

## Viscous waves and viscosity of a liquid near the solid surface

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### Abstract

The viscosity change in the volume of liquid boundary layer was researched by means of shear viscous waves. The boundary layer was created at recurrent vibrational motion of the cylinder in glycerol. Viscosity change was estimated by the change of velocity of liquid particles with their approach to the cylinder surface. Velocities of the liquid surface and liquid particles should become equal according to classical ideas about the boundary condition of sticking. However, the experiment has confidently shown the excess of the liquid velocity as related to the set values obtained from Navier-Stokes equation for the viscous incompressible liquid. The value of liquid speed excess and, hence, the value of increase in boundary viscosity depends on the cylinder surface material. It grows with the increase of lyophobicity of the cylinder surface material as related to the investigated liquid.