

No. 2119

The Process for Preparation of Boron-type Frame Retardant Powder from Bittern with High Ability

Takaaki Wajima

Chiba University

Summary

Halogen-free flame retardants have been widely used in the frame 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 frame retardant powder including borate-intercalated LDH from bittern with addition of cheap agent, AlCl_3 or FeCl_3 in the borate solution at various pHs, temperatures and reaction times.

The product including boron-type LDH with high frame retardant ability can be synthesized from bittern with addition of AlCl_3 in the borate solution at 40°C and pH 9.5 within 1 h.