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(54) Title: QUALIFICATION STANDARD AND METHOD UTILIZING RAMAN ACTIVITY OF H₂O

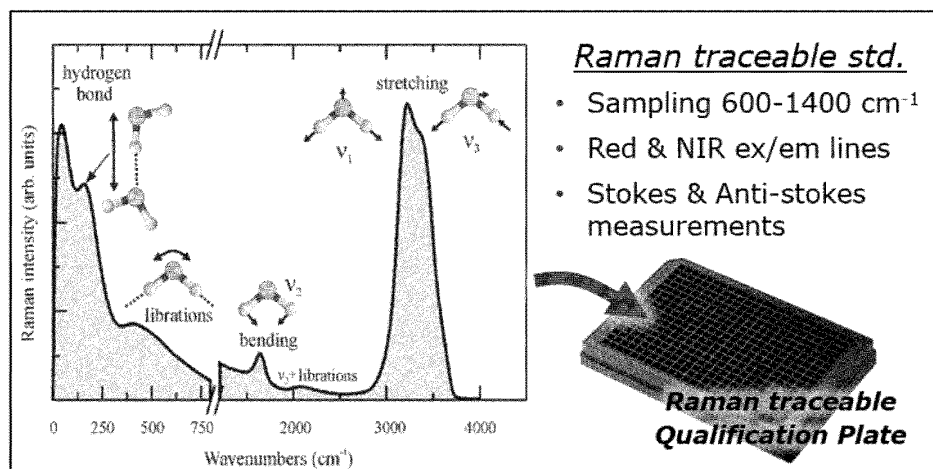


Figure 3

(57) Abstract: A method for applying a primary reference standard measurement and for potential adjustment and/or calibration of high-sensitivity optical spectrometry instruments via a computer, comprising the following steps of Using a high-purity H₂O solution as a primary standard stored in a container; Exciting the standard using at least one excitation laser; Collecting and measuring the Raman scattering, either in form of Stokes, Anti-Stokes, or both, from the standard using the instrument's detector; Applying a correction methodology for correction of variations in the Raman scattering caused by the container to increase accuracy of measurement; Measuring and integrating the intensity over a fixed detection bandwidth of the spectrum of the Raman scattering to calculate the instrument optical efficiency; and potential adjustment and/or calibration of the high-sensitivity optical spectrometry instrument based on the calculated instrument optical efficiency.

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