

Estimation of Flame Retardant Properties for Boron-Including Powder from Bittern

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Summary

Halogen-free flame retardants have been widely used in the flame retardation of polymers, and borate-intercalated layered double hydroxide (LDH) are paid attention. On the other hands, bittern is one of the resources from seawater to be desired for a new utilization.

In this study, we attempted to synthesize a new boron type flame retardant powder including borate-intercalated LDH from bittern by addition of cheap agent, AlCl_3 , and prepare a retardant powder with low Cl content after treatment with Na_2CO_3 solution.

Boron-type LDH can be synthesized from bittern with addition of AlCl_3 , and the products with low Cl content can be prepared after treatment with 10 mM Na_2CO_3 solution at 20°C, indicating high flame retardant ability in polyvinyl alcohol (PVA).