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Crystallographic and Mössbauer studies of $YMn_{1.8}Fe_{0.2}O_5$

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Abstract

The crystallographic and magnetic properties of $YMn_{1.8}Fe_{0.2}O_5$ powders have been studied by X-ray, neutron diffraction, and Mössbauer spectroscopy. The samples were prepared by sol–gel process and crystallized at various temperatures. The crystal structures of the powders sintered below 1100 °C were found to be a single phase of orthorhombic (pbam), whereas the other samples sintered above 1200 °C were changed to hexagonal structure with satellite phases. The Mössbauer spectra of $YMn_{1.8}Fe_{0.2}O_5$ powders can be understood primarily owing to its chemical and structural complexities.

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