

## **Potentials and Limits of Thermal Analysis in Polymer Processing**

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The methods of the thermal analysis especially DSC and TGA are established techniques to characterize properties such as crystallinity, chemical stability, compatibility of polymers in a short time. However, use of these techniques for practical problems related to technical polymer processing is limited. Some reasons are:

- There is no direct relationship between the DSC results and practically relevant parameters like mold shrinkage, stiffness, ductility or dwell time.
- The structural information measured by conventional DSC is not linked directly to the structure of the products because of reorganization during DSC measurements.
- The processing conditions cannot be simulated by conventional thermal analysis because of a huge discrepancy between the heating and cooling rates during processing and the maximum values achievable by conventional DSC or TGA, respectively.

In this paper we present concepts to show how the conventional DSC and the new fast scanning Flash DSC technique can be used to get more useful information to optimize processing conditions regarding basic materials, formulations, processing parameters, cost-efficiency and product behavior.