OP-2-93

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Room: Reda 5

NON LINEAR ELECTRICAL PROPERTIES OF EPOXY RESINS LOADED WITH METALLIC FILLERS

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Composites were prepared with epoxy resin and conducting micro- powders of Al, Fe, Sn and Zn. The morphology of the filler particles and their dispersion in the matrix has been investigated by Scanning Electron Microscopy (SEM). The density measurements were undertaken to complete the morphology investigations. Then, the homogeneous samples were used to measure the electrical resistance versus fillers contents. The obtained results showed a non linear behavior and non-conducting to conducting transition at critical threshold of conducting filler volume fraction. The position of threshold is found dependent on the feature and the properties of the conducting powder: the type, the size and the geometry. The obtained results have been explained on the basis of the statistical percolation theory.