

# **Database of Standard Raman Spectra of Minerals and Related Inorganic Crystals**

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## **Abstract**

Establishing a standard Raman spectral database for minerals and related inorganic crystals is a very important basis for further increasing the applications of Raman spectroscopy in the geosciences. However, the Raman spectral pattern of a crystal is a function not only of its composition and structure but also of the scattering geometry during the measurement. Therefore, the standard Raman spectrum of a crystal must be measured under well-defined standard conditions. It would be of great interest to establish a standard measuring configuration with which the characteristic Raman spectra of all mineral crystals could be obtained. Factor-group analysis of the main types of minerals indicates that almost all of them possess a Raman-active totally symmetric (TS) vibrational mode. Therefore, we propose a scheme to measure standard Raman spectra under a scattering geometry set up on the basis of these TS modes. Using this scheme, we were able to establish a database for standard Raman spectra of minerals and related inorganic crystals.