

عنوان مقاله:

An experimental crashworthiness investigation of aluminum 6061-T6 tube under axial compression

محل انتشار:

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خلاصه مقاله:

Thin-walled aluminum tubes have been widely used in automotive, aerospace and transportation industries due to their excellent properties. In this paper, quasi-static experimental study of circular aluminum 6061-T6 tube with a chamfer triggering mechanism was carried out by an Instron testing machine at a controlled displacement rate of 5mm/min. The crushing mode, load-displacement and specific energy absorption of aluminum tube were achieved to obtain specifications of Al6061-T6. For the circular cross-section, the type of crushing mode can be impressive on energy absorption capacity and consequently crashworthiness characteristics. Also a triggering mechanism decreases the maximum force and deceleration to increase occupant safety in a crash situation. The predicted results would give more information about aluminum tubes to make a better design in crashworthy components.

کلمات کلیدی:

Aluminum tube, crashworthiness, crushing mode, energy absorption, quasi-static axial loading, triggering mechanism

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