

In this work, composites of ultra high molecular weight polyethylene (UHMWPE) and various loadings of cellulose nanocrystals (CNCs) were prepared exploiting different methods. ...

The platform modulus, which is also known as the storage modulus in the rubbery plateau, is a function of entanglement and cross-linking. Larger storage modulus generally results in greater entanglement ...

The storage modulus and loss modulus of the UHMWPE blends increase as a result of higher frequency. The increase of the modulus in the low frequency region is more obvious, while it ...

By bridging this knowledge gap, this article provides valuable insights for researchers, highlighting the immense potential of UHMWPE nanocomposites for ballistic protection, aerospace ...

Fig. 8 manifests that the storage modulus of the UHMWPE samples in the rubber state is evidently enhanced when the sintering temperature surges, illustrating that there are more ...

Ultra-High Molecular Weight Polyethylene (UHMW-PE) Material Properties ... Note: Property data shown are typical average values and will vary based on specific production lots and by size and product ...

The plots of storage modulus-temperature curves of POSS/UHMWPE composites are shown in Fig. 7. The easy formation of a dense entangled network of UHMWPE determines that ...

Download scientific diagram | Storage modulus (a), loss modulus (b), complex viscosity (d) and Cole Cole curves (e) of neat PE, PE/20 wt%UHMWPE and PE/20 wt%UHMWPE-30 wt% LUHMWPE ...

The storage modulus ( $G'$ ) and loss modulus ( $G''$ ) were reduced because the relaxation rate of the UHMWPE melt was tailored by the addition of HDPE to decrease the entanglement density.

The present invention pertains to a process for the manufacture of a composite wherein the process comprises the following steps: i) graphene is exfoliated, ii) ultra high molecular weight polyethylene ...

The addition of OBC marked PP and UHMWPE molecular chains entangled tightly, which made the relaxation time of blends longer and the storage modulus higher in low frequency region.

The  $\beta$ -relaxation temperature for UHMWPE is wide, ranging from 30 to 120  $^{\circ}\text{C}$ , and depends on the crystallite thickness [44]. The  $\beta$ -transition corroborates with the loss modulus ( $E''$ ) ...

The crystals in room-temperature UHMWPE also prohibit chain movement, which leads to a high storage

# Uhmwpe storage modulus

modulus that is not representative of cross-linking. Increasing the temperature ...

It is well known that the crystallinity, lamellae thickness, morphology, and arrangement of crystallites affect UHMWPE properties, especially mechanical strength and wear resistance [18]. ...

Introduction. The objective of this paper is to present the mechanical properties of Ultra High Molecular Weight Polyethylene (UHMWPE) Reference Material (RM) 8456, newly available from the National ...



# Uhmwpe storage modulus

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