High-Pressure Range Shock Wave Data for Syntