

OP-6-642

Thursday, May 12, 2011, 11:50am-12:10 pm Room: Karam 1 THREE-DIMENSIONAL SIMULATION OF MOLD FILLING OF VISCOELASTIC FLUIDS USING FINITE VOLUME METHOD

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In this research, three dimensional molds filling of polymeric resins has been considered using fine volume schame. Two-phase model concerning two-phase fluid including Viscoelastic and Newtonian (Air) was applied in mold. Giesekus model was used for a solution of viscoelastic fluid. The viscosity of polymer fluid was assumed 1.2 Pa.s which is about 1000 times greater than water viscosity. The applied pressure difference was considered 8000 Pa. To improve the pressure distribution in the mold, two symmetrical vents on either side of the mold. Obtained results for velocity and pressure distribution are qualitatively in agreement with experimental data presented in literature. Die-swell phenomenon for viscoelastic fluid was observed at mold entrance. When vent was not embedded , due to increase of pressure in the cavity, an upward force would be applied to the fluid which result in . When the vent is fitted, there is no upward force and the inputted fluid will be gain a greater velocity