

P46 Blast Wave Attenuation by a Stiff Porous Medium Protection Layer

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Abstract:

It was shown that the implementation of barriers which partially block the propagation of a blast-wave can decrease the peak over-pressure and the impulse build-up duration developing on a target wall [1]. In the present study, the impingement of a blast-wave on a layer of rigid porous medium acting as a protection of the end wall is experimentally investigated. A short driver section is used in a shock tube apparatus to generate a blast- load-like pressure profile. In the studied scenario, different samples of rigid porous silicone carbide filters were placed at various distances from the end-wall of the shock tube. The pressure buildup on the end wall, behind the porous medium sample, was monitored and compared to the loading scenario where no porous sample was present. It was found that the use of porous barriers is mostly beneficial in reducing the peak over-pressure. Counterintuitively, the pressure profile measured at the shock tube's end-wall, behind the porous medium, was different than the pressure profile measured without a porous medium only during the initial pressure buildup duration.

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