

APPLICATION SHEET

STA Accessories – c-DTA® Determination

Determination of Mass Loss and Melting of a Large Steel Sample by TGA

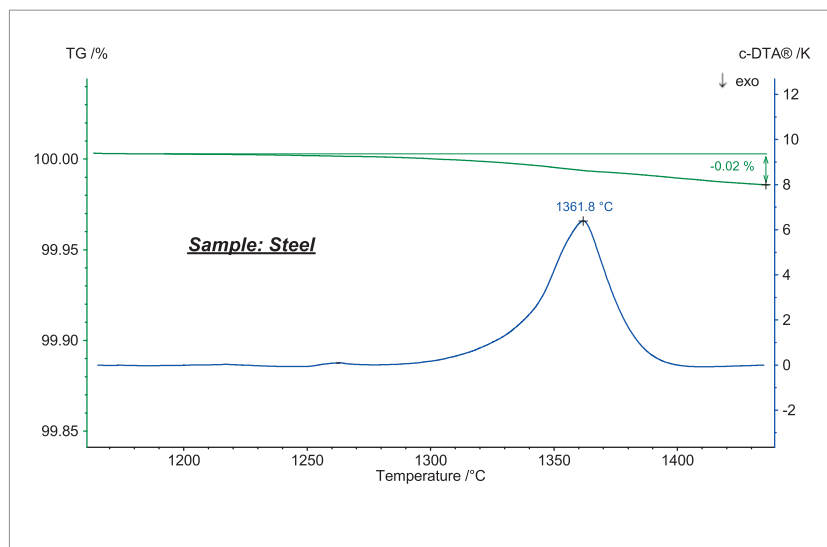
The calculated DTA/DSC-signal, c-DTA®, is ideal for easy temperature calibration without the need for magnetic Curie point standards, which would often necessitate partial disassembling of the thermobalance. In addition, signals of mass change together with endo- and exothermal behaviors (e.g., vaporization with mass loss or melting without mass change) can be obtained without any hardware add-ons. Thus, correlation of such results is not influenced by the hardware.

All TGA sample carriers (TG 209 **F1 Iris**®/Libra®, TG 209 **F3 Tarsus**®, STA 449 **F1/F3 Jupiter**®) allow for c-DTA®



Al₂O₃ slip-on plates (diameter 10 mm, 17 mm), see also *Accessories for Differential Scanning Calorimeters and Thermobalances*

determination. Ceramic and metallic crucibles are available to achieve optimum peak temperature results together with the caloric information on the tested sample.



Measurements of large sample masses can be done with slip-on plates. Various dimensions of such plates are available.

In this example, a large steel sample (1018.59 mg) was tested with the STA 449 **F1 Jupiter**® at a heating rate of 20 K/min in an argon atmosphere. A slip-on plate made of alumina (diameter 17 mm) was used to carry the sample.

The c-DTA® curve (blue) shows an endothermic effect at 1362°C which corresponds to melting of the sample. In the same temperature range, the TGA curve (green) indicates some minor mass loss (0.02%) which is due to a small evaporation effect.