

Efficacy of Pyrethroid and Boron Preservatives in Protecting Particleboards against Fungus and Termite

ABSTRACT

Pyrethroid-formulated preservatives were investigated for their efficacy in protecting rubberwood and empty fruit bunches (EFB) particleboards against fungi and termites. Timberlife®, Stoprot® and Cislin® solutions (5% w/w of particles) were incorporated in rubberwood (clone RRIM 2002), EFB and rubberwood–EFB blend (70:30) particleboards by spraying the solutions separately into the furnish during blending. Boric acid (0.5% w/w) was used for comparison. A low formaldehyde emission melamine urea formaldehyde (MUF) resin (E1 grade) was used as binder. The pressing time of each type of board was determined by studying the gelation time of the adhesive mixture with added preservatives. With the exception of Timberlife®, all preservatives markedly increased the gelation time of the resulting adhesive mixture. The gel time for control mixture (without preservative) was 360 s. The resistance of treated particleboards against biodeterioration agents was evaluated based on weight loss of testing blocks after exposure to white rot fungus (*Pycnoporus sanguineus*) and subterranean termite (*Coptotermes curvignathus*). The resistance of particleboards either against white rot fungus or termite can be enhanced through incorporation of small amount of pyrethroid formulated preservatives through spraying during blending of furnish. Timberlife® provided the best protection of these particleboards against *P. sanguineus*. Cislin® offered the best protection for EFB particleboard against termite. Stoprot® gave fair protection to all particleboards against white rot fungus and termite, while boric acid still gave the best protection to rubberwood particleboard against termite.

Keyword: Panel, preservatives, boric acid, *Pycnoporus sanguineus*, *Coptotermes curvignathus*