

APPLICATION SHEET

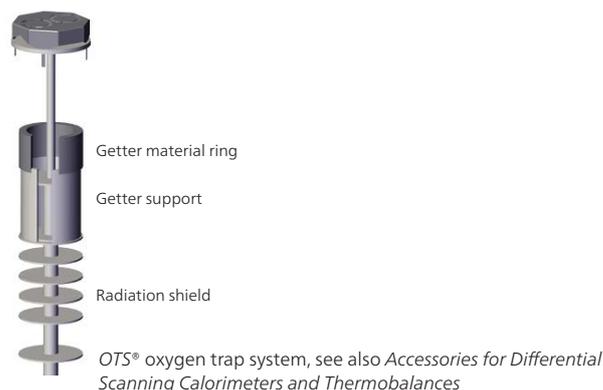
STA/DSC Accessories – OTS® Oxygen Trap System

Oxidation of Zirconium

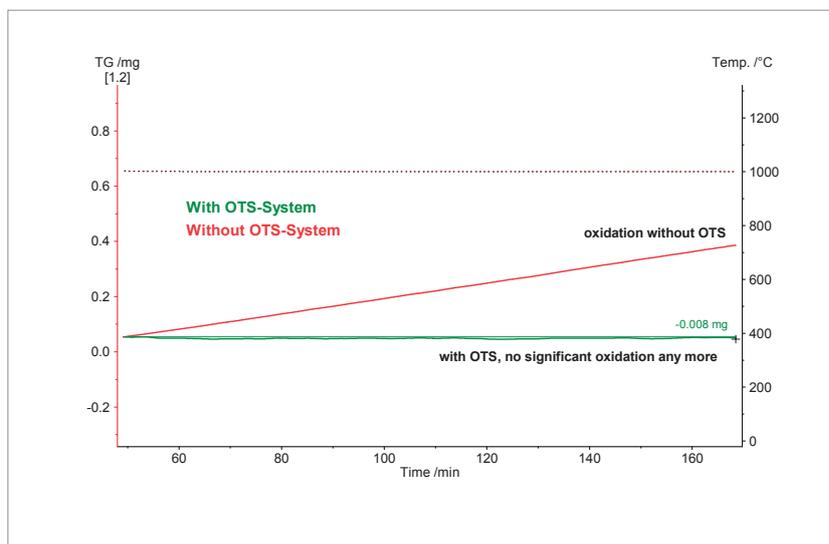
The OTS® oxygen trap system, for the STA 449 **F1/F3 Jupiter®** and DSC 404 **F1/F3 Pegasus®** systems removes traces of residual oxygen in the gas atmosphere inside the instrument. A residual oxygen content of < 1ppm can be achieved.

A ceramic substrate bearing a getter ring is mounted on the sample carrier or in the sample carrier tube. This getter ring is capable of almost entirely eliminating the residual oxygen after evacuation.

Such low oxygen concentrations cannot be achieved unless the instrument is vacuum-tight and equipped with an evacuation system. Both of these requirements are ful-



filled by the STA 449 **F1/F3 Jupiter®** and DSC 404 **F1/F3 Pegasus®** systems.



STA measurement of zirconium under isothermal conditions, STA 449 **F1 Jupiter®**

In this example, a zirconium sample (190.9 mg) was measured with the STA 449 **F1 Jupiter®** in a dynamic helium atmosphere with a nominal purity of 99.996% under isothermal conditions (1000°C).

After three hours, oxidation of the Zr sample (red curve) led to a total mass increase of approx. 0.38 mg when no OTS®

was used. Oxidation is due to the finite purity of the purge gas (99.996%).

When the OTS® system was applied to the system, a sample of the same mass was tested. However, no significant oxidation occurred (green curve). The mass increase was determined to amount to only 0.008 mg.