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(54) Title: COMPOSITES OF POWDERED FILLERS AND POLYMER MATRIX AND PROCESS FOR PREPARING THEM

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(57) Abstract: Composite materials comprising at least 60 volume %, preferably 70 volume %, of particles of finely powdered filler material in a matrix of poly(arylene ether) polymer material are made by forming a mixture of the components, forming the required bodies therefrom, and then heating and pressing the bodies to a temperature sufficient to melt the polymer and to a pressure sufficient to disperse the melted polymer into the interstices between the filler particles. Surprisingly these polymer materials can only be effective as bonding materials when the solids content is as high as that specified, since with lower contents the resultant bodies are too friable. This is completely contrary to accepted prior art practice which considers that composites are progressively weakened as the solids content is increased, so that such content must be limited. In processes to obtain as complete a dispersion of the components as possible they are individually dispersed in a liquid dispersion medium containing the polymer together with necessary additives, each mixture being ground if required to obtain a desired particles size, the mixtures are mixed, again ground to produce thorough dispersion, are separated from the liquid dispersion medium and green articles formed from the resulting pasty mixture. The green articles are then heated and pressed as described above. Mixtures of different filler materials may be used to tailor the electrical and physical properties of the final materials. The articles preferably comprise substrates for use in electronic circuits.