

Abstract Submitted
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Mechanical properties of homogeneous nanofiber composites fabricated by electrospinning KENTARO WATANABE, ATSUSHI HOTTA, Department of Mechanical Engineering, Keio University — A new composite that possesses uniformly dispersed polymeric nanofibers in different polymeric matrix was introduced by using electrospinning. Recently, nanofibers have been actively investigated for fillers for polymeric nano-composites to enhance the mechanical properties of the composites or to get highly functionalize polymer materials. Polyvinyl alcohol (PVA) nanofibers were selected as polymeric fillers and polydimethylsiloxane (PDMS) was used for polymeric matrix. Internally well-dispersed composites were fabricated by this new method, whereas rather anisotropic composites were also made by the traditional sandwich method. The morphology of the composites was analyzed by field emission scanning electron microscopy (FE-SEM). It was found that, in the new internally well-dispersed composites, PVA nanofibers existed from the both surfaces of the polymer matrix, uniformly dispersed in the composite. Isotropic mechanical properties were observed for internally well-dispersed composites, whereas relatively anisotropic characteristics could be observed for the traditionally-made composites.

Kentaro Watanabe
Department of Mechanical Engineering, Keio University

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