Chromium-Bearing Dickite and Chromium-Bearing Kaolinite from Teslić, Yugoslavia[1]

Zoran Maksimović, Joe L. White and Mihovil Logar

Faculty of Mining and Geology, University of Beograd, 11000 Beograd, Yugoslavia
Department of Agronomy, Purdue University, West Lafayette, Indiana 47907
Faculty of Mining and Geology, University of Beograd, 11000 Beograd, Yugoslavia

[1] Journal Paper No. 8328, Purdue University Agricultural Experiment Station, West Lafayette, Indiana 47907.

Abstract: Three samples of bluish chromium-bearing dickite and chromium-bearing kaolinite were examined by X-ray powder diffraction, chemical analysis, electron microprobe, optical, and infrared techniques to determine whether chromium is part of the mineral structure or present in an impurity phase. Two of the samples studied contain a single dominant chromium-bearing phase (either dickite or kaolinite); the third contains equal proportions of both minerals. The optical absorption and infrared spectra are consistent with the presence of octahedrally coordinated chromium. The range of $Cr^{3+} - Al^{3+}$ substitution is rather limited: up to 0.06 atoms per unit cell. The electron microprobe study revealed the presence of very rare, minute grains of chromite, as well as a uniform distribution of chromium in dickite and kaolinite, indicating that chromium occupies octahedral sites in the structure of these minerals.

Key Words: Chromium • Dickite • Infrared • Kaolinite • Optical absorption

Clays and Clay Minerals; June 1981 v. 29; no. 3; p. 213-218; DOI: 10.1346/CCMN.1981.0290307

Clay Minerals Society (www.clays.org)