

Stability on single screw extruders

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Good pumping consistency on extruders is necessary in most applications to allow good product consistency. Numerous factors influence the ability of the extruder to deliver the melt at good pumping stability and they include: feed material bulk density, friction characteristics of the feed (lubricated, etc.), feed material temperature (long term effect), feed section opening and hopper design, screw feed area design, screw transition/meter section design (or barrier/meter section designs), screw tip pressure level, operating screw speed range, barrel temperature profile, motor rpm stability, screw/barrel/feed section wear, etc. All of these factors, and probably a number of others, must be investigated when instability occurs (surging, product variation, etc.).

Since other downstream or die factors are also candidates for product variation, the extruder should first be singled out as the culprit through pressure variation checks near the screw tip in the die adaptor. If more than 3% total pressure variation is occurring, some attention to the extruder is warranted. A pressure measurement on the screw tip must allow discounting the screw revolution effects from the stability readings.

- Edward Steward, American Kuhne Corp.

See also:

- [Answers - preheating feedstocks for extrusion](#)
- [Defining screw performance](#)
- [Flow surging in single-screw, plasticating extruders](#)
- [Process uniformity](#)
- [Pressure gauge](#)
- [Effect of flight radii size on the performance of single screw extruders](#)

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