

Review of:
Statistical Process Control in Injection Molding and Extrusion

I am a grateful reader who used Dr. Rauwendaal's first book on SPC to solve real world extrusion problems. His second book, SPC in Injection Molding and Extrusion is even better and covers injection molding too. In a nutshell, this book gives the interested reader, technical or not, management or in the trenches, everything he or she needs to successfully understand and apply SPC in extrusion and injection molding manufacturing operations. That's a big statement, but I can back it up with this story.

I design extruded and injection molded plastic parts for clients for a living. I also design specialty down-stream equipment for extrusion lines and occasionally solve production problems.

Recently I had a serious yield problem with an extruded product I had designed. I had mounds of data, but with no background in either statistics or statistical process control. I was unable to successfully organize or make sense of the data.

I consulted Dr. Rauwendaal's book. I was skeptical that a skinny little book like this could help me solve my problem or make me an instant expert on SPC. I was wrong on both counts. What makes this book so powerful is that the author has a strong academic and theoretical background and is an expert in processes. But, he's also been in the trenches and gotten his hands dirty. He has written in simple down-to-earth prose that is immediately useful.

You can't use SPC unless you know something about the process technology. Rather than leap right into the statistics, the author gives the reader a primer in process technology, starting with the main components of the injection or molding machine. From there he leads us through each of the steps the plastic goes through on its way to becoming a finished product.

Along the way he gives us a background on the properties of the most common plastics and how they perform. He also talks about the principals of good die and mold designs.

An especially useful chapter for me was on data collection and problem solving. The author presents simple yet powerful ways to analyze a problem and organize your data, which is the first step toward its solution. There is a chapter on how to set up experiments to analyze problems. The book also has an excellent subject index and a great glossary. Over 50 references are cited for those who want more information though I doubt that many readers will

need them. A list of commercially available statistical software packages is also included.

Here's the rest of the story. With nothing more than Dr. Rauwendaal's book, I was able to organize and analyze the data I had gathered. I devised new experiments to help me pinpoint my problems. I wrote a simple SPC program that I could run in real time to collect and analyze data using Excel spreadsheet functions on my laptop computer. The net result was that I was able to identify problems and make changes in my process. I reduced my yield loss from more than 5% to a fraction of a percent while increasing production speed by over 20%.

Before I read this book, I could calculate standard deviation, mean and the average for a collection of numbers, but that was about it. Now I have a good working knowledge of SPC and know how to apply it to improve products I design and to increase production and yield at the same time. Everything I needed to know was in Dr. Rauwendaal's book.

I'm waiting for Dr. Rauwendaal to write a book on how to fix your own computer.

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