

THE RAMAN STUDY OF CERTAIN CARBONATES

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Abstract

Some of the most common carbonates have been investigated by non-contact Raman spectroscopy. The synthetic alkali carbonates K_2CO_3 and Na_2CO_3 have also been studied. The Raman spectrum of aurichalcite is different from that of malachite. This spectrum has a characteristic intense band at 1069 cm^{-1} which is assigned to the ν_1 symmetric stretching mode of the carbonate unit. The two low intensity Raman lines of 1485 and 1507 cm^{-1} may be ascribed to the ν_3 asymmetric stretching modes. To the ν_4 mode (doubly degenerate symmetric bending) are attributed the values of 706 cm^{-1} (ν_{4a}) and 733 cm^{-1} (ν_{4b}). A number of bands with different intensities are observed in the lowest spectral shift (285 , 388 , 430 , 461 and 498 cm^{-1}). These Raman lines are assigned to the CuO and ZnO stretching and bending vibrations. A single band of the OH-stretching modes is observed at 3344 cm^{-1} .

Key words: nonpolarized Raman spectra, carbonates, alkali carbonates, aurichalcite

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