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DETERMINATION OF PRESSURE DROP IN POLYMER FLOW IN TOROIDAL CHANNELS USING THE HERSCHEL-BULKLEY FLUID MODEL

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Plastics forming is a complex process and therefore the knowledge of individual methods and their implementation in practice is of crucial importance in obtaining the desired effects in production. The study of material properties and mechanisms governing the processes and phenomena taking place during forming is decisive in obtaining a perfect finished product. The polymer flow in toroidal concave and convex channels is considered in the paper. The Herschel-Bulkley fluid model is used to describe the molten polymer. Dependences specifying pressure drops in a conical channel are given in the form of charts which show non-dimensional pressure distribution on the whole length of toroidal channels.

Keys words: toroidal channel, polymer, Herschel-Bulkley fluid.

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