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Physicomathematical Modeling of the Deformation of Flexible Polymers in an Ultrasonic Wave

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[Aims and scope](#) →

[B. B. Kolupaev](#) ✉, [B. S. Kolupaev](#), [V. V. Levchuk](#), [Yu. R. Maksimtsev](#), [V. A. Sidletskii](#) & [A. P. Vlasyuk](#)

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The authors have given results of the investigation into the viscoelastic properties and processes of mechanical relaxation of systems based on polyvinylchloride with a 0–3.0 vol.% content of a nanodisperse–copper powder. The systems were obtained at a frequency of 0.4 MHz at a temperature of 298–353 K. From the Alfrey–Maxwell phenomenological approach, the authors have developed a method to determine the components of viscoelastic deformation of PVC systems under shear and volume loading. The maximum influence of the filler on the viscoelastic properties of such a system was found in the range of variation in the Cu content 0.05–1.00 vol.%. A quantitative interrelation has been established between the energy–exchange processes in PVC systems and ways have been indicated of using them in dynamic mechanical and temperature fields.

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