

## SC3

### TGA-FTIR: THE USE OF REDUCED PRESSURE

Albrecht Rager<sup>1</sup> and Richard S. Jackson<sup>2</sup>

<sup>1</sup>Bruker Optik GmbH, Rudolf-Plank-Strasse 23, D-76275 Ettlingen, Germany

<sup>2</sup>Bruker Optics, 19 Fortune Drive, Manning Park, Billerica MA01821, USA

The benefits of coupling a thermogravimetric analyzer (TGA) to a Fourier transform infrared (FTIR) spectrometer for evolved gas analysis are well known. The combination of the two techniques can give both qualitative and quantitative information about thermal decomposition and reaction mechanisms.

The flow rate and composition of the atmosphere are important parameters that can be varied in a TGA, but the thermal decomposition behavior of materials is also influenced by pressure. A system will be described for performing TGA-FTIR measurements at reduced pressures. The pressure affects the boiling point of the released components, and therefore in decomposition processes a lower pressure permits larger fragments to be observed. Data will be presented that shows that this can yield additional information about the composition of the material. It will also be shown that reducing the pressure can be used to improve the gas flow characteristics of the system for high boiling compounds.