

Polycarbonate Resin Composition with Halogen Free Organo-Phosphorous Flame Retardants

강수정, 정재민, 김진환[†]

성균관대학교

(jhkim@skku.edu[†])

Nowadays, the flame retardancy of polymers are the major concern. And almost the synthesized polymers does not have self-extinguishable ability, so they need flame retardant to enhance their flame retardancy abilities. In this study, Polycarbonate (PC) was selected to develop an efficient flame retardant (FR) of high temperature polymer. A series of organo phosphorus flame retardants (FRs) based on aromatic phosphate and Bisphenol A bis(cyclic 1,3-propanediol phosphate)(BPA-CPP), were synthesized for polycarbonate. Their thermal stability and flame retarding efficiency as a single-component additive were investigated and compared with resorcinol bis(diphenyl phosphate) (RDP). Flame retarding efficiency was evaluated by the UL-94 test method. The V-0 rating was achieved at RDP/ BPA-CPP loading of 6/2 wt% for polycarbonate, which is far better than that of resorcinol bis(diphenyl phosphate) and cyclic phosphate-based FRs. And its flame retarding performance was studied by the UL-94 and thermogravimetric analysis (TGA).