

# APPLICATION SHEET

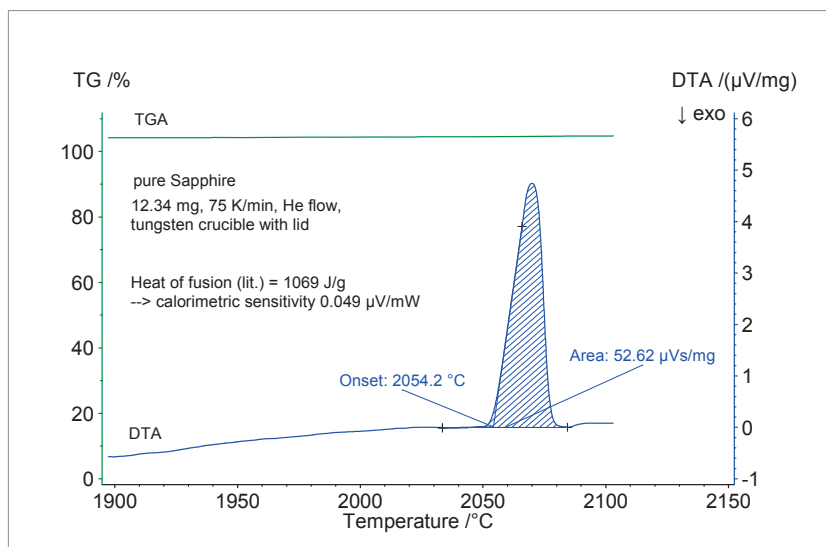
## STA Accessories – Tungsten Low-Mass Sample Carrier

### Pure Sapphire at the Highest Temperatures

The low-mass tungsten sample carrier has well-defined heat flow paths and a split geometry for high calorimetric sensitivity. The conical sample crucible fits safely into the massive sample carrier plate. The thermocouple connection is designed such that no welding is necessary. It is thus possible to measure the temperature and DTA signal directly and with high accuracy. Additionally, this sample carrier allows for a "crucible-in-crucible" arrangement in order to handle critical samples.



TGA-DTA tungsten sample carrier and crucibles made of tungsten, see also *Accessories for Differential Scanning Calorimeters and Thermobalances*



Melting of a pure sapphire sample, STA 449 **F1 Jupiter**

This TGA-DTA measurement on pure sapphire was performed in the tungsten furnace up to 2100°C. The crucibles were closed with lids, both made of tungsten. Melting of the pure material occurred at 2054°C (extrapolated onset).

Determination of the calorimetric sensitivity of the TGA-DTA sensor type W was based on this measurement in a

helium atmosphere. The calorimetric sensitivity was determined to be 0.049  $\mu\text{V}/\text{mW}$ .

As expected for the pure material, the TGA curve (green) shows no mass loss before and during melting.