
Nickeliferous Nontronite, a 15 Å Garnierite, at Niquelandia, Goiás, Brazil

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Abstract: Garnierite from the Tocantins Complex at Niquelandia, Brazil, is a 15 Å, dioctahedral clay mineral, nickeliferous nontronite. The principal octahedral cations are Fe³⁺, Al and Ni. The ferric state of the iron has been verified by ESCA. Ni occupies both the octahedral site and an exchange site. The garnierite formed (and is still forming) by the weathering of nickeliferous pyroxenite. Although the garnierite is a secondary product of weathering, it undergoes further change as weathering progresses: Ni and silica decrease, Fe³⁺ and Al increase, and the color changes from bright yellow green to red brown. Eventual breakdown of the garnierite leaves mainly hydrated oxides of iron and aluminum.

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