



Aryl Diazonium Salts: New Coupling Agents in Polymer and Surface Science

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DESCRIPTION

Diazonium compounds are employed as a new class of coupling agents to link polymers, biomacromolecules, and other species (e. g. metallic nanoparticles) to the surface of materials. The resulting high performance materials show improved chemical and physical properties and find widespread applications. The advantage of aryl diazonium salts compared to other surface modifiers lies in their ease of preparation, rapid (electro)reduction, large choice of reactive functional groups, and strong aryl-surface covalent bonding.

This unique book summarizes the current knowledge of the surface and interface chemistry of aryl diazonium salts. It covers fundamental aspects of diazonium chemistry together with theoretical calculations of surface-molecule bonding, analytical methods used for the characterization of aryl layers, as well as important applications in the field of electrochemistry, nanotechnology, biosensors, polymer coatings and materials science. Furthermore, information on other surface modifiers (amines, silanes, hydrazines, iodonium salts) is included. This collection of 14 self-contained chapters constitutes a valuable book for PhD students, academics and industrial researchers working on this hot topic.

ABOUT THE AUTHOR

Mohamed M. Chehimi is Research Director at the National Center for Scientific Research (CNRS) in France and the leader of the Surface & Interface research group at ITODYS Laboratory of the University Paris Diderot, where he obtained his PhD in physical organic chemistry in 1988 and finished his Habilitation in 1995. He has authored over 200 scientific publications and has received

the Honorary Medal from the Polymer Institute (Slovak Academy of Sciences, Slovakia) for long term and efficient international cooperation on surface and interface aspects of nanocomposites in 2008. His main research interests are aryl diazonium coupling agents, reactive and functional ultrathin polymer films via surface polymerization or "click" chemistry, carbon/polymer composites for the uptake of heavy metals, molecularly imprinted polymer-based sensors, clay/polymer nanocomposites and films, powders, latex particles, and nanocomposites of conductive polypyrrole.

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