The Recycling of Grinding Metal Sludge by Plasma Spray

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ABSTRACT

Metal sludge, which is discharged in the grinding process of components, consists of flat and ribbon-shaped chips with broken grinding particles and grinding lubricant. Most of the grinding metal sludge is put into disposal as industrial waste products at present. In this study, a recycling process utilizing plasma spray and magnetic separation was developed to recycle stainless steel sludge. The stainless steel sludge was melted instantly by plasma spraying, and then the grinding SiC particles were isolated by a melting temperature difference. The spherical SUS304 powders with a low contamination of less than 0.3 % SiC by weight and with good fluidity could be obtained through magnetic separation, and could be recycled as powder materials.

Keywords: Grinding, metal sludge, recycle and plasma spray

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