

## Effect of Needle Diameter on the Morphological Structure of Electrospun n-Bi<sub>2</sub>O<sub>3</sub>/Epoxy-PVA Nanofiber Mats

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**Abstract :** The effect of needle diameter on the morphological structure of electrospun n-Bi<sub>2</sub>O<sub>3</sub>/epoxy-PVA nanofibers has been investigated using three different types of needle diameters. The results were observed and investigated using two techniques of scanning electron microscope (SEM). The first technique is backscattered SEM while the second is secondary electron SEM. The results demonstrate that there is a correlation between the needle diameter and the morphology of electrospun nanofibers. As the internal needle diameter decreases, the average nanofiber diameter decreases and the fibers get thinner and smoother without agglomeration or beads formation. Moreover, with small needle diameter the nanofibrous porosity get larger compared with large needle diameter.

**Keywords :** needle diameter, fiber diameter, porosity, agglomeration

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