

Donahaye, E.J., Navarro, S., Bell, C., Jayas, D., Noyes, R., Phillips, T.W. [Eds.] (2007) Proc. Int. Conf. Controlled Atmosphere and Fumigation in Stored Products, Gold-Coast Australia. 8-13th August 2004. FTIC Ltd. Publishing, Israel. p. 577

TOXICITY OF ETHANEDINITRILE (C₂N₂) TO TIMBER OR WOOD RELATED INSECT PESTS

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ABSTRACT

Range finding studies on the toxicity of ethanedinitrile to three species of timber or wood related insects were carried out. The species were *Rhyzopertha dominica* Fabricius, *Anoplophora glabripennis* Motschulsky (Asian Longhorned Beetle) and the termite *Cryptotermes brevis* Walker. Exposure for 6 hours to ethanedinitrile at 20-25°C, completely killed the adult stage of *Rhyzopertha dominica* at 1.0mg L⁻¹, completely killed all the larval stages of *Anoplophora glabripennis* at 11mg L⁻¹ and completely killed workers of *Cryptotermes brevis* at 4.0mg L⁻¹. Control of immature stages of *Rhyzopertha dominica* required a concentration of 1.5mg L⁻¹ of ethanedinitrile for 24 hours at 25°C. During 6 and 24 hours exposures, the decay of ethanedinitrile in the fumigation chamber was 4-7% in all cases. The levels of carbon dioxide (CO₂) produced by insect respiration was in the range of 0.2-0.35% for the 6 hour exposure and 0.7% for the 24 hour exposure. In general, ethanedinitrile showed high toxicity to all immature and adult stages tested and in this respect is more toxic than methyl bromide and sulfur dioxide.