

**A STEADY FLOW OF A HOMOGENEOUS VISCOUS  
INCOMPRESSIBLE FLUID THROUGH A STRAIGHT POROUS  
TUBE OF EQUILATERAL TRIANGULAR CROSS SECTION  
UNDER A CONSTANT PRESSURE GRADIENT**

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**Abstract**

This paper presents an investigation on a viscous incompressible fluid flow in a long straight porous tube of equilateral triangular cross section with an impermeable wall under a constant pressure gradient. The porous medium is homogeneous and isotropic and the governing equation is non-Darcian Navier Stokes equation. Exact analytical expressions have been derived for the velocity field and the flow rate across the cross-section. The effect of the porosity coefficient on the flow rate is illustrated graphically.

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Key Words : *Viscous Incompressible fluids, Navier stokes equation, Non-Darcian Approach, Equation of continuity, Porous medium, Two dimensional wave equation.*

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