

simple shear

An idealized treatment of a fluid between two large parallel plates (to permit ignoring edge effects) of area A , separated by a distance h . If one plate moves relative to the other with a constant velocity V , requiring a force F acting in the direction of movement, and the density, pressure, and viscosity throughout the fluid are constant, the Newtonian equation can be coupled with the equations of motion and of continuity to show that the velocity gradient in the fluid is constant ($= \frac{V}{h}$), and that $\frac{F}{A} = \frac{\eta V}{h}$. This idealized case (simple shear) is sometimes used to define shear viscosity.

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 1216