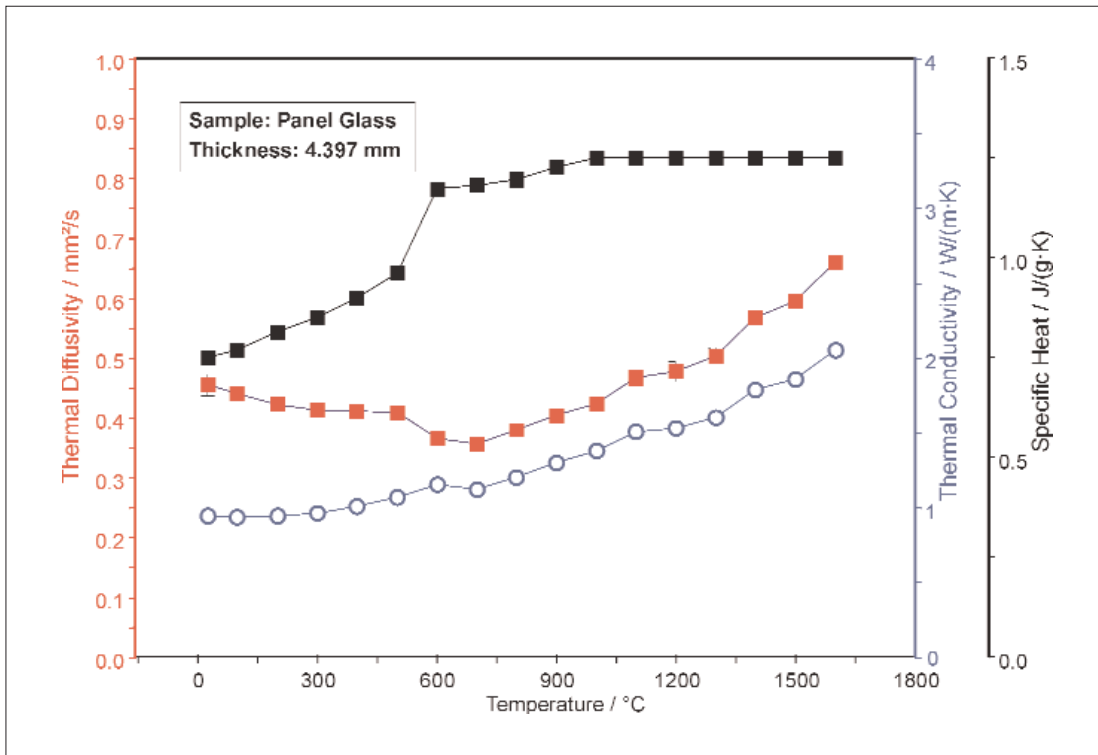


Nowadays, high quality precision glass is used for the aerospace, optical, electronic and various other commercial industries. Due to the fact that CRT monitors held a host of advantages over LCDs (e.g. color rendering, contrast ratios, color depths, multisync) the improvement of the CRT technique is guaranteed. Modern monitors are flat. As the thermal stress for flat screen CRTs is larger than for curved screen CRTs, a special tempered glass is needed to withstand it. In addition numerical simulations are necessary to optimize the product and the manufacturing process. For this, the knowledge of the thermophysical properties of the panel glass is necessary. The thermal diffusivity was measured using the LFA 427 from room temperature up to 1600°C. For the range above the softening point, a special sample holder from platinum for slags and pastes was used. A graphite coating was necessary to realize a homogeneous energy entry on the front side and a homogeneous back side of the glass sample. A radiation model was used to consider the radiation heat transfer within the glass sample.

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Test Conditions:

Temperature range:	RT ... 1600°C	Sample surface preparation:	Graphite
Sample holder:	12.7 diameter / Pt slag	Cp from DSC, standard:	Sapphire
Sample thickness:	4.397 / 0.5 mm		



Results:

The specific heat and thermal diffusivity show a step above 500°C. The thermal conductivity increased continuously. This is typical for a glass transition and shows the good agreement between the measurements with two different devices (LFA and DSC). The example clearly demonstrates that the LFA 427 can analyze samples with undefined dimensions (above the softening point) and samples with a high degree of transparency at high temperatures without any problems.