Non-hazardous Fire Retardant Synergists for Plastics

With increasingly tighter regulation on chemical substances, polymer material formulators are keen to explore non-hazardous flame retardant synergists in combination with other flame retardants. An expanding area of development is the production of stannate based flame retardant products with a low melting glass. This solid particulate additive is converted to a viscous liquid in the temperature range where polymer materials demonstrate oxidative degradation during ignition and flame spread, thus improving performance.

These additives can be used in combination with other primary flame retardants to enhance barrier and char formation of polymer surfaces during burning, thus leading to more efficient flame retardant additive technology. They can be used in conjunction with halogenated flame retardants as well as in halogen free flame retardant materials.

The properties and thermal behaviour of these additives will be reviewed. Examples will be given of their use in water soluble and thermoplastic materials to demonstrate the versatility of the additives across a range of flame retardant technologies.

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