Numerical Simulation of Wire-Coating: The Influence of Temperature Boundary Conditions

A finite element program has been used to analyze the wire-coating process of an MDPE melt. The melt is modeled by a nonisothermal Carreau model. The emphasis is on predicting an accurate temperature field. Therefore, it is necessary to include the heat conduction in the metal parts. A comparison is made with the results of a simulation that models the heat conduction in the metal head by means of a Biot boundary condition. The influence of the wire velocity, inlet temperature and power-law index will be examined.
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