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Dielectric Properties of Barium Titanate/ Polybenzoxazine Composites for Electrical Applications GASIDIT PANOMSUWAN, The Petroleum and Petrochemical College, Chulalongkorn University, HATSUO ISHIDA, Department of Macromolecular Science, Case Western Reserve University, HATHAIKARN MANUSPIYA, The Petroleum and Petrochemical College, Chulalongkorn University — Polymer-ceramic composites are candidate materials for electrical applications, especially embedded capacitors. In this study, barium titanate (BaTiO_3) powders prepared from sol-gel process were incorporated into polybenzoxazine matrix to form composites with 0-3 connectivity. The dielectric properties of these composites, including dielectric constant and loss tangent, were studied as a function of BaTiO_3 contents in the frequency range of 1 kHz-10 MHz at room temperature. The benzoxazine coating on BaTiO_3 powders have been used to prevent the agglomeration of ceramic fillers. The distribution of BaTiO_3 powders in the matrix was investigated by using scanning electron microscope (SEM). Moreover, the dielectric constant of these composites will be fitted with theoretical models for 0-3 connectivity (Yamada's model).

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