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## Chromian spinels in highly altered ultramafic rocks from the Sartohay ophiolitic mélange, Xinjiang, NW China

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### Abstract

The Sartohay ophiolitic mélange is located in western Junggar (Xinjiang province, NW China), which is a major component of the core part of the Central Asian Orogenic Belt (CAOB). Chromian spinels in serpentinite, talc schist, carbonate-talc schist and listwaenite in Sartohay ophiolitic mélange retain primary compositions with Cr# of 0.39 - 0.65, Mg# = 0.48-0.67, and Fe<sup>3+</sup># < 0.08. Chromian spinels in deformed listwaenite were initially transformed into Fe<sup>2+</sup>-rich chromite during shearing deformation followed by Fe<sup>3+</sup>-rich chromite at shallow levels. The Cr# and Fe<sup>3+</sup># of Fe<sup>2+</sup>-rich chromite (Cr# = 0.59 - 0.86, Fe<sup>3+</sup># = 0.01 - 0.12, Mg# = 0.35 - 0.61) and Fe<sup>3+</sup>-rich chromite (Cr# = 0.85 - 1.00, Fe<sup>3+</sup># = 0.17 - 0.38, Mg# < 0.29) increase with decrease of Mg#. We propose a model to illustrate the evolution of chromian spinels in highly altered ultramafic rocks from the Sartohay ophiolitic mélange. Chromian spinels in serpentinite and talc schist were rimmed by Cr-magnetite, which was dissolved completely during transformation from serpentinite/talc schist to listwaenite. Chromian spinels were then transformed into Fe<sup>2+</sup>-rich chromite in shear zones, which characterized by high fluid/rock ratios. This Fe<sup>2+</sup>-rich chromite and/or

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