Supplementary data

Example of simulated data

A data series is generated using a repeatability of 0.5, batch standard deviation of 0.3 using 10 samples, analysed in duplicate. The EQA standard deviation is expected to be 1. Since the batch standard deviation and the EQA standard deviation are expressed in the same units, no units need to be mentioned. Moreover, the mean can be freely chosen, so it is decided to use a mean of 10. In a first instance, the mean value of the 10 samples is generated by drawing 10 random values from a normal distribution with mean 10 and standard deviation 0.3:

Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8	Sample 9	Sample 10
9.726	10.466	9.979	9.872	10.134	9.697	10.665	10.298	10.129	9.790

In a second instance, two values are drawn from a normal distribution with mean the mean of each sample and standard deviation 0.5:

Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8	Sample 9	Sample 10
9.483	11.426	9.707	9.460	10.211	9.580	10.660	9.920	10.194	10.614
9.902	9.645	10.599	10.099	9.451	10.133	10.571	9.906	8.774	10.170

The $MS_{between}$ from the Anova-model is 0.2894, the MS_{within} is 0.3828. The difference between the two is smaller than 0, so these data force to conclude that the batch standard deviation is 0.