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Constitution of the Indium-Rich Portion of the Indium-Magnesium System*

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Abstract

The equilibrium phase diagram of the indium-magnesium system in the range up to 40 at.% Mg has been established by X-ray diffraction and thermal analysis. The solid-solubility of magnesium in indium does not exceed about 5 at.%. An intermediate solid solution, γ , with a face-centered cubic structure exists over a wide range of composition. An ordered phase, γ' , with superstructure of Cu_3Au -type, is formed near 28 at.% Mg at temperatures below 114°C.

The axial ratio c/a of the primary solid solution of indium in magnesium changes as a function of electron/atom ratio as in the parallel case of the indium-cadmium system. Reasons are advanced to explain the conflict between the present results and those of earlier investigators.

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