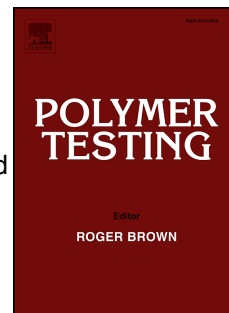


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# Structural Failure Analysis of Polycarbonate Enclosures of Electronic Devices Subjected to Multiple Ball Impacts

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## Abstract

The present study predicts the structural damage on polycarbonate enclosures of electronic devices in multiple ball impact tests, achieved through numerical simulation and experiments. A novel methodology in modelling repeated ball impacts was established and proven. It was found that the finite element model must be allowed to achieve static equilibrium at the end of each impact before the next impact. The ball impact was performed on the polycarbonate enclosures at different heights ranging from 20 to 70 cm. The results suggested that the maximum penetration depth from both finite element analysis (FEA) and experiment were in good agreement. The failure sites were also predicted with reasonable consistency.

**Keywords:** Ball impact; Finite element analysis; Structural failures; Multiple impacts; polycarbonate; Crack

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