

*Analysis of solidification phenomena in Bulkley-Herschel
extrusion flows*

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Simplified flow models for Bulkley-Herschel fluids in ceramic paste extrusion are investigated. Exact solutions to models with and without convection terms are derived and discussed. In particular, it is demonstrated that for a certain range of model parameters there exist solidification zones. The effects of the model parameters on solidification-zone formation are rigorously analyzed. Furthermore, the analogy to the widely investigated formation of dead zones in chemical reactor engineering is shown.