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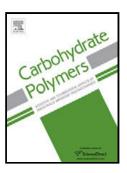
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ACCEPTED MANUSCRIPT

The novel application of chitosan: effects of cross-linked chitosan on the fire performance of thermoplastic polyurethane

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Highlights

- 1. A novel flame retardant (ACS) has been synthesized by crosslinking of chitosan.
- 2. ACS can significantly improve the flame resistance of polyurethane composite.
- 3. The PU composite has good thermal stability and mechanical properties.
- 4. The decomposition temperature of ACS is more compatible with that of APP.

Abstract

In this paper, a novel flame retardant (ACS) was prepared by crosslinking chitosan with bis-(4-formylphenyl)-phenyl-phosphonate (ABPO). ACS in association with ammonium polyphosphate (APP) and organic modified montmorillonite (OMMT) were used to prepare flame retardant thermoplastic polyurethane (TPU) composite through melt blending. For the

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