

Recent development and challenges in enhancing fire performance on wood and wood-based composites: A 10-year review from 2012 to 2021

ABSTRACT

Due to their durability, versatility, and aesthetic value, wood and wood-based composites are widely used as building materials. The fact that these materials are flammable, however, raises a major worry since they might cause fire hazards and significant loss of life and property. The article investigates the variables that affect fire performance as well as the various fire-retardant treatments and their mechanisms. The current developments and challenges in improving the fire performance of wood and wood-based composites treated with fire-retardant materials are summarized in this paper. Nanoparticles, organic chemicals, and densification are some recent developments in fire-retardant treatments that are also emphasized. Key points from the review are summarized, along with potential areas for further research and development.