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## **Study on the Elongational and Shear Flow Behavior for the Bifurcation during Injection molding**

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Filling Analysis of Polymer Melt in injection molding for the bifurcated cavity was studied by using Lagrangian Adaptive Remeshing (LAR) technique. The numerical analysis, while melting polymer was transiently entered into the cavity, was performed regarding contact between free surface and two dimensional mold, neglecting temperature effects. For smooth operation of LAR, mesh size and contact conditions were controlled. The experiment was carried out in order to validate the numerical results. As conclusions, the following results were obtained.

- 1) The direction of the melt flow on the bifurcation point being effected by the shape of bifurcation was simulated.
- 2) Elongation and rotation behavior of melt at the corner or at the bifurcation point were transiently observed.
- 3) Residual strain produced by the flow, which relates to the structural strength, can be predicted based on numerical results.
- 4) Transient swing of flow front occurred, which suggests relationship with the generation of the flow mark.