Ammonium sensing using a facile chemical polymerization polyaniline-strontium composite film

Soumia Messaouda BENHOUHOU[1] and Ahmed MEKKI[1]

[1]Ecole Militaire Polytechnique, BP17 - 16046 Bordj El-Bahri, Algiers, Algeria.
benhouhou93@gmail.com

Abstract. The present work consists on the preparation of polyaniline–strontium (PANI–Sr) composite film via an in situ facile chemical polymerization of aniline in presence of $SrNO_3$ deposited on biaxially oriented polyethylene terephthalate (BOPET) flexible substrates, with prior surface treatement using (3-aminopropyl) trimethoxysilane aiming to enhancing the film adhesion and reaching a specific morphology. The characterization of the obtained PANI–Sr films were carried out using FTIR. Their electrical conductivity was measured by the usual four probes technique. Obviously, the obtained films have shown a higher conductivity compared to the pristine polyaniline film. Moreover, this improved character has been exploited in order to test the film's sensitivity toward different types of gases. The obtained results put a high selectivity and sensitivity to the ammonia gas over the other tested vapors.

Keywords: Polyaniline-strontium composite, ammonia, gas sensor.