Pmma storage modulus curve

What is the E ? modulus of PMMA T and B?

The values of E ? modulus at very low temperatures for PMMA t and PMMA b are higher than 10 9 Pa(Table 1). Table 1 Dynamic mechanical characteristics of PMMA relaxation processes The PMMA sample looks to be more rigid under bending deformation (PMMA b).

What are the stress-strain curves of PMMA?

As discussed, the stress-strain curves of PMMA are characterized by complex behaviour with the elastic response followed by plastic yielding accompanied by initial material strain hardening, with subsequent softening and then final hardening of the materials until fracture (Fig. 4).

Why is PMMA more rigid under bending deformation?

The PMMA sample looks to be more rigid under bending deformation (PMMA b). The storage modulus in the glassy region is more than two times higher for PMMA b than PMMA t. This difference arises from the complexity of the deformation in bending clamping system due to existence of biaxial stresses.

How is von Mises stress distributed in PMMA specimen in uniaxial tension?

Distribution of von Mises stress in PMMA specimen in uniaxial tension using two-layer viscoplasticity material model at 80 °C: (a) at peak stress level (strain 6.29%); (b) at end of simulation (strain 122.7%). 4.6. Three-point bending FE model The two material formulations were further used to simulate three-point bending tests.

What are the apparent activation energies of PMMA relaxations?

The apparent activation energies of the relaxations were determined from multifrequency and step-scan experiments. The aim of the DMA temperature scan is to characterize the viscoelastic behavior of PMMA in terms of storage modulus, loss modulus and tan ? factor.

What is the tensile and bending temperature of PMMA?

Tensile and bending tests of PMMA were performed over an application-relevant temperature range (20 °C,40 °C,60 °C and 80 °C)below its glass transition point (108 °C). The obtained experimental data were used to quantify parameters of the two constitutive models.

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