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## Non-metallic electrically conducting textiles: The potential

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Textiles, as we know, are polymeric and are electrically non-conducting. However, these are extremely flexible and comfortable. It has been of considerable interest to limited electrical conductivity through finishing treatment or through insertion of metallic fibers mainly to dissipate the static charge generated during use. The advent of intrinsically conducting polymers, however, has opened new vistas of applications wherein the flexibility of textiles could be suitably combined with the electrical conductivity of ICPs. The present paper gives an account of the research conducted by the team at IIT Delhi on *in situ* polymerization onto textiles of monomers such as pyrrole and thiophene using chemical and electro-chemical polymerization. Discussed in this paper are some fundamentals associated with polymerization process. In the case of electrochemical polymerization, it has been found that with the precise control of the relevant process parameters, uniform, rapid and reproducible polymerization can be achieved which can help to precisely control the polymer yield, as long as there is sufficient monomer concentration and requisite surface area for polymer deposition. The paper also discusses the potential and possible application areas of the electro-conductive textiles.

### Biography

Kushal Sen obtained his BTech degree in Textile Chemistry in 1977 and PhD degree in 1981, both from Indian Institute of Technology, Delhi. He joined the Department of Textile Technology, at IIT Delhi as a Faculty in 1981 and is currently a Professor in the same department and is also holding the position of Dean (Faculty). His current research interests include finishing of textiles, micro-encapsulation and electrically conductive textiles. He has guided several PhD and Masters' theses in various areas of textile technology, viz., textile chemistry, texturing and fibre science. He has published more than 70 papers in journals and conferences.

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