

Optimization of antimicrobial PP composite with silver exchanged zeolite

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To induce antimicrobial properties in PP(Polypropylene) composite, Ag(+) exchanged zeolite as additive were prepared and compounded with PP. Zeolites were nanoporous alumina silicates composed of silicon, aluminum, and oxygen in a framework with cations, water within pores. Their cation contents can be exchanged with monovalent or divalent ions. In the present study, the antimicrobial (Staphylococcus aureus and Escherichia coli) properties of silver exchanged zeolite type A with PP composites were investigated individually contents. It was observed that Ag(+) ion-loaded zeolites exhibited more antibacterial activity with respect to other neat PP composite sample. In addition, thermal stability, DSC(Differential Scanning Calorimetry), XPS(X-ray Photoelectron Spectroscopy), mechanical properties and morphology of silver exchanged zeolite/PP composites were investigated.