

Tutorial 1

ChE 425 Exercise, Courses Note, page 29. Typical process specs example:

In an industrial process, the (property) of (a specimen) is considered important. The buyer sets specifications on the (property) to be 3 ± 0.01 (appropriate units). The implication is that no part outside of this range will be accepted. It is known that in the process in question, the (property) follows a normal distribution with $\mu = 3$ and $\sigma = 0.005$ (units?). On the average, what is the % of product to be scrapped, given the production specs?

CHE 425, CH 1, CONFIDENCE INTERVALS, EXAMPLE 1:

From past experience, we know that we can measure the composition of a particular compound in a mixture, with a standard deviation equal to 2. Three replicate analyses on a particular sample yield: 29.37%, 28.27% and 29.14%. Give a 95% confidence interval for the true content of the compound in the sample.

CHE 425, CH 1, CONFIDENCE INTERVALS, EXAMPLE 2:

Five analyses of % butadiene in a storage vessel yield: 23.1%, 25.2%, 24.0%, 22.9%, 23.4%. Give a 90% confidence interval for the true % butadiene.