CHAPTER V
CONCLUSIONS

Conclusions

Doped PPV with H_2SO_4 is utilized as a NH_4NO_3 gas sensing material due to the positive response. The electrical conductivity sensitivity of 300:1 dPPV towards NH_4NO_3 can be improved by introducing zeolite Y into dPPV matrix. The effect of Si/Al ratio is then investigated, including the ratios 5.1, 30, 60 and 80. The sensitivity increases with increasing Si/Al ratio up to 80.The sensitivity of the composite with different Si/Al ratio in zeolite Y can be arranged in this order: dPPV/Zeolite Y (Si/Al=5.1, H^+) < dPPV/Zeolite Y (Si/Al=30, H^+) < dPPV/Zeolite Y (Si/Al=60, H^+) < dPPV/Zeolite Y (Si/Al=80, H^+). The sensitivity increases with increasing Si/Al ratio can be described in term of the specific surface area and evidenced from the interaction on IR spectra. dPPV/Zeolite Y (Si/Al=80, H^+) possesses the highest sensitivity of 3.79 since Zeolite Y (Si/Al=80, H^+) has the highest specific surface area which can induce a more favorable NH_4NO_3 vapor adsorption on the composite. From FTIR investigation, the NH_4NO_3-dPPV interaction is irreversible while NH_4NO_3-zeolite interaction is reversible.

Recomendations

Furthur studies recommended are:

1) The effect of cation type in PPV/ Zeolite composites on the electrical conductivity response towards ammonium nitrate.