

# **Numerical Modeling of Scale-up in Low Density Blown Film Processes**

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Non-isothermal rheological models have been used to scale-up blown film processes in laboratory and pilot scales using low-density polyethylene (LDPE). The rheological data has been obtained from the literature and has been fitted to a constitutive equation.

The processing data from a laboratory scale with suitable operating parameters such as mass flow, extruder temperature, tensile axial force, take-up velocity has been correlated with the bubble geometry and temperature profile. Using the developed constitutive equation a model of the blown film process has been tuned to this data. This model has been further used for scale up studies to predict the operating parameters for a blown film of a different geometry.

The limits and advantages of this approach for scale up and optimization is discussed.