

SL 1.6

Numerical Study on the Transient Contraction Flow

N.H. Tubagus, K. Sugiyama and M. Shiohara

Research Center of Computational Mechanics Inc., Shinagawa, Tokyo, Japan

In this study, the author's attempt to investigate the transient contraction flow during the extrusion process. The main purpose of this study is to analyze the relation-ship between the time dependent boundary condition on the defects generation.

A start-up function was set as the inflow velocity, the melting LDPE was predicted as a viscoelastic material. Numerical simulations based on the Finite Element Method were performed transiently. For quantitative comparison, the non-viscoelastic simulation was also conducted. The results show the viscoelastic effect must be considered in the time dependent boundary condition process. The 'over-stress' phenomenon appeared largely in the contraction area and the stress was released exponentially after the start-up process.