

ABSTRACT

Because of the unique structural architecture and interesting properties, hyperbranched polymers (HBP) have attracted almost all classes of scientists and technologists. Due to their unique architecture they find a wide field of application. As hyperbranched polymers have good compatibility with other linear polymers, they can also be used as additive for improvement of different properties of the base polymer. In this study we prepared a hyperbranched polyamine (HBPA) containing s-triazine moieties with a commercially favourable A_2+B_3 approach. Characterisation of the prepared polymer was done by using conventional spectroscopic techniques like FTIR, 1H NMR etc and other analytical techniques. The synthesized hyperbranched polyamine was used as a flame retardant additive for waste polyethylene along with organically modified montmorillonite(OMMT) nanoclay. Then the mechanical, thermal and flame retardancy properties of the composites with different compositions were studied. We found a good improvement of flame retardancy property after modification by incorporation of OMMT and HBPA as tested by the LOI tester. Other performances like Mechanical and thermal properties of the polyethylene were also seemed to be improved on incorporation of OMMT and HBPA.