

SYNTHESIS AND CHARACTERISATIONS OF PS/PANI COMPOSITE MATERIAL PREPARED BY IN SITU PROCESS DISSTINED FOR ANTISTATIC FIELD

F.Z. Hamlaoui^a, N. Naar^a, M. Bouchelaala^a, A. Benaboura^a

^a *Laboratory of Macromolecular Synthesis and Thio-Organics Macromolucular, University of Sciences and Technology Houari Boumediene; Faculty of Chemistry BP 32 16111 El Alia Bab Ezzouar Algiers, Algeria, tel: 00213540025654
E-mail : hamlaoui.f@outlook.fr*

Abstract. This work involves the development of composite containing polyaniline which is a polymer intrinsic conductor as reinforcement and polystyrene as matrix. The composite was prepared by in situ polymerization. The realized composite combines the electrical properties of the PANI with mechanical properties assured by the thermoplastic used. Since PANI is synthesized by interfacial chemical oxidative polymerization in the presence of ammonium persulfate (APS) as the oxidant and 5-sulfosalicylic acid (SSA) as dopant and by its structure, the literature confirms its utility in industrial applications. This later synthesis is proposed in order to study the physicochemical comportment of the PANI in the proposed dopant. The polystyrene is polymerized by emulsion method, sodium dodecyl sulfate (SDS) was utilized as emulsifier and APS as reaction initiator. The samples prepared were analyzed by various characterizations techniques: Spectroscopic (FTIR) to confirm the characteristic structure and interactions of the various formulations prepared, thermal (ATG), and electrical conductivity. The results improve the physical, chemical and electrical properties, respectively. This material is developed for the antistatic domain.

Keywords: Polyaniline, Polystyrene, in situ polymerization, Conductivity.