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Structural adjustments induced by heat treatment in ilvaite

PAOLA BONAZZI* AND LUCA BINDI

Dipartimento di Scienze della Terra, Università di Firenze, Via La Pira 4, I-50121, Florence, Italy

ABSTRACT

To verify the oxidation-dehydrogenation reaction induced by heat treatment of ilvaite in air, a crystal from Elba Island, Italy, was selected for annealing experiments and crystal chemical study. X-ray intensity data were collected and structure refinement was performed after each heat treatment (temperatures ranged from 400 to 700 °C). Oxidation of Fe²⁺ as well as loss of H atoms were deduced from examination of the structural changes occurring as the heating temperature was increased.