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PII: S0141-3910(14)00202-X

DOI: [10.1016/j.polymdegradstab.2014.05.017](https://doi.org/10.1016/j.polymdegradstab.2014.05.017)

Reference: PDST 7352

To appear in: *Polymer Degradation and Stability*

Received Date: 14 March 2014

Revised Date: 15 May 2014

Accepted Date: 20 May 2014

Please cite this article as: Buczko A, Stelzig T, Bommer L, Rentsch D, Heneczkowski M, Gaan S, Bridged DOPO Derivatives as Flame Retardants for PA6, *Polymer Degradation and Stability* (2014), doi: 10.1016/j.polymdegradstab.2014.05.017.

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## Bridged DOPO Derivatives as Flame Retardants for PA6

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### ABSTRACT

Two novel flame retardants, based on bridged 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide (DOPO) were developed and evaluated as flame retardant (FR) additives in polyamide 6 (PA6) engineering plastics. The analytical evaluation of the newly developed FR/PA6 formulations indicates a good flame retardant behaviour of both bridged DOPO derivatives, achieving a V0 rating, at a thickness of 1 mm, in the UL94 vertical flammability test. Additionally, it was found that the bridged DOPO derivatives are primarily active in the gas-phase through flame inhibition as well as *via* increased melt-flow-drip FR mechanism.

**Keywords:** Flame retardant, bridged DOPO derivatives, polyamide 6, engineering plastics, thermal analysis, fire tests

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