Video « Calibration – quantification »

Time	Text
00 :09	In this video, I will present you how to use a calibration line to quantify a sample.
00 :14	As a reminder, there are several videos in the "Calibration" sheet: - One video is about the making of the standard range - The second one is about the drawing: the standard analysis and then the drawing of the calibration line - And this video in which I will focus on the quantification of unknown samples by using the calibration line.
00 :37	Let's take the example of the graph paper which allows to draw a calibration line. Here you have the example of the titration of the ammonium in aqueous media. So, the aim is to titrate the ammonium by spectrophotometry in water samples.
00 :57	So, on this graph paper, by reporting the result of a measure on the calibration line, it is possible to assess the concentration of the sample. Here, you can see that the concentration is around 3.6 mg/L. Obviously, the precision cannot be higher than 2 decimals, so it gives a result without a good precision but this method really simple allows to get relatively reliable results.
01 :30	Now let's take the example of a calibration line drawn with Excel. As a reminder, if it is an external calibration, the x-axis represents the concentrations of the measured compounds in the standards, and the y-axis represents the measures. In the case of an internal calibration, the x-axis represents the ratio of the concentration of the standards on the concentration of the internal standard while the y-axis represents the ratio of the measure of the compounds on the measure of the internal standard.
02 :01	So, as you can see, the calibration line is drawn and the line equation is shown on Excel. In this equation, y represents the measure and x in the concentration of interest. In that case, the measured result is 0.54 absorbance unit. Therefore, by using the line equation, I get a concentration of 3.66 mg/L which is very close to the assessment I did with the graph paper.
02 :30	In the particular case of standard additions calibration, there is a difference because there is first the measure of a sample without any addition and then, successively, the measures with the standard addition at the same concentration. So, the calibration line is drawn and it will be extended until it crosses the x-axis. This point allows to assess the concentration of the sample.
03 :06	So, thanks to the standard additions method, it is possible to measure an unknown sample when matrix effects occur.