APPLICATION**SHEET**

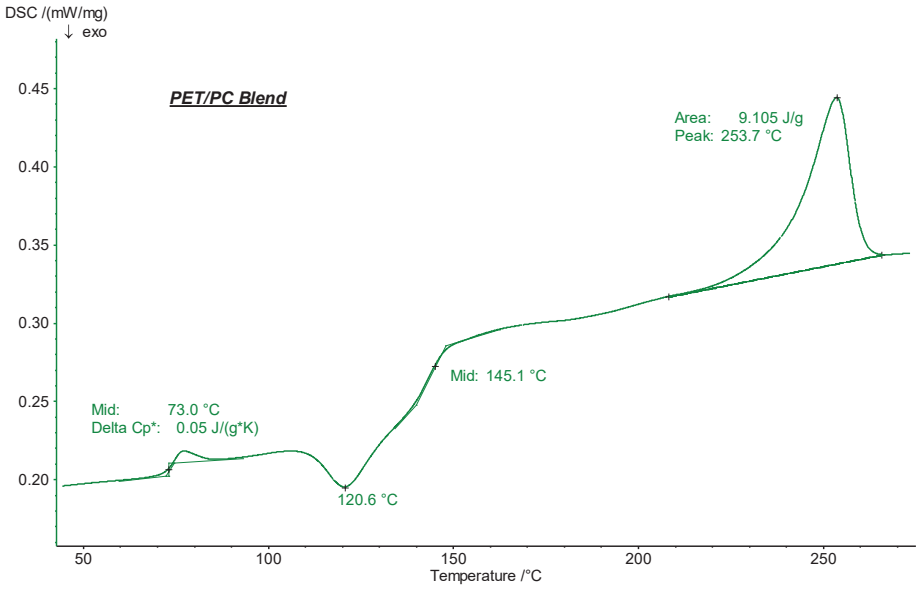
Ceramics · Automotive
DSC 404 ***F1*** *Pegasus®*

PET/PC Blend

Introduction

Depending on its processing and thermal history, polyethylene terephthalate may exist both as an amorphous (transparent) and as a semi-crystalline (opaque and white) material. The majority of the world's PET production is for synthetic fibers (in excess of 60%) with bottle production accounting for around 30% of the global demand.

Polycarbonates are easily worked, molded, and thermoformed; as such, these plastics are widely used in modern manufacturing. The most common type of polycarbonate plastic is one made of Bisphenol A. This polymer is highly transparent to visible light and has better light transmission characteristics than many kinds of inorganic glasses. A blend consisting of PET and PC significantly improves the mechanical property and processibility compared to each homopolymer.



Test Conditions for the DSC Measurement:

Temperature range:	20 ... 280°C
Heating/cooling rates:	10 K/min
Atmosphere:	Nitrogen (20 ml/min)
Sample mass:	10.52 mg
Crucible:	Al, pierced lid

NGB · Application Sheet 134 · E · 0821 · Technical specifications are subject to change.

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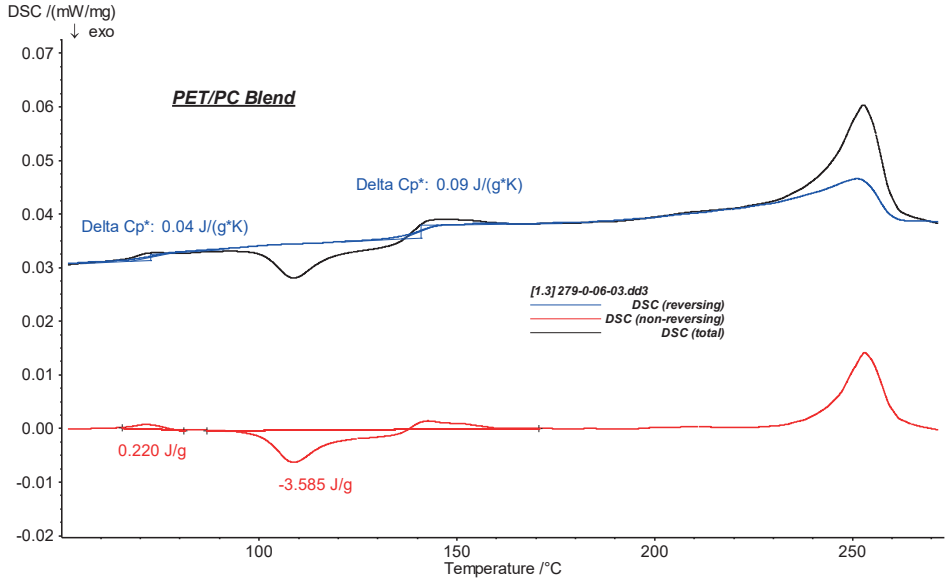

Test Conditions for the Modulated DSC Measurement:

Temperature range:	20 ... 280°C
Heating rate:	1.5 K/min
Amplitude:	120 s
Atmosphere:	Nitrogen (20 ml/min)
Sample mass:	14.02 mg
Crucible:	Al, pierced lid

Test Results

In the measurement without modulation, the Δc_p of polycarbonate is overlapped by the post-crystallization peak of PET; therefore, accurate evaluation of the effects was not possible.

The modulated measurements allow for separation of the reversing and non-reversing signals. The glass transition of both polymers is visible in the reversing signal whereas post-crystallization of PET occurred in the non-reversing signal. Moreover, the endothermal effects after each glass transition,which are due to the relaxation effects of the samples, are only visible in the non-reversing signal. The glass transition of PET can therefore be evaluated with a high accuracy.

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