

The use of statistics in extrusion

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Part One "Applying the Science"

The use of statistics for products has been utilized in many of the plastics processes for many years. The next advent of the use of this powerful tool is to find ways of analyzing the extrusion process to determine if the process is in or out of control!

A basic understanding of statistics is required to utilize this science and in an effort to keep it simple and, more importantly usable, we will keep the explanation brief. (Please note that one does not need to become a statistician, to use this science to help good deductive reasoning for problem solving!)

For simplicity and brevity, we will accept the basic precept of a normal distribution bell curve that is defined with three (3) minus Sigma and three (3) plus Sigma that account for 99.7% of the distribution. The mean of the bell curve, statistically computed, would be the theoretical midpoint or zero point in the center of the bell curve.

Sigma one (plus and minus) would represent 68.26% of the distribution. Sigma two (plus and minus) represents an additional 31.44% of the distribution (15.72% plus Sigma and 15.72 minus Sigma) for a total of full Sigma two of 95.7% of the distribution. Carrying out the distribution for three Sigma (plus and minus) leaves 2.2% for each remaining Sigma (plus and minus) for a grand total of 99.73%.

When collecting the data, the population should consist of at least ten (10) discrete numbers or points and a random number totaling 36 measurements for statistical significance. Next: Using the Statistics to Analyze the Process.

- Dan Cykana, Bemis Mfg. Co.

See also:

- [An introduction to statistics](#)
- [An introduction to statistics - Part II](#)

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