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Laser Raman Spectroscopy Of Gap Vibration Of Se Impurity In Natural Mineral Cinnabar From Various Mines

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ABSTRACT

Natural minerals α-HgS from various mines have been studied by laser Raman-spectroscopy and resonance Raman-spectroscopy. The crystals differ from each other in the content of selenium impurities included in samples from different mines. Based on Raman spectra and factor-group analyze the classification the first order phonons and then the comparison the results with the results from other works are carried out. The Raman spectra analysis of minerals from various mines show the presence of selenium impurity gap vibration at 203 cm^{-1} and 226 cm^{-1} frequencies respectively. On the statistical basis of the Raman measurements, one can conclude that the frequencies of impurities of α-HgS generally may be used for identifying mines. Low resonance has been fixed as well in impure minerals at spectral band frequency 203 cm^{-1} characterizing vibrationgap of isomorphic Se impurity in cinnabar.

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