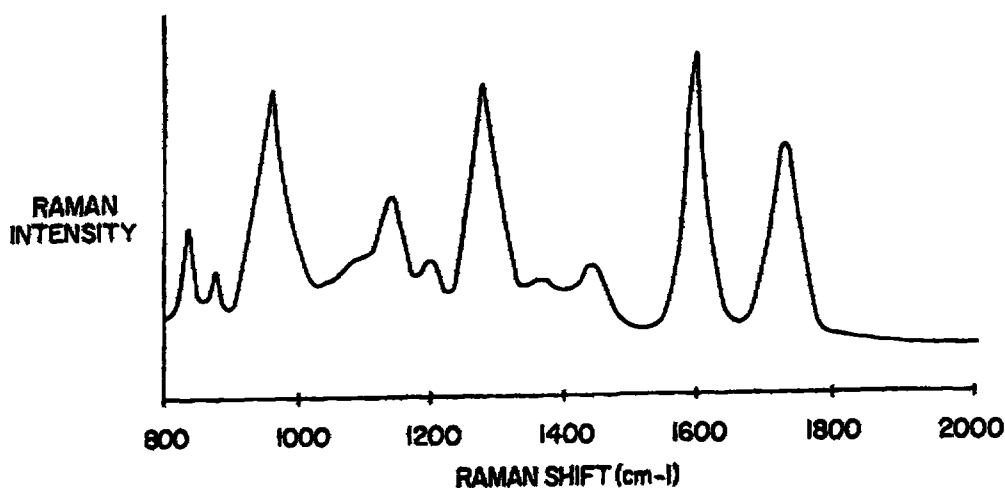




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(54) Title: ON-LINE QUANTITATIVE ANALYSIS OF CHEMICAL COMPOSITIONS BY RAMAN SPECTROMETRY



(57) Abstract

A method for quantitatively monitoring *in situ* by Raman spectrometry one or more selected constituents of a chemical composition comprises: simultaneously irradiating with a substantially monochromatic radiation source a reference material and a chemical composition containing one or more constituents, the radiation being transmitted from the source to the chemical composition by an excitation conduit connecting the source to an optical probe that interfaces with the composition; simultaneously acquiring at more than one wavelength convolved Raman spectra of the reference material and the chemical composition by means of a spectrograph, which is connected to the optical probe by a collection conduit; choosing the standard Raman spectrum of the reference material; determining the convolution function of the convolved spectra from the convolved Raman spectrum and the standard Raman spectrum of the reference material; applying the convolution function to adjust the convolved Raman spectrum of the composition to produce the standard Raman spectrum of the chemical composition; and applying predetermined calibration means to the standard Raman spectrum of the chemical composition, by which the chemical constitution of the composition at the time of acquisition of the convolved Raman spectra can be ascertained.