Gel storage modulus and hardness

What is the storage modulus of cross-linked gels?
The storage modulus of cross-linked gels were determined via a DHR-1 rheometer (TA Instrument, USA), equipped with a parallel plate geometry (40 mm diameter and 1 mm gap) at 25 °C.

Does rheology affect storage modulus in a gel-like state?
One can see the correlationbetween the rheology of typical yielding materials (presented by the flow curves) and the frequency independence of the storage modulus in the gel-like state (at low stresses) . Figure 5.

Do physical hydrogels have a loss modulus?
Gu et al. compared the loss and storage moduli values of physically and hybrid chemically crosslinked hydrogels; the G' and G" values of the physical hydrogels were highly frequency dependent with the storage modulus being significantly higher than the loss modulus at the highest frequencies.

How does temperature affect storage and loss moduli?
They determined that both the storage and loss moduli decreaseas the temperature increases. However,the slope of the storage modulus is steeper,which eventually leads to the two values crossing and the occurrence of the gel-sol transition.

What is the storage modulus of a soy protein gel?
Storage modulus (G?) strongly depends upon the interactions and cross-links between protein molecules in the gel structure. Renkema (2004) reported that rheological properties of heat-induced soy protein gels connected to the coarseness of the gel and curvature of the strands in the gel.

How to determine the viscoelastic properties of hydrogels prepared under different conditions?
From the dynamic mechanical analysis,we determined the storage modulus (G ?),loss modulus (G ?) and loss factor (tan ? = G ?/G ?) to evaluate the viscoelastic properties of the hydrogels prepared under various conditions.

Li et al. (2021) demonstrated that thermally-denatured whey proteins on the outer layer of emulsion gel microparticles formed interactions with milk proteins, contributing to the increased ...

Abstract This study investigates the functional role of sweet potato starch paste (PSP) in enhancing the processing characteristics and quality of sweet potato starch (PS)-based ...

11 ????· In addition, the high cross-linking density improves the storage modulus (G"), endowing the gel with elastic recovery ability, while the tangled protein chains in the ...

Download scientific diagram | Rheological properties of fermentation induced gels. (a) Storage modulus (G?)

and (b) loss modulus (G?) with frequency, (c) viscosity, and (d) storage modulus ...

From the dynamic mechanical analysis, we determined the storage modulus (G ?), loss modulus (G ?) and loss factor (tan ? = G ?/ G ?) to evaluate the viscoelastic properties of ...

In general, using less crosslinker will make cured products softer and lower modulus, while adding more has min-imal impact (note, for the extremely soft gels, adding more crosslinker can ...

o??? - ?? ??? ??? ? (gel) ??? ?? (??)? ? (sol) ?? (??)? ??? ??? ?? ???? ?? ? ??? ??? ?? oG" : ???? (elastic modulus, storage modulus, ...

The gel properties of starch gels, such as viscoelastic properties and textural properties, have been investigated in starch-hydrocolloids mixed gels. Luo et al. (2020) found that the storage ...

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