There is a huge need for non-toxic flame retardant additives due to recent regulatory changes in EU and US demanding not only non-toxicity of the flame retardant additive itself, but also non-toxicity of smoke produced from the flame retardant materials. For example the EU has banned halogenated flame-retardants in electronic devices; the recyclability of halogen containing materials is an issue.

Our compound EDA-DOPO has been tested non-toxic, is REACH registered and effective as flame retardant in many applications.
Advantages

- non-toxic
- compatible with all synthetic textiles, PU, PA, polyolefins, and epoxy resins etc.
- manufacturing established at the 1000 kg scale
- REACH registered in the EU

Proof of Concept and Evaluation

Examples: EDA-DOPO has been used as flame retardant for soft PU foam application. 5–10 wt.% of the total polyol is required to achieve a V0 rating in UL 94 horizontal burning test. EDA-DOPO can be used as a flame retardant for back coating of textiles to replace halogenated flame retardants. Typically 2 – 5% phosphorus content in the coating formulation is required to pass vertical burning tests.

Evaluation by Empa’s partner: Empa is able to provide few kgs for evaluation. If needed, larger quantities (> 10 kgs) can be acquired via toll manufacturer.

Expertise at Empa: Synthesis of the flame retardant, evaluation of fire performance of flame retardant materials, application of the flame retardant additive.

Applications

all kinds of polymers, foams, textiles, electronics, transportation, etc.

Patent Status


Keywords

flame retardant, DOPO, EDA-DOPO, polymers, textiles, additives, phosphorus

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