

Abstract Submitted
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New methods to characterize the confinement effects in epoxy nanocomposites¹ LIYUN REN, MICHAEL GOODMAN, RAHMI OZISIK, Rensselaer Polytechnic Institute — Properties of epoxy can be improved/controlled via the addition of nanofillers. However, use of nanofillers leads to confinement and interfacial effects and the exact nature of these two effects on the properties are not yet clearly understood. In this study, the glass transition temperature of epoxy nanocomposites was investigated. The changes in the glass transition temperature were analyzed as a function of nanofiller content (confinement) and epoxy-nanofiller interface. In addition to these, the distribution and dispersion of nanoparticles also influences the properties. We applied two different methods to characterize the interparticle distance and compare the dependence of glass transition temperature on the nanofiller content and interparticle spacing. We found that our model provides a new understanding of the effect of interparticle spacing on glass transition phenomenon in polymeric nanocomposites.

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