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FORMULATION OF MONOCOMPONENT EPOXY MATERIAL FOR MICROELECTRONIC COATINGS APPLICATIONS

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Polymeric materials are increasingly used in the manufacture of microelectronic articles, with their low cost and high performance addition to miniaturization. In this technology, epoxy is used as a matrix to incorporate the seal obtained between the part and the substrate has physical and mechanical properties including those concerning the improvement of fatigue resistance, the evacuation of heat generated in part and conservation of material protected from corrosion. In this work, we will interest to the load, it is added to the epoxy matrix to improve mechanical and physical properties, reduce cost and improve the resistance to moisture. Besides the load, other additives may be added to the epoxy to lower the residual voltage, this leads us to our second part of this work in which we study the effect of adding particulate thermoplastic resin to our epoxy. To improve adhesion both between the filler particles with the substrates, we established the formulation in which we added a Liaison Officer, 3-glycidyloxypropyltrimethoxysilane. The effect, with this addition was immediate as he brought the composite increased Tg, increased thermostability, increased storage modulus, a decrease in the diffusion of moisture and a decrease in level of dielectric constant and loss factor. Thus, we should regard this formulation as complete if its storage modulus was not a little higher, this has led us to think about the flexibility of the material obtained by incorporating into the particles based thermoplastic copolymer of acrylonitrile butadiene terminated carboxylic acids (CTBN). During the introduction of flexibilising we noted significant declines in both the storage modulus at the level of moisture diffusion and the most striking change occurred in the material was the appearance of an area ductility when testing the flexural strength (tenacity), the ductility is synonymous with good dispersion of thermoplastic particles and their tendency to resist crack propagation during the break by bringing the composite plastic deformations important. We also note that this type of deformation is of paramount importance especially when the coated products must demonstrate good stability at low temperature, for example the case of very cold areas, because in the absence of such behavior, The product could be damaged easily because the cold tends to immobilize the macromolecular chains and facilitate their cracks.