Porosity, Poisson's ratio, and shear force:

1. Determination of Poisson's ratio
2. Stress distribution
3. Viscous flow
4. Force application

Porosity is the ratio of the void volume to the total volume of the material.

Poisson's ratio is the ratio of the transverse strain to the axial strain.

Shear force is the force that causes shearing stress on a material.