

## Preparation of Melt Electrospun Polylactic Acid Nanofibers with Optimum Conditions

**Authors :** Amir Doustgani

**Abstract :** Melt electrospinning is a safe and simple technique for the production of micro and nanofibers which can be an alternative to conventional solvent electrospinning. The effects of various melt-electrospinning parameters, including molecular weight, electric field strength, flow rate and temperature on the morphology and fiber diameter of polylactic acid were studied. It was shown that molecular weight was the predominant factor in determining the obtainable fiber diameter of the collected fibers. An orthogonal design was used to examine process parameters. Results showed that molecular weight is the most effective parameter on the average fiber diameter of melt electrospun PLA nanofibers and the flow rate has the less important impact. Mean fiber diameter increased by increasing MW and flow rate, but decreased by increasing electric field strength and temperature. MFD of optimized fibers was below 100 nm and the result of software was in good agreement with the experimental condition.

**Keywords :** fiber formation, processing, spinning, melt blowing

**Conference Title :** ICSRD 2020 : International Conference on Scientific Research and Development

**Conference Location :** Chicago, United States

**Conference Dates :** December 12-13, 2020