OP-4-105

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EXTRUDER CONTROL USING GENERALIZED PREDICTIVE CONTROL

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Barrel temperature and die pressure are two key variables in the extrusion process control system for ensuring product quality. The characteristics of the extruder barrel temperature are nonlinear and slow response, and different zones are highly correlated. A Multivariable Generalized Predictive Control (MGPC) strategy is adopted for extruder temperature control. Die pressure is another key variable that relates to output rate and process stability. Another GPC has been designed for the die pressure control. Experimental results demonstrate the fast response, near-zero overshoot and precise tracking performance of the proposed control strategies. The control system is robust against variations of operating conditions including different materials and set-points.