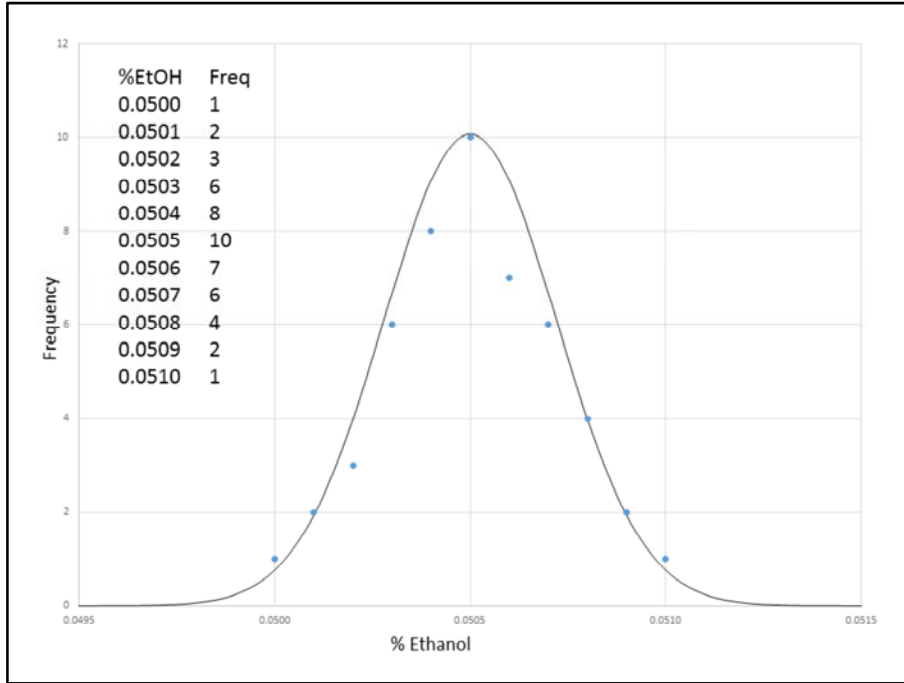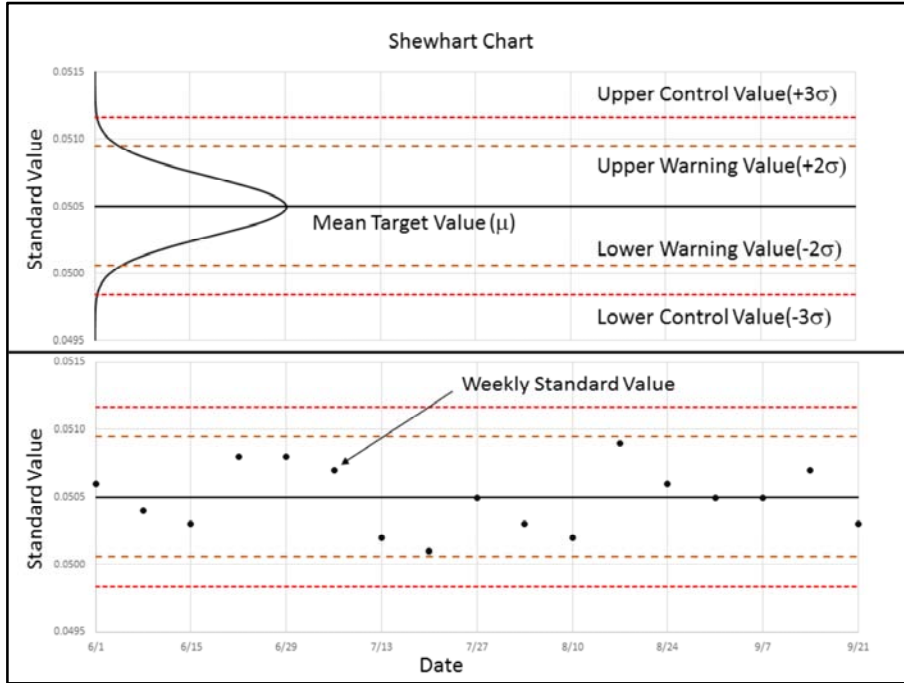| Description	Equation	Variable
Arithmetic Mean	$$\bar{x} = \sum_i \frac{x_i}{n}$$	$x_i = the\ ith\ value$ $n = total\ number\ of\ values$
Degrees of Freedom	$$v = (n-1)$$	
Variance	$$V(x) = \frac{\sum_i (x_i - \bar{x})^2}{v}$$	
Standard Deviation	$$s = \sqrt{V(x)} = \sqrt{\frac{\sum_i (x_i - \bar{x})^2}{v}}$$	
Normal Distribution	$$y(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{\frac{-(x-\mu)^2}{2\sigma^2}}$$	$\mu = population\ mean$ $\sigma = population\ standard\ deviation$
Confidence Limits	$$\mu = x \pm t\left(\frac{s}{\sqrt{n}}\right)$$	$t = confidence\ interval\ value$

