

206c Roll-to-Roll Initiated Chemical Vapor Deposition (Icvd) of Functional, Flexible Nanomaterials

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The surface modification of flexible substrates can be used to produce high strength epoxy composites, superhydrophobic polymer fiber mats, and antimicrobial fabrics. Initiated chemical vapor deposition (iCVD) is a one-step, solventless deposition method that can be used to conformally coat substrates with complex geometries such as fabrics and wires. This method can be used to deposit a wide variety of vinyl monomers with different functional groups. The scale-up of the iCVD process is needed in order to produce realistic size samples. In order to scale-up the process, the kinetic and transport mechanisms involved in the iCVD process must be fully understood. These mechanisms are being investigated in order to design an efficient roll-to-roll iCVD reactor.