

Preparation and dielectric properties of poly (vinylidene fluoride hexafluoropropylene) fibers

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Electrospinning technique has been greatly interested to fabricate nanoscale fibers due to its ease of preparation and adjustment. In this project, the objective is to design and construct the electrospinning setup to replace the high cost and imported electrospinning apparatus. Poly (vinylidene fluoride hexafluoropropylene; P(VDF-HFP)) was used a model polymer to produce fibers to study the effect of fabrication and parameters on morphology and average sizes of fibers, including the distances between tip and collector (9, 10, 11, 12 and 13 cm) and polymer concentrations (33.33, 25.00, 20.00 and 16.67 % W/V) . The morphology and average sizes of fibers were investigated by scanning electron microscope (SEM). Moreover, dielectric constant of these polymer fibers were evaluated by LCR meter. The results showed that the electrospinning setup can produced smooth, identically and high density fibers. According to the optimized condition to fabricated P(VDF-HFP) fibers was 11cm and 20 % concentration. The dielectric constant of obtained fibers is related with average sizes of fibers and texture of polymer.

Summary

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