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Sensitivity Enhancement of PEDOT-PSS towards CO by Zeolite ZSM-5 Additive POJJAWAN CHANTHAANONT, ANUVAT SIRIVAT TEAM[1]
— Polymer-based gas sensors have received considerable interest in recent years, due to their gas sensing ability through the electrical conductivity changes when exposed to gases. In our research, poly(3,4-ethylenedioxythiophene) doped with poly(styrene sulfonic acid), PEDOT-PSS, was synthesized via the oxidative polymerization and zeolites were used as selective microporous adsorbent to improve selectivity and sensitivity of the sensors. PEDOT-PSS were fabricated with zeolites by dry mixing and compressed to form PEDOT-PSS/zeolite composites. Zeolites ZSM-5 were chosen to investigate the effect of Si/Al mole ratios of zeolite on the electrical conductivity sensitivity response of PEDOT-PSS_1:1/zeolite ZSM-5 composites when exposed to CO. The electrical conductivity sensitivity of PEDOT-PSS_1:1/zeolite composites towards CO negatively increases with decreasing Si/Al mole ratios of zeolite ZSM-5. The highest electrical conductivity sensitivity response is obtained from PEDOT-PSS_1:1/ZSM-5(Si/Al = 23).

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