

Outlier Exclusion

We hope the following is useful in explaining how we exclude outliers from our database. It is copied from Documenta Geigy, our source document, and basically shows how we arrive at which results to exclude before finally calculating the mean and SD on your report.

Chauvenet's Criterion

In a series of determinations it may happen that a few values differ markedly from the others. Such extreme values may chance to occur once in a hundred values, in other series twice in ten. In the latter case they have such a marked effect on the mean and variance that a strongly distorted picture of the behaviour of the population is presented. Such chance extremes can in general be eliminated by means of Chauvenet's Criterion. This calculation states that in relation to the number of measurements, there is a linear relationship between the logarithm of the number of observations and their variance (SD^2). After elimination of such values the mean and variance must of course be recalculated without regard to them. Chauvenet's Criterion could then be reapplied, and the mean and variance recalculated, etc, until no further values can be eliminated. The following table is an example of the application of this principle to SDs on an EQA programme, where the final column shows the number of limiting SDs from the mean.

<u>Number of results</u>	<u>Limiting SDs from the mean</u>
5	1.68
6	1.73
7	1.79
8	1.86
9	1.92
10	1.96
12	2.03
14	2.10
16	2.16
18	2.20
20	2.24
30	2.39
40	2.50
50	2.58
100	2.80
200	3.02
500	3.29

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