

Abstract :

In this work, conducting poly(aniline)/zeolite (PANI-HY) composites used for a carbon dioxide (CO₂) gas sensor, were prepared in two ways, The first method utilized in situ polymerization of aniline with ammonium persulfate as an oxidizer in an aqueous medium with addition of zeolite type HY-free acids. The second method involved the dispersion of various fractions of HY (5, 10, 15, 20 and 50 wt %) in a PANI-HCl matrix by physical mixing. We focused mainly on studying the conductivity with respect to temperature and gas environment. The synthesized conducting composites were characterized by FTIR, SEM, ultraviolet-visible spectroscopy, porosity and X-ray Diffraction. The PANI-HY composites showed the ability to detect CO₂ at room temperature.