Sample mass and heating rate influence on the DSC resolution of n-Hexatriacontane

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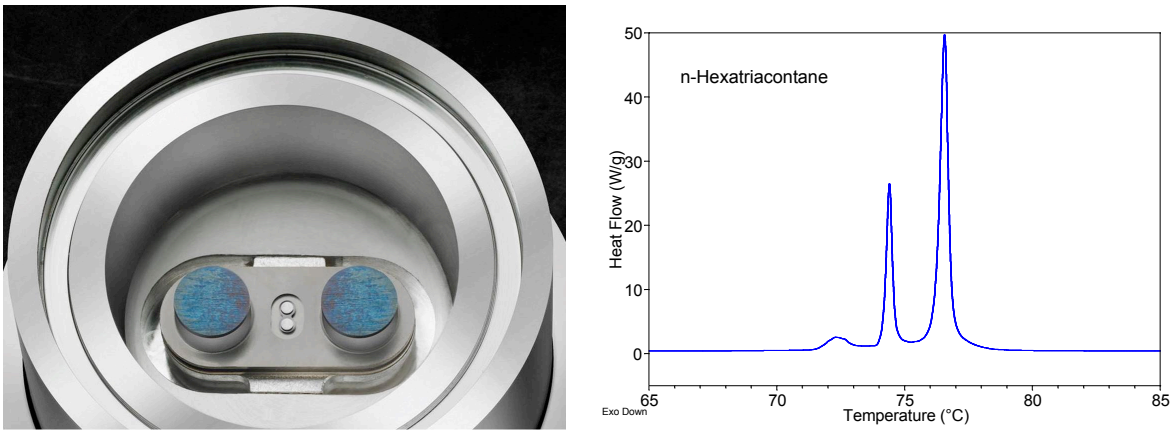
The performance of the differential scanning calorimetric technique (DSC) is defined by resolution and sensitivity of the instrument. Commonly, both features of performance can be affected by adjustment of sample mass and heating rate respectively. It is difficult to realize optimal experimental conditions that make possible DSC investigations with high resolution and high sensitivity simultaneous, because lower sample mass increases the resolution and faster heating rates are required for higher sensitivity and decreases the resolution of heat flow signal.

Discovery DSC is a new concept from TA Instruments which improves every aspect of DSC performance. A novel cell design and the innovative diffusion-bonded sensor technology allow temperature and heat flow measurements with unmatched precision and high resolution. Discovery DSC provides the Tzero® Technology inclusive the innovative Tzero® Pans and ensures flattest baselines and high heat transfer for better performance.

In this contribution, we present the performance of Discovery DSC and demonstrate a practical application that requires high resolution. n-Hexatriacontane shows three phase transitions within a narrow temperature range and is suitable for such investigations. In particular, the influence of sample mass and heating rate on resolution-performance of Discovery DSC and Tzero® technology are presented.



Novel cell design of Discovery DSC and DSC-measurement of n-Hexatriacontane.