

The objective of this study was to synthesize a Gum Ghatti-cl-poly(NIPAm)/CoFe₂O₄ (GGNICAF) hydrogel through free radical copolymerization. The key components used in the synthesis included gum ghatti as a biopolymer (GG), methylene bis-acrylamide (MBA), Potassium Persulfate (KPS), and Ammonium Persulfate (APS) as a cross ...

Abstract. Magneto-rheological (MR) elastomers contain micro-/nano-sized ferromagnetic particles dispersed in a soft elastomer matrix, and their rheological properties (storage and loss moduli) exhibit a significant dependence on the application of a magnetic field (namely MR effect).

The increased demand for gluten-free (GF) foods calls for the incorporation of novel ingredients to improve the technological drawbacks of GF formulations. This study aimed to evaluate the potential of a Gelidium amansii polysaccharide-based (GAP) flour as a structure-supporting ingredient in gluten-free foods in terms of its impacts on the functional, rheological, ...

Injectable hydrogels have gained popularity as a vehicle for the delivery of cells, growth factors, and other molecules to localize and improve their retention at the injection site, as well as for the mechanical bulking of tissues. However, there are many factors, such as viscosity, storage and loss moduli, and injection force, to consider when evaluating hydrogels for such ...

As pretreatment, ultrasound affects the rheological properties of proteins such as viscosity and storage and loss moduli due to the structural modification of its polypeptide chain, as a ...

The storage modulus G' represents the energy stored in the material relative to its strain amplitude during cyclic loading, highlighting the ability to recover elastically under strain. On the other hand, the loss modulus G'' serves as a crucial mechanical parameter for viscoelastic materials, measuring the energy dissipation during ...

The storage modulus (G') and loss modulus (G'') are related to the elastic (viscoelastic solid) and viscous (viscoelastic liquid) properties of the systems, respectively. When subjected to low-frequency values (from 0.01 to 0.1 Hz), G' and G'' revealed a certain frequency dependence at low frequencies with values of similar magnitude for each ...

dissipation or loss of energy as heat in a cycle of deformation. The tangent of the phase angle (δ) between stress and strain, the loss tangent ($\tan \delta$), is a useful parameter and a measure of the ratio of energy lost to energy stored during cyclic deformation [6]. The complex modulus E^* of each material is calculated as follows [6]:

Rheological aspects of solid-to-liquid phase transitions in paraffin wax/bitumen blends for thermal energy storage applications. Author links ... Austria) using a plate-plate geometry (25 mm diameters with 1-2 mm gap). ... both samples present unexpectedly high storage and loss moduli (Fig. 2) and a pattern of flow curves of structured ...

It's a beautiful Resort and I'm helping Brookfield. Brookfield is bringing out a new instrument, which could be bringing some of the higher-end rheological capabilities to a wider audience. It really works with my ethos and that of my team back in the UK. We've been discussing storage modulus and ...

Rheology is a branch of physics. Rheologists describe the deformation and flow behavior of all kinds of material. The term originates from the Greek word "rhei" meaning "to flow" (Figure 1.1: Bottle from the 19th century bearing the inscription "Tinct(ur) Rhei Vin(um) Darel". Exhibited in the German Apotheken-Museum [Drugstore Museum], Heidelberg.

Download scientific diagram | Typical rheological data (storage modulus, G' () and loss modulus, G'' ()) of sol-gel phase change with accompanying images taken during tube inversion test.

The various responses which can be analyzed to obtain the various rheological parameters include the creep compliance that can be split into elastic and viscous components, the stress relaxation and the relaxation time of the system, the storage modulus (elastic component), and the loss modulus (the viscous component).

Using various tests, rheological properties of the hydrogels such as gelation time, storage and loss modulus, and self-healing behavior can be established, all of which contribute towards ...

authors of this paper have judged the viscosity, storage and loss modulus results with the applied rheological methods in Andr ä"s wo rk [11] to be reliable, accurate and well stud ied. The data ...

As shown in Figure 7, it can be clearly seen that the lower the temperature, the higher the energy storage modulus and loss modulus, and as the vibration frequency increases, the gap between the curves is getting wider. The slope of the energy storage modulus curve remains basically unchanged, while the slope of the loss modulus curve has been ...

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