The Grapevine

September 2015

Coming Events:

Thursday September 17 at 6 P.M. "Using Statistical Analysis to Assist Writer in Identification" by Mike Wakshull.

How to identify a writer using statistics.

Identification of handwriting relines on the document examiner's ability to discover the variability of the subject's known writing. Although qualitative assessment is prone to judgement error by the document examiner, variability in forensic document examination is typically neither repeatable nor reproducible. A quantitative analysis is typically can and should be used in document examiners' opinions.

Last Month's Membership Meeting

Quality Management Systems presented by Vinay Goyal. .His experiences rang true with us and reflected teaching from W. Edward Deming.

Section Volunteers

The nominating committee is seeking candidates to service next year.

The positions of Chair, Secretary and Treasure are available these responsibilities take about 3 hours each month. We all work together to cover the bases. The new posts begin Jan 1, 2016.

Contact any of the board members to place your name in the hat.

Contact any one of us if you are interested in serving.

Chair: Jennifer Byrd, 951 317 2084
Secretary: Jeffery Haynes 951 239 2014
Programs: Philip Hansen 951 768 8636
Treasurer: Brent Ferguson 951 265 3017

Auditor: David Johnstone 951 714 3648

San Diego Quality Conference
Where: Hologic, Inc. 633 Sequence
Dr. Sam Doegp CA

Work Shop Friday 6 November,
Main Conference Saturday 7 November
Register through ASQ section 703 web site

Here's a little article to increase your statistical knowledge.

The Role of the standard deviation

Gathering data to make decisions is an important part of Lean and Six Sigma practices. Before you start the actual work, be sure to agree on and write down the purpose of the study. Even sketch out what type of data analysis, before conducting the study ore experiment. Once you have collected data, there are two values used to make those decisions, the mean and the standard deviation. The mean describes the central location of the data, the value that the data is cluster around. The standard deviation is a measure of how spread out the data is. If the data is closely clustered around the mean, the standard deviation is low. If the data is widely dispersed from the mean the standard deviation is high. Both the means and the standard deviation are reported in the same units as the original data, such as inches, lbs. force, or time in seconds.

Both the mean and standard deviation are useful for several types of comparisons. For example to compare a set of data to a specification, for comparing two data set to each other. The basic math for such comparisons involves taking the difference of the mean and a reference or standard value.

Acknowledging the importance of the importance of the standard deviation is essential to making meaningful decision about the mean.

Here is an simple example showing the importance of knowing the standard

Deviation.

