

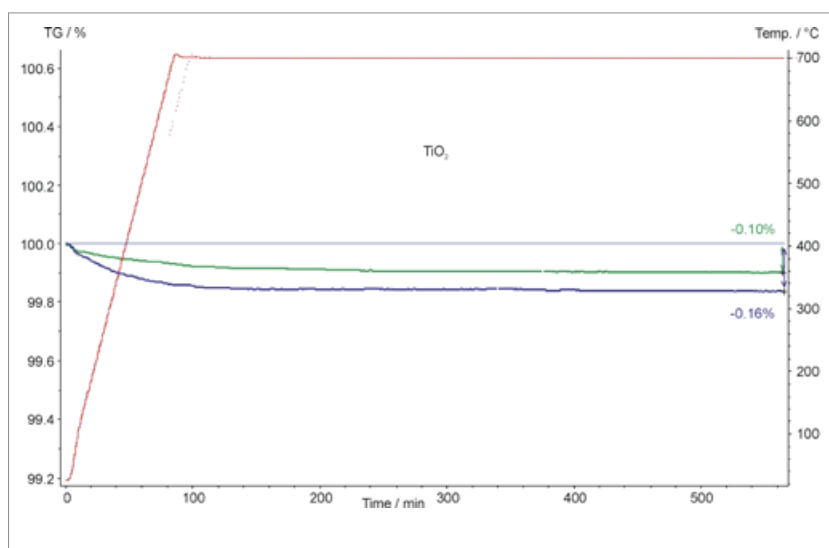
# APPLICATION SHEET

## CERAMICS – CHEMICALS

### TITANIUM OXIDE (TiO<sub>2</sub>)

Titanium dioxide is the most widely used white pigment because of its brightness and very high refractive index. When deposited as a thin film, its refractive index and color make it an excellent reflective optical coating for dielectric mirrors. TiO<sub>2</sub> is also an effective opacifier in powder form, where it is employed as a pigment to provide whiteness and opacity to products such as paints, coatings, plastics,

papers, inks, foods, and most toothpaste. In cosmetic and skin care products, titanium dioxide is used both as a pigment and thickener, and in almost every sun block with a physical blocker, titanium dioxide is found both because of its refractive index and its resistance to discoloration under ultraviolet light. This advantage enhances its stability and ability to protect the skin from ultraviolet light.



#### Instrument

STA 449 C Jupiter®

#### Test Conditions

Temperature range	RT ... 700°C
Heating/cooling rates	8 K/min
Atmosphere	N <sub>2</sub> /H <sub>2</sub> (95:5) at 60 ml/min
Sample mass	200 mg
Crucible	alumina
Sensor	TG type S

#### Results

The TiO<sub>2</sub> samples were relatively pure as can be concluded from the detection of the small mass loss of both samples. The difference in the mass loss of the samples is most probably due to differences in surface water and/or titanium hydroxides. It can also be gathered from the TG curves that the drying process at 700°C takes about 3 hours.