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# Hydrothermal Alteration of a Serpentinite Near Takovo, Yugoslavia, to Chromium-Bearing Illite/Smectite, Kaolinite, Tosudite, and Halloysite

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**Abstract:** Hydrothermal alteration products of serpentinite near Takovo, Yugoslavia, were studied by X-ray powder diffraction and chemical analysis. A zone of mainly blue clays adjacent to the hydrothermal vein contains intimately associated chromium kaolinite and tosudite at higher hypsometric levels and chromium halloysite(10 Å) form at lower levels. A second zone of green clays contains principally illite/smectites, with predominantly illite layers nearer the first zone and smectite layers at greater distances. The potassium content diminishes as the proportion of illite layers diminishes. The composition of the smectite layers in the illite/smectite with the least proportion of illite is shown to be beidellitic. The mineralogical and chemical changes across the zone of alteration are interpreted in terms of two stages of alteration in which the second is more acidic than the first and is responsible for the inner zone of chromium-bearing kaolinite and tosudite and chromium halloysite.

**Key Words:** Cr-halloysite • Cr-illite/smectite • Cr-kaolinite • Cr-tosudite • Hydrothermal • Serpentinite

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