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Propagation of acceleration waves in the viscoelastic Johnson-Segalman fluids. (English)

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Summary: The propagation conditions of acceleration waves are investigated for a viscoelastic fluid using the Johnson-Segalman viscoelastic model. Explicit expressions are obtained for the wave speeds adopting the theory of singular surfaces. The simple shearing motion, uniaxial, biaxial extension and uniform dilation are considered as the initial states of deformation. The variations of the speeds with the propagation direction, stretch ratio and material parameters are presented.

MSC:

76A10 Viscoelastic fluids

Cited in 3 Documents

Keywords:

acceleration waves; singularity surface; viscoelastic fluid; Johnson-Segalman model

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