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Mechanical and Long Term Ageing Properties of PMMA Silica Nanoparticles

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Abstract : The addition of silica nanoparticles to poly(methyl methacrylate) (PMMA) can influence its mechanical and aging properties. Dispersed PMMA in colloidal and aggregated silica revealed considerable increase in modulus above the glass transition temperature when aggregated silica nanoparticles were used, whereas colloidally dispersed silica nanoparticles showed only a marginal improvement. In addition, Dispersed PMMA in both aggregated and colloidally silica nanoparticles accelerated physical ageing.

Keywords : nanoparticles, physical aging, PMMA, chemical and molecular engineering
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