METHOD FOR DETERMINING THE PRESENCE OF AT LEAST ONE CHEMICAL COMPOUND WHICH IS HOMOGENEOUSLY DISTRIBUTED IN A MEDIUM BY MEANS OF CROSS-CORRELATING A MEASURING SPECTRUM WITH REFERENCE SPECTRA

Abstract

The present invention relates to a method for determining the identity or non-identity of at least one chemical compound V' homogeneously distributed in a medium, by

a) exposing the medium containing at least one homogeneously distributed chemical compound V' to analysis radiation with a variable wavelength λ, and

b) determining the spectral measurement function $I'(\lambda)$ with the aid of the absorbed, reflected, emitted and/or scattered radiation,

wherein a correlation function $K(\delta\lambda,c',c)$ is determined according to Equation I

$$K(\delta\lambda,c',c) = 1/N \cdot \int_{-\infty}^{+\infty} I'(\lambda,c') \cdot I(\lambda+\delta\lambda,c) d\lambda \qquad (I)$$

in which

$K(\delta\lambda,c',c)$ denotes the correlation depending on the relative shift $\delta\lambda$ of the functions $I'(\lambda,c')$ and $I(\lambda,c)$ and the concentrations c' and c of the at least one chemical compound V' and V,

c' denotes the concentration of the at least one chemical compound V' homogeneously distributed in the medium, with a known or suspected identity,

c denotes the concentration of the at least one chemical compound V homogeneously distributed in the medium, with a known identity,

$I'(\lambda,c')$ denotes the measurement function of the at least one homogeneously distributed chemical compound V' in a medium containing the