The Powdered Magnets Technology Improvement by Biencapsulation Method and its Effect on Mechanical Properties

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In this paper the technological process of bonded magnets manufacturing was described. The greatest dangers arising during the process steps that have a significant impact on magnetic, chemical and thermodynamic stability Nd-Fe-B bonded type of magnetic materials were also indicated. The effect of the biencapsulation of $Nd_{12}Fe_{77}Co_5B_6$ powder particles with Ni-P/epoxy resin, phosphate/epoxy resin and Cu/epoxy resin layers on the finale magnets has been evaluated. The production processes in technological terms in original and after improving modification were presented – the technological process taking into account the stage of powder surface etching and the powder particles biencapsulation. It was proved that the preliminary biencapsulation of particles surface before consolidation in some cases significantly improve the mechanical properties of the bonded with epoxy-resin magnets.

Keywords: bonded magnets, biencapsulation, Nd-Fe-B magnets, magnetic composites

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