

Determine limits of detection LOD and limits of quantification LOQ – How To

The limits of detection (LOD) and quantification (LOQ) are evaluated using the following equations [1-4]:

LOD= $3.3 S_0/b$ LOQ= $10 S_0/b$

where S_0 is the standard deviation of the calibration line's y-intercept where b is the slope of the linear regression line of best fit.

The limit should be subsequently validated by the analysis of a suitable number of samples known to be near or prepared at the quantitation limit.

References:

[1] Ermer, J.; Validation in pharmaceutical analysis. Part I: an integrated approach; Journal of Pharmaceutical and Biomedical Analysis, (2001); 24: 755-767.

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[3] Mottola, H.A.; Kinetic Aspects of Analytical Chemisry; New York, Wiley, (1988), pp. 40.

[4] Thomsen, V., Schatzlein, D., Mercuro, D.; Limits of detection in spectroscopy; Spectroscopy, (2003); 18(12): 112-114.

[5] Dolan, J.W.; What's the Problem with the LLOQ? — A Case Study, LC-GC North America, 31 (11), pp. 926-931.

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