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A NEW TECHNIQUE TO OBTAIN THE GELATION TIME OF HYDROGELS

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A new technique to estimate the gelation time of hydrogels is presented. The technique is based on the relaxation dynamics of gels by applying a rheometric test called instantaneous stress relaxation. The gels once prepared usually do not flow, which makes difficult and tedious to perform oscillatory or continuous simple shear tests. In this test, an initial small deformation is applied and the stress is allowed to relax. The data is Fourier-transformed (modulus G(s) as a function of time) to obtain a frequency response in terms of storage and loss modulus from which the crossover time is easily calculated. Data for a xanthan gum gel is presented. This technique has been reported previously using molten polymer nanocomposites and it has been shown to represent accurately the frequency response of the materials.