

Rheological Behaviour of Bronze Feedstocks at Low Shear Rates

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Rheology is a key factor for the production of high quality PIM parts, characterization of feedstocks themselves and reliable results of numerical simulation of the PIM process. Rotational rheometry is among the common techniques for characterising the flow properties of thermoplastic materials.

In comparison to thermoplastics the PIM feedstocks have their own specific rheological behaviour. Furthermore the effects such as e.g. yield stress, wall slip, phase separation, and pre-shearing can also have a significant effect on the flow behaviour, the accuracy of the measurement and thus on related results of injection moulding simulation.

In this work the difficulties at rheological measurements on commercial bronze feedstock at low shear rates ($< 500 \text{ s}^{-1}$) are shown and discussed. The steady and oscillatory shear tests have been done on a rotational rheometer using the plate-plate geometry with the standard smooth and special profiled surface.

Key words: bronze feedstock, parallel-plate rheometry, texturized parallel-plate