

Abstract: The effect of electron beam radiation on permittivity of polymethyl methacrylate (PMMA) samples is investigated. Experimental results show that electron beam radiation makes permittivity of the samples vary visibly. Combining Wakino's model of permittivity of mixture materials, Clausius-Mosotti equation is utilized to analyze the variation of permittivity in PMMA samples after electron beam radiation. Electron beam radiation makes the increase of porosity in samples and thus decreases permittivity. Contrarily, accumulation of injected space charges increases permittivity.