

عنوان مقاله:

A Brief Review on Shockwave Energy Absorbing Structures

محل انتشار:

دومین کنفرانس بین المللی کاربرد مواد و ساخت پیشرفته در صنایع (سال: 1401)

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خلاصه مقاله:

The absorbing structures for high rate energy like explosions and intense impacts due to high damage it causes and such disaster happens are widely investigated by researchers. As the main destruction factor of an explosion, shockwave can cause a lot of damage. Understanding the mechanical properties of the shockwave and how much energy is released from a blast can build an absorbing structure for improving the safety of vehicles and occupants. The most effective shockwave energy absorption structures have been investigated. The experimental procedure of previous studies considering financial resources has been reviewed and concluded that materials for use in shockwave energy-absorbing designs are vast. It can get different absorption structures according to what application these absorbing panels are used and due to the high cost of explosion experiments and modeling shock waves, finding shock tube experiments is financial. In the recent decade, foam-filled multi-layer panels have been used widely. Sandwich panels can be used for more flexible applications due to their lower density; however, it is evident that using multi-layer panels in vehicle body structure usually leads to a heavy fuselage and limited mobility. All these measures are taken for a time when the intensity of the explosion is not high; for this reason, complete protection of vehicles against explosions is not possible due to the indefinable type of threats.

کلمات کلیدی:

Energy-absorbing structure, Shockwave energy absorption, Blast wave, Blast resistant panels, Multi-layer energy absorber

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