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THE EFFECTS OF CARBON NANOTUBES (MWNTS) ON PERORMANCE OF PHOSPHORUS CONTAINING FLAME RETRDANTS IN POLYPROPYLENE

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Thermal stability and flame retardancy of polypropylene (PP) composites containing red phosphorus or ammonium polyphosphate (APP)/pentaerythritol (PER) in the presence of multi-walled carbon nanotubes (MWCNTs) with varying levels of MWCNTs loading have been investigated. Thermal stability of the specimens was studied by using thermogravimetric analysis (TGA) and flame retardancy of them was investigated using Limited Oxygen Index (LOI). The results show that initial degradation temperature of the PP composites is reduced profoundly in the presence of the MWCNTs. Furthermore, the MWCNTs are shown to have a negative effect on flame retardant activity of APP/PER and red phosphorus in PP matrix.