

Synthesis and Characterization of Phosphorous Based Flame Retardants

Shikha, Josemon Jacob*

*Department of Materials Science and Engineering,
Indian Institute of Technology,
New Delhi-110016, India
E-mail: nickybalayan27@gmail.com*

Abstract—*The advantage of phosphorous based flame retardants is their less adverse effect on human health as compared to halogen based flame retardants. Four phosphorous based flame retardant additives derived from pentaerythritol were synthesized and characterized by ^1H NMR, ^{13}C NMR, FTIR spectroscopy and mass spectrometry. Thermal stability and flammability properties were examined by thermo gravimetric analysis and UL-94 test respectively, which showed that the molecules are thermally stable under processing temperature. From UL-94 test it was found that these molecules showed the V_0 and V_1 rating, also the flame retardant properties of polymer were increased by increasing the percentage of phosphorous containing additives.*

References

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