In this case the process engineer needs to decide between two adhesive methods. The specification is that the tensile strength must be greater than 1 lb. force. A sample of 20 units from each option is tested. Method A has a mean of 1.5 lbs. force and method B has a mean of 1.8 lbs. force. At first glance method B appears to be better. But let's take a closer look. Method A has a standard deviation of 0.2 lbs. force while method B has a standard deviation of 1.0 lbs. Figures 1 and 2 illustrate.
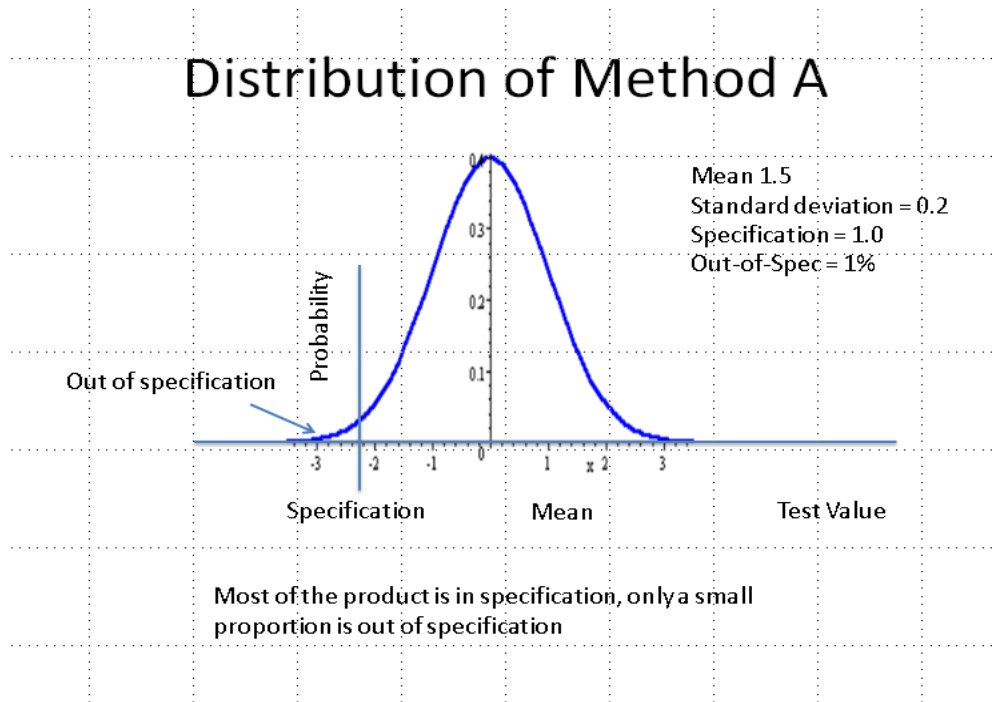
Figure 1: Distribution of Method A

Distribution of Method A

Mean 1.5
Standard deviation = 0.2
Specification = 1.0
Out-of-Spec = 1%

Probability

Out of specification

Specification   Mean   Test Value

Most of the product is in specification, only a small
proportion is out of specification

Distribution of Method B

Mean 1.8
Standard deviation = 1.0
Specification = 1.0
Out-of-Spec = 22%

Probability

Out of specification

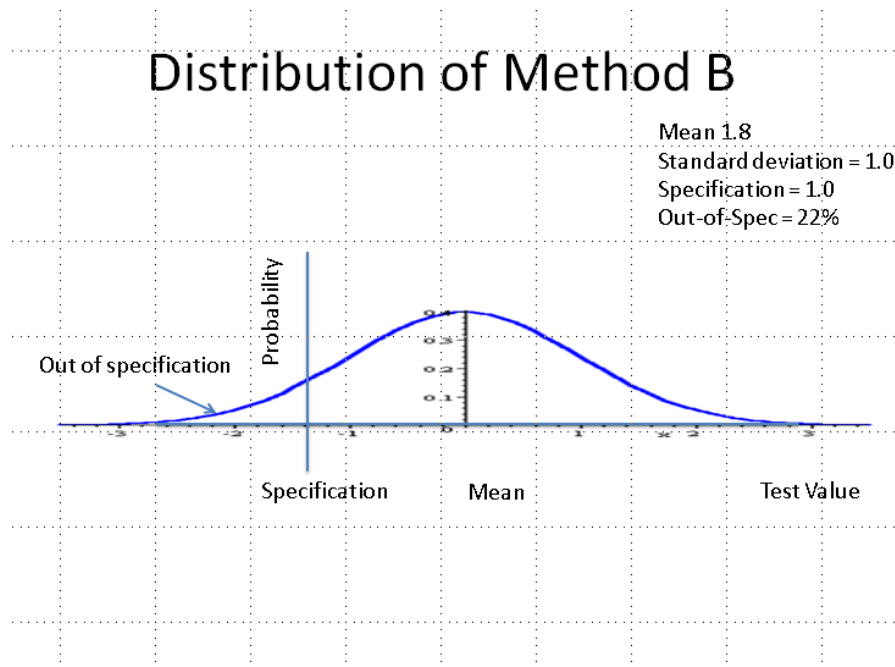Specification   Mean   Test Value

Figure 2" Distribution of Method B

Which process has the greater probability of units falling below the specification?

Notes

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____