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RAMAN SPECTROSCOPY OF VANADIUM ASSOCIATION MINERALS IN MASSIVE SULFIDE DEPOSITS OF THE PYRRHOTITE GORGE (KOLA REGION, RUSSIA) AND VIHANTI (FINLAND)

Raman spectroscopy (RS) is considered as the powerful method for diagnostics of minerals. Rare minerals with the species-forming participation of vanadium are typical for Precambrian intensely metamorphosed massive sulfide deposits. Detail study of chemical composition has been carried out for vanadium-bearing minerals of massive sulfide deposits of Fennoscandian shield: in the Pyrrhotite Gorge (Kola region, Russia) and Vihanti (Finland). Raman spectra were registered just in mineral individuals with determined chemical composition. Thus, for the first time, there were revealed Raman spectra for a number of vanadium-bearing mineral forms in classes of oxides (karelianite, coulsonite, berdesinskiite, schreyerite and nolanite) and silicates (goldmanite and mukhinte). These results will be input in corresponding databases and may be used for diagnostics of minerals in micro-objects from various deposits. In general, those data obtained for the rare vanadium-bearing mineral phases confirmed the diagnostic possibility of Raman spectroscopy.

Key words: Raman spectroscopy, karelianite, coulsonite, berdesinskiite, schreyerite, nolanite, goldmanite, mukhinite, massive sulfide ores, Kola region, Russia, Vihanti, Finland.