World Academy of Science, Engineering and Technology
International Journal of Mechanical and Industrial Engineering
Vol:10, No:07, 2016

Numerical Study of Two Mechanical Stirring Systems for Yield Stress Fluid

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Abstract : Mechanically agitated vessels are commonly used for various operations within a wide range process in chemical, pharmaceutical, polymer, biochemical, mineral, petroleum industries. Depending on the purpose of the operation carried out in mixer, the best choice for geometry of the tank and agitator type can vary widely. In this paper, the laminar 2D agitation flow and power consumption of viscoplastic fluids with straight and circular gate impellers in a stirring tank is studied by using computational fluid dynamics (CFD), where the velocity profile, the velocity fields and power consumption was analyzed.

Keywords : CFD, mechanical stirring, power consumption, yield stress fluid
Conference Title : ICCME 2016 : International Conference on Computational Mechanical Engineering
Conference Location : Montreal, Canada
Conference Dates : July 14-15, 2016