

Answer on Question #53001-Physics-Mechanics-Kinematics-Dynamics

A liquid with the volume of 0.2 m³ at 300kPa is subjected to the pressure of 3000kPa and its volume is found to decrease by 0.2%. Calculate the bulk modulus of elasticity of the liquid.

Solution

The bulk modulus of elasticity of a liquid is

$$E = -\frac{\Delta p}{\left(\frac{\Delta V}{V}\right)} = \frac{3000\text{kPa} - 300\text{kPa}}{0.002} = 1350\text{MPa}.$$

Answer: 1350MPa.