
Weathering of a Chromian Muscovite to Kaolinite

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Abstract: Single crystal X-ray diffraction and electron-optical analysis were used to investigate the weathering of a chromium-bearing muscovite (fuchsite). The muscovite had mostly altered to kaolinite with minor amounts of halloysite occurring between kaolinite plates. Evidence for both epitactic and topotactic growth of kaolinite from muscovite was obtained and no intermediate poorly-crystalline phases were detected. About half of the Cr in fuchsite was incorporated into kaolinite, whereas most of the Ti, Fe and Mg was lost.

Key Words: Alteration • Chromian muscovite • Kaolinite • Topotaxy • Weathering

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