

Abstract Submitted  
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**A new method to determine the yield stress of diluted polymeric solutions** ENRIQUE SOTO, SERVANDO RUIZ, MARIA SOLEDAD CORDOVA AGUILAR, Universidad Nacional Autonoma de Mexico — A new method to measure the yield stress for diluted polymeric solutions is presented. The tested solutions exhibit shear thinning behavior a once the critical yield stress is overcome. In rheology, these fluids are known as Herschel-Buckley. The yield stress phenomenon and its relation with bubble motion is an important issue for different industries, for example, personal care, paints and some others. As a result of the yield stress, small bubbles remain trapped in the fluid bulk, but above a critical volume, which is related with the characteristic yield stress, the bubbles flow in the liquid. In order to change the bubble volume, the liquid is placed in a cylindrical container whose pressure is decreased by a vacuum pump. The bubble grows as the pressure decreases and keeps its position until it reaches the critical volume. The bubble shape changes with volume and velocity, and a competition among surface, gravitational, inertial and viscous forces is discussed. The yield stress determined value is higher than the obtained from simple shear measurements due to the complex flow around the bubble.

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