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Co-Chairs: Yuping Duan, Dalian University of Technology; Kim Yun-Hae, Korea Maritime and Ocean University, South Korea; Domagoj Lanc, University of Rijeka; Marino Brcic, University of Rijeka

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Piezoelectric and dielectric behaviour of odd nylon blends

Shilpa A. Pande, GH Rasoni College of Engineering

ABSTRACT

The search for new materials, which are smart and functional, has been the focus of material scientists around the globe. Piezoelectric and dielectric materials are the front runner in this search as they have varied applications ranging from life saving medical, life-threatening military applications, and commercial applications making life comfortable. The present work is motivated by this rarity of research on composites comprising odd numbered nylons as matrix material to the context of their piezoelectric and dielectric relevance. Poled samples using corona discharge technique with poling field of 200 and 350 kV/cm were used to measure the piezoelectric coefficient, d_{33} . The dielectric studies were carried out with variation in frequency and temperature. The study reveals that blend composition exhibits better dielectric property than pure nylons at room temperature and low frequency. Also, the blending induces better piezoelectric response than pure nylons.

KEYWORDS: nylon 11, nylon 6, piezoelectric