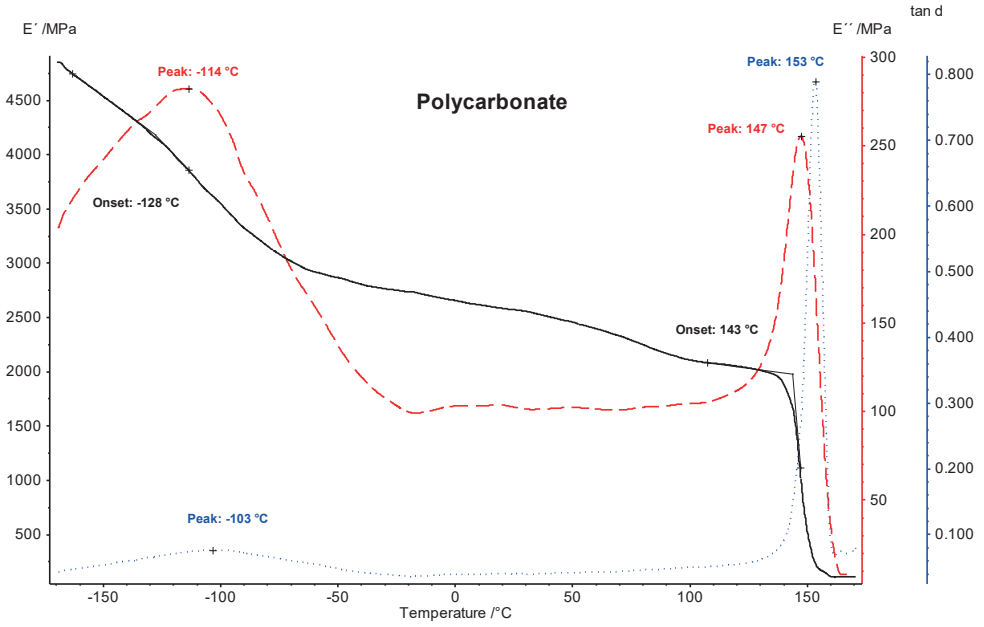
APPLICATION**SHEET**

Polymers · Polymer Manufacturing
DMA 242 E *Artemis*

Polycarbonate

Introduction

Polycarbonates are a group of thermoplastic polymers. They consist of carbonate groups (-O-CO-O-) linking other functional groups. They can easily be molded and formed and are widely used in modern manufacturing. Their endurability and transparency make them the ideal base material for optical discs such as CDs and DVDs and for eyeglass lenses. They are as well being used to build containers for food, beverages and chemicals. For thermoplastic manufacturing, knowledge and control of the thermomechanical properties of specific polycarbonates is essential.



Test Conditions

Temperature range:	-170°C ... 170°C
Heating/cooling rates:	2 K/min
Sample holder:	3-point bending, 40 mm
Amplitude:	± 20 µm
Frequency:	1 Hz
Proportional factor:	1.2
Max. dynamic force:	6.6. N

Test Results

The dynamic mechanical properties of polycarbonate are depicted in the plot. The curve of storage modulus E´ is drawn in black, loss modulus E" in red and loss factor tan δ in blue. The β-transition was detected at –128°C (extrapolated onset) for the storage modulus. The corresponding peak in the E" curve was at –114°C and at –103°C in the tan δ curve. A sharp decrease in storage modulus was determined during the glass transition which started at 143°C. The related peaks in the E" and tan δ curves were measured at 147°C and 153°C.

NGB · Application Sheet 094 · E · 0621 · Technical specifications are subject to change.

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