Pmma storage modulus curve

The PMMA/inorganic nanoparticle nanocomposite foams, having low density, possess high compressive strength, tensile strength, elastic modulus, T g, thermal stability, and thermal conductivity ...

This study introduced a novel approach for rapidly constructing the master curve of the storage modulus of a viscoelastic material such as PMMA using a combination of high-power ...

The dynamical behavior of the foils was tested in tensile mode using 0.1 N of stress with a frequency of 1 Hz for the determination of storage, loss modulus, and damping values of the ...

PMMA is an uncrystallized polymer whose vitreous transition temperature ranges from 110 up to 135°C, i.e. at ambient temperature it is hard, rigid, and brittle with little elongation. PMMA is hygroscopic and, ...

A novel technique is presented for the rapid estimation of the master curve of storage modulus of a polymer, using laser Doppler vibrometry, infrared thermography, and high-power ultrasonic excitation.

If only the temperature range of 20 °C to around 45 °C is analyzed, the storage modulus curve of each radiation condition is parallel, which indicates that, for this specific ...

Request PDF | On Apr 1, 2025, Navid Hasheminejad and others published Rapid characterization of Polymethyl Methacrylate (PMMA) storage modulus using laser Doppler vibrometry and high-power ...

Curves of storage modulus and loss modulus as a function of temperature can be obtained and analyzed. Moreo- ver, the secondary transition temperature (T?) and the glass transition temperature ...

The study of relative dynamic modulus (({E}_ {mathrm {tandelta }})) profile, i.e., phase transition behavior of the polymers and their composites in an absolute and methodical ...

Figure 3 compares the DMA curves of the PMMA composites with that of pure PMMA. The storage modulus, E", was higher for the filled samples than for the pure PMMA sample. ...

. The storage modulus refers to the capacity of a material"s elastic component to absorb and store en rgy. It is also associated with the rigidity and dimensional stability of a material unde dynamic stress. ...

Fig. 4 displays the evolution of storage modulus over a range of frequency through the ?-relaxation at different temperatures for PMMA 120. All the different PMMAs exhibit a classical ...

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Since the PMMA is a viscoelastic material, its Young"s modulus presents a storage and a loss component (see Eq. (1)). The storage component is related to the elastic part of the material ...

A novel technique is presented for the rapid estimation of the master curve of storage modulus of a polymer, using laser Doppler vibrometry, infrared thermography, and high-power ultrasonic excitation. ...

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