Picture Analysis of Failure Areas of Particle Composites

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Properties of polymeric materials are often optimized by various types of fillers. Optical analyses be means of a microscope can reveal undesirable phenomena which come into being during a preparation of composite systems – they can define areas of filler clusters, an excessive occurrence of air bubbles, which lead to an initiation of cracks. The optical analysis can reveal a low interaction among mutual phases of the composite at the same time, e.g. a low wettability of fillers by a matrix. The paper describes possibilities of using optical analysis at polymeric microparticles composites with the filler on a basis of waste with the matrix from the epoxy resin. The optical analyses identified the air bubbles in failure areas of the composite systems – the average area of the pore in 2D plane corresponded 5 381 μm^2.

Keywords: Epoxy resin, Failure, Microscope, Waste

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