APPLICATION OF THE REAL-TIME SAMPLE OBSERVATION THERMAL ANALYSIS

Nobuaki Okubo

Hitachi High-Tech Science Corporation
Analytical Application Engineering Dept.
2-15-5, Shintomi, Chuo-ku, Tokyo 104-0041, JAPAN
nobuaki.okubo.ea@hitachi-hightech.com

The conventional thermal analyzers are not able to observe the sample directly during measurements because it is installed in a furnace. Thus, the physical changes of the sample relative to the changes in thermal analysis signals were never understood as well as they could be. The phenomena experienced by the hidden sample were only estimated by signal curves.

We developed a new Simultaneous Thermogravimetric Analyzer with a unique furnace structure that makes sample observation possible. The STA7200RV that has a quartz furnace tube and a window in the furnace for optical viewing. A camera unit for sample observation is set over the top of the window in the furnace. This instrument will provide enhanced knowledge that can be useful for better understanding thermal phenomena.

We tested some samples using the sample observation STA system. The TG and DTA/DSC curve showed the expected changes in weight caused by decomposition and melting. The sample observation STA system provided additional useful information about the flowing of components, shape change, and even sample movements.

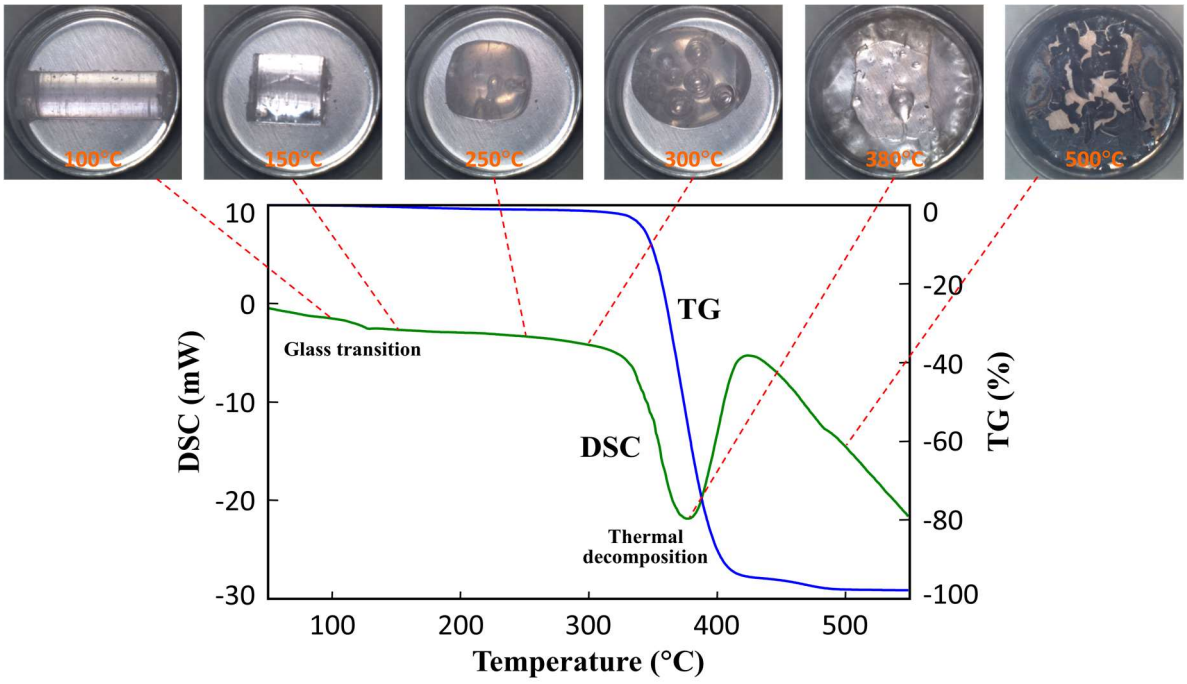

Figure 1 Measurement resurt for the plastic optical fiber by sample observation STA system.