

NEW AND EMERGING NANOFIBER CAPABILITIES

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The capabilities of a new solvent-free nanofiber process are presented with examples for air and liquid filtration applications. The process has the dual capability of spinning nanofibers with functionalizing particles attached to the outside of the fibers and embedded in the fibrous matrix (flat sheet, batt, or cartridge forms). Average fiber sizes down to 0.5 micron have been demonstrated with a variety of low viscosity polymers: PCL, PLA, PP, PET, PBT, and Nylon. Samples with functional particles of Super Absorbent Polymer, Activated Carbon, Ion Exchange Resins, and others have been made with loadings up to 4x particle weight divided by fiber weight. For flat sheet application, the process is scaled by the addition of beams in the machine-direction; with each beam outputting 7 kg/hr/m.