

# FASTAB™ TECHNOLOGY

## Microscopic Mechanisms of the Brittleness of Viscoelastic Fluids

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### **Résumé / Abstract**

We show that a large class of viscoelastic fluids, i.e., transient networks, are brittle according to the Griffith's theory of solid fracture. However, contrary to solids, cracks are intrinsic to the material arising from the equilibrium nature of the fluid microstructure. The brittleness of these fluids comes from thermal fluctuations of bonds distribution. In this approach, the rupture stress is predicted to be on the order of the Young modulus, in very good agreement with experimental values.

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