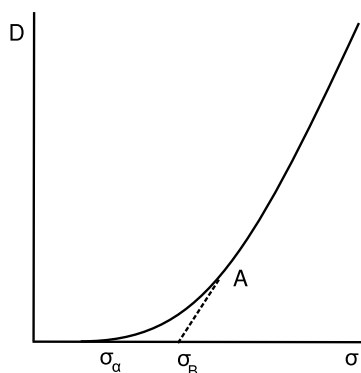


Bingham flow

Many colloidal dispersions show Bingham flow which is characterized by a σ - D diagram as shown. At rates of shear greater than that at point A, the following relation applies:

$$\sigma - \sigma_B = \eta_{\Delta} D$$

where σ_B (or τ_B) is called the Bingham yield stress, η_{Δ} is the differential viscosity, D is the shear rate, and σ is the average of three normal stress components if the deformation is purely dilatational.



Source:

PAC, 1979, 51, 1213 (*Manual of symbols and terminology for physicochemical quantities and units. Appendix II: Definitions, terminology and symbols in colloid and surface chemistry. Part 1.13. Selected definitions, terminology and symbols for rheological properties*) on page 1217