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XRD Peak Shift in $Fe_{1-x}Ni_x$ binary alloys

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Abstract : Polycrystalline alloys viz. $Fe_{0.5}Ni_{0.5}$ and $Fe_{0.3}Ni_{0.7}$ have been prepared using arc melting method and were investigated structurally using X-ray Diffraction Technique (XRD). XRD of both the above samples confirms that they are in fcc phase. A peak shift is observed towards higher angles with increase in Ni concentration. Such rigid shift in the reflections to higher angles could be due to the lattice contraction upon Ni substitution.

Keywords: Arc Melting, X-ray Ray Diffraction, fcc, alloys

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[Full Paper]