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Production and Structure of Rapidly Solidified Al-Si Alloys

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Abstract: Al-Si alloys with compositions 8, 12, 16wt% Si were manufactured by chill casting and melt-spinning (MS) methods. The resulting ribbon samples have been characterized by optical and scanning electron microscopy (SEM) and X-ray diffractometry and compared with their ingot counterparts. Microstructural examinations revealed that microstructures of the melt-spun ribbons were quite fine compared to their ingot counterparts. Both XRD analyses and microstructural examinations indicated that the solubility of Si in α -Al phase was nearly complete.

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