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Electron beam irradiation effects on the resistance of packaging materials in the perforation by *Lasioderma serricorne*

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Lasioderma serricorne is one of the most frequent insects infesting stored products. Cosmopolitan pest infests dry fruits, fresh cotton, grains, crumbs, flours, rations and other dry or dehydrated products. *L. serricorne* is a small insect measuring from 2 to 2,5 mm and its complete life cycle is from 60 to 90 days long. The objective of this work was to evaluate the perforation resistance for *L. serricorne* of commercial multilayer structures of flexible dry food packaging materials treated with electron beam radiation. The multilayer structures based on polypropylene (PP), biaxially oriented polypropylene (BOPP) and poly(ethylene terephthalate) (PET) were irradiated with doses of 0, 10, 20 and 60 kGy, using a 1.5 MeV electron beam accelerator at room temperature and in the presence of air. After irradiation, the materials were evaluated for the verification of possible perforations caused by this insect. In addition, the changes in

mechanical and thermal properties of the irradiated materials were analyzed. The results showed that there was no problem of in sect perforation in the packaging, however these irradiated multiplayer structures showered significant changes ($p < 0.05$) in the mechanical properties, especially in sealability that was severely affected.

Keywords: Multilayer packaging materials, flexible packaging, electron beam radiation, dry foods, *Lasioderma Serricorne*.