Reactive Resins Filled with Microparticles Based on Iron Powder

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Hard inorganics microparticles are added to the composite systems due to optimization of some mechanical properties among which is possible to rank hardness and resistance to abrasive wear. Advantage of interaction of metal powders with polymers is also their ferromagnetism which changes physical properties of resulting composite systems. This paper is focused on evaluation of mechanical properties of epoxy resin filled with microparticles on the basis of iron powder (20.6 µm), mainly on resistance to abrasive wear, hardness and on adhesive and cohesive characteristics. The experiment evaluates composite systems prepared without using controlled semi-layers and without using a vacuum technology. Such technology was chosen with regard to practise. It is possible to consider the adhesive and cohesive characteristics as key properties determining possible application areas of filled reactoplastics. For evaluation of fracture areas was used electronic microscopy. The experiment confirmed significant increase of resistance to abrasive wear with increasing concentration of iron powder. This property can be utilized in widening the application areas of reactoplastics resins, i.e. creating the new resistant layers.

Keywords: Abrasive wear, epoxy resin, hardness, tensile strength.

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References