

Melting Limitations in Single Screw Extruders

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For many processes, the melting capacity of a screw can limit the maximum rate for the extruder. Typically, if the screw speed is doubled, the rate will increase by nearly a factor of 2. The melting rate, however, may only increase by a factor of 1.4, i.e., an increase in melting of about 40%. Thus, if the screw speed is continually increased, a speed will be obtained where solid polymer particles will be discharged with the extrudate. These solid particles can create defects in the final product. Although not popular with a production plant, the best way to eliminate solids in the extrudate is to decrease the rate. Another option is to replace the screw with one of the many high-performance screws on the market.

– Mark Spalding, The Dow Chemical Co.

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