$$y(x) = \frac{1}{\sigma\sqrt{2\pi}}e^{\frac{-(x-\mu)^2}{2\sigma^2}}$$

$\mu = 100.0$
$\sigma = 0.10$

An inflection point

1σ

2σ

3σ
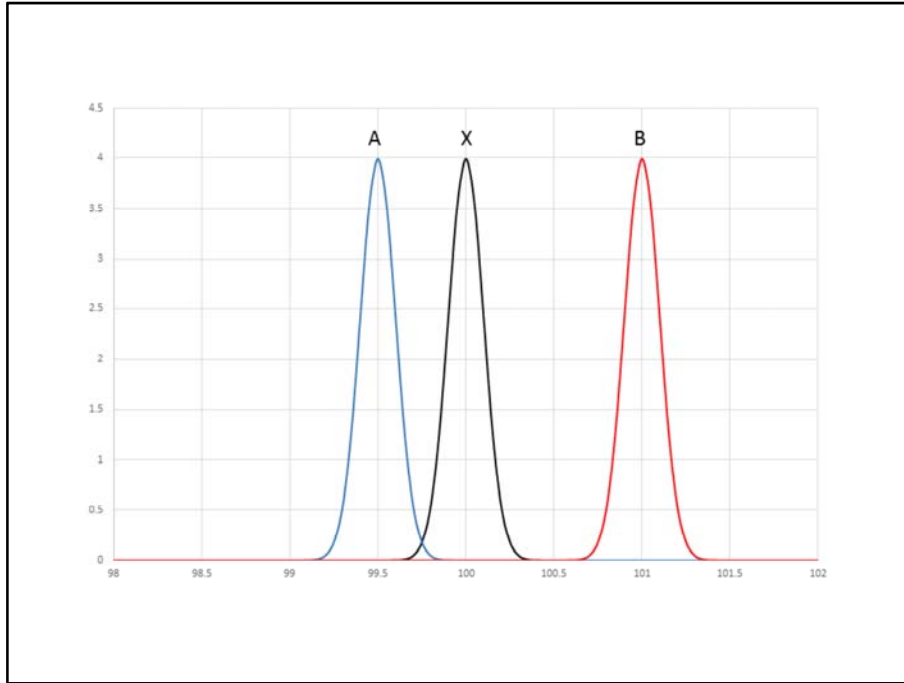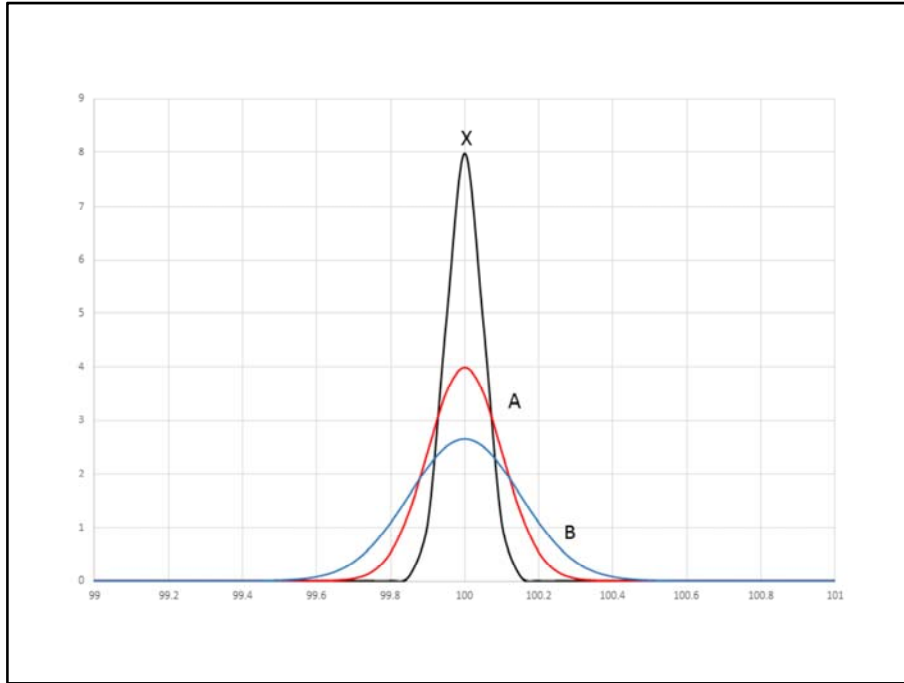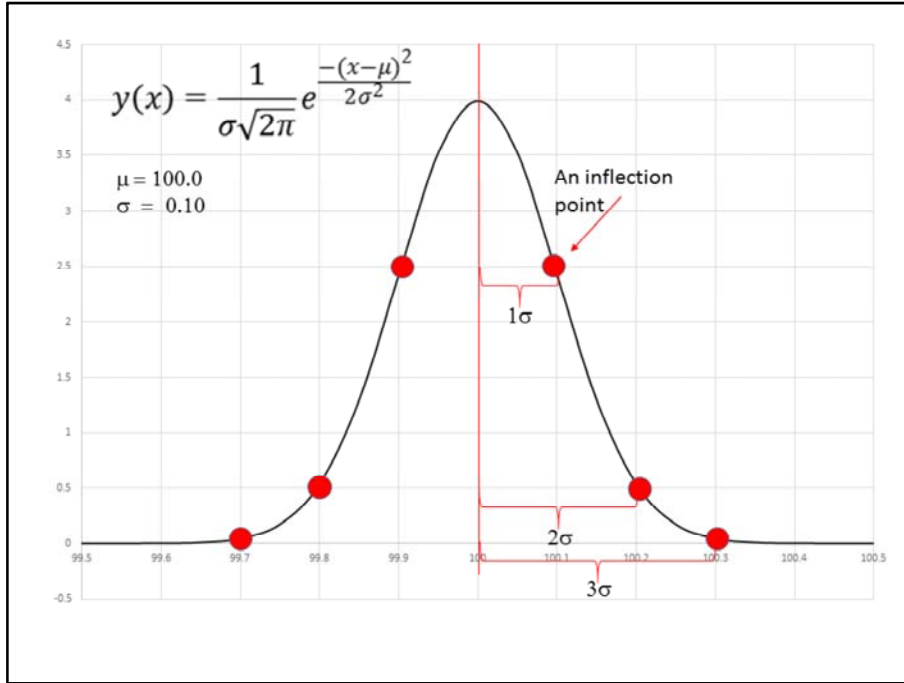
t values for confidence intervals

V	95%	99%
1	12.71	63.66
2	4.3	9.92
3	3.18	5.84
4	2.78	4.6
5	2.57	4.03
10	2.23	3.17
20	2.09	2.85
30	2.04	2.75
50	2.01	2.68
100	1.98	2.63

$$\mu = x \pm t\left(\frac{s}{\sqrt{n}}\right)$$

%EtOH	Freq
0.0500	1
0.0501	2
0.0502	3
0.0503	6
0.0504	8
0.0505	10
0.0506	7
0.0507	6
0.0508	4
0.0509	2
0.0510	1

Run rules *are rules that are used to indicate out-of-statistical control or determinate trend situations.*

- a point lying beyond the upper and lower control limits
- 2 consecutive points lying beyond the upper or lower warning values (0.06% chance)
- 7 or more consecutive points lying on one side of the mean (0.8% chance of occurring)
- 6 consecutive points going in the same direction