

SIMULATION OF THE INJECTION MOULDING FILLING STAGE

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Nowadays, any project activities should be supported by suitable simulation tools, aiming performance optimization and resource minimization. In the market there are numerous modelling codes able to simulate extremely complicated processes. The dissemination of these codes by industry faces two huge difficulties, the cost of commercial simulation licenses and/or the nonexistence of human resources able to use these tools adequately. For the first problem, costs limitations, a possible solution is the use of open source modelling software. Along the years, the number of open source code users increased, and these users became more organized. As a consequence, the quality of open source simulation codes was amplified, leading to the development of codes with the same capacities of the commercial ones. Also, teams that in the past developed their own simulation codes are now gathering their efforts to provide powerful and common simulation codes, to every member of the community. A good example is the software OpenFOAM[®] (Open source Field Operation and Manipulation) which is capable of simulating complex systems behavior, involving fluids and/or solids, multiphase systems, being also able to make parallel calculations. One of the main advantages of using OpenFOAM[®] is the possibility of programming/adaptation that allows the development of news applications using a symbolic language. In this work we are interested in the simulation of the polymer injection process, more precisely, the filling stage, and based on what was said before, the OpenFOAM[®] software seems to be the adequate software to perform such simulations.