

## **Recent Developments in N and P Based Flame Retardants**

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This presentation will briefly cover highlights of phosphorus and nitrogen based compounds which have been developed in the past few years by various researchers working in the field of flame retardancy. Our recent work on phosphoramidates, phosphonamide, phosphonate and phosphinate as flame retardant additives will also be presented. These flame retardants primarily work in gas or condensed phase depending on the polymer matrix in which it is incorporated. By variation of the substituents attached to the phosphorus atom we can obtain flame retardants for tailored applications. The presentation will also cover our recent experience in successful industrial collaborations of not only developing new flame retardant chemistry in lab scale but it's up-scaling in industrial scale and pilot-scale production of flame retardant foams and fibers from these additives.