

APPLICATION SHEET

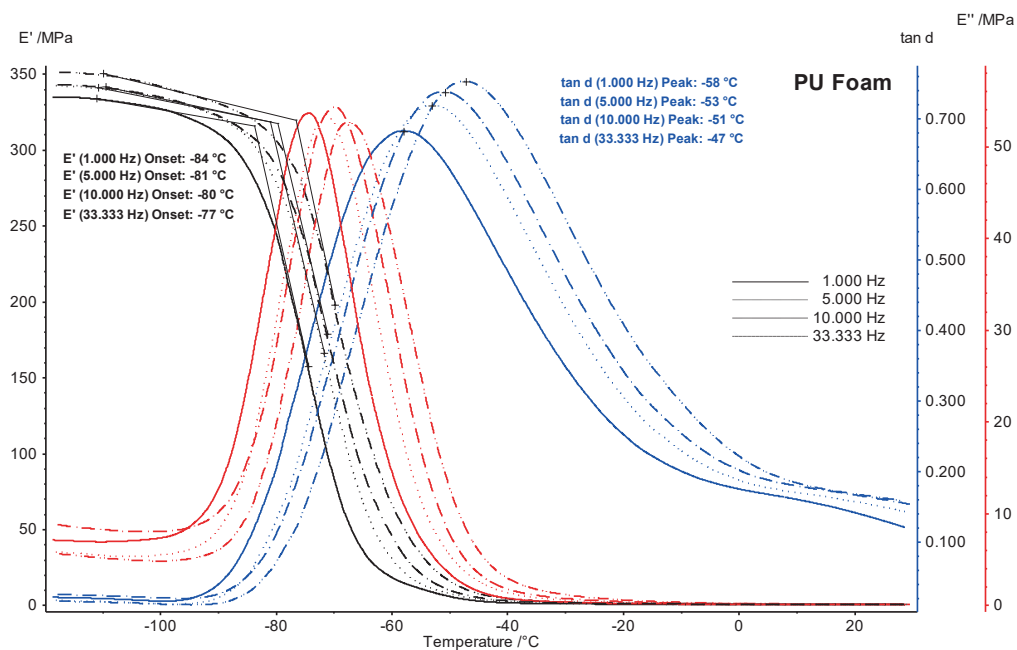
Polymers · Automotive
DMA 242 E Artemis

Polyurethane Foam

Introduction

Polyurethanes are a group of polymers consisting of organic units chained together by urethane links. As polyurethanes can be firm, flexible or formable, foams or solids

depending on the varying chemicals used during the production process, they have found a wide variety of uses as durable elastomers, high-performance adhesives, fibers and many more. PU foams are being used for tires, car seats and insulations.



Test Conditions

Temperature range: -120°C ... 30°C
Heating/cooling rates: 2 K/min
Sample holder: compression
Amplitude: ±30 µm
Frequency: 1, 5, 10 and 33 Hz
Proportional factor: 1.2
Max. dynamic force: 6.5 N

Test Results

The dynamic thermo-mechanical behavior of a PU foam is depicted in the plot. The glass transition was measured at -84°C for the storage modulus (black curve) at a frequency of 1 Hz. As can be seen, the properties of the foam strongly depend on frequency. The glass transition temperature is shifted by 7°C from -84°C at 1 Hz to -77°C at 33 Hz.