

## Statistical control with muva reference materials

### muva Reference materials

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Using muva reference materials for statistical control on a regular basis for the own analysis and examinations can be effectively inspected within the narrow limits of their precision. It makes no sense to bury the data of statistical control in "data grave yards", though. Only an immediate analysis of the obtained results including a graphical visualization gives one the opportunity to recognize the own measurement quality and further more to see trends. Thus a consequent progress in increasing the lab quality can be derived.

e.g. for one calendar week (red upright bar) are presented.

The interpretation of this graphic is simple and is valid for single values as well as for mean values. A value between the boundaries of the green long dashed lines means that the precision of the measurement can not be increased because it is already inside the limits of the uncertainty of the reference material. A value between the green short dashed lines demonstrates the own competence in applying this method. Values outside the boundaries of the green short dashed line should challenge one to improve the measurement.

It is obvious that a consequent application of the statistical control in connection with the regular use of reference materials will lead to instant

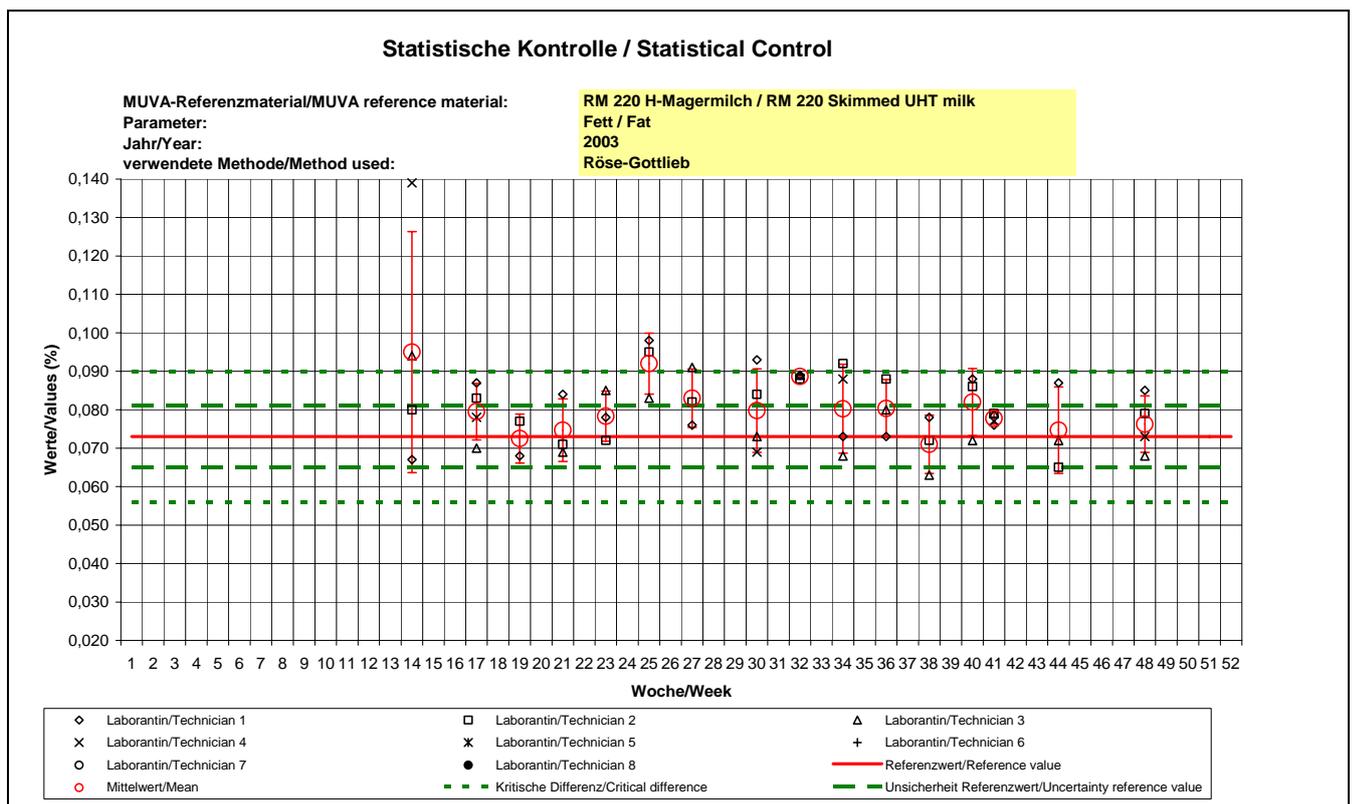


Figure 1: Statistical control at the example of RM 220 skimmed UHT milk

Figure 1 shows an exemplary diagram. The red line gives the reference value, the green long dashed line the limits of the uncertainty of the reference value and the green short dashed line the corresponding critical difference of the reference method. Additionally the single values for each lab assistant, the mean value (red circle), standard deviation between the single values

information of the actual lab quality. Additionally the lab quality can be traced and measures for the improvement can be applied before bad effects occur.

For each muva reference material we have an EXCEL sheet available which contains the material's specific data like reference value, uncertainty and critical difference of the applied reference method.