Development of eco-friendly pyrotechnic composite for aerosol fire extinguishment system.

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Abstract

This research focuses on developing binders derived from natural resources and fabricating pyrotechnic composite materials (PC) using the same binding agent. Chemical and physical treatments will upgrade the physicochemical properties of the binder. Key physicochemical properties: swelling index, solubility, and characterization: FTIR and FESEM of the binder were investigated. Meanwhile, the effects of different loading conditions of binders on PC combustion characteristics and fire extinguishment efficacy were investigated. PCs. The outcomes of this research work on new paths for developing innovative pyrotechnic formulations from renewable polymers that address critical challenges in fire safety technology.

Objectives

- To develop an eco-friendly binder for pyrotechnic composite
- To develop an eco-friendly pyrotechnic composite
- To characterize and test pyrotechnic composite
- To investigate the fire extinguishment efficacy of pyrotechnic composite