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# Weathering of Ilmenite in a Lateritic Pallid Zone

R. R. Anand and R. J. Gilkes

Department of Soil Science and Plant Nutrition, University of Western Australia, Nedlands, Western Australia 6009, Australia

**Abstract:** In a lateritic pallid zone ilmenite crystals alter via pseudorutile to porous leucoxene grains composed of randomly oriented aggregates of  $\sim 0.06 \mu\text{m}$  anatase crystals. This style of alteration differs from that in beach sands where parallel oriented rutile crystals develop from pseudorutile. Increased Si and Al in the altered grains is due to the crystallization from soil solution of halloysite, kaolinite and gibbsite within pores rather than to the incorporation of these elements into anatase crystals. Manganese was a significant constituent (3.2%  $\text{Mn}_2\text{O}_3$ ) of the original ilmenite but was not retained by the leucoxene grains. The minor constituents Ni, Zn, Cu, Mg, Co and Ca were also lost, but Cr and V were retained.

**Key Words:** Anatase • Halloysite • Ilmenite • Kaolinite • Laterite • Leucoxene • Pseudorutile • Rutile • Weathering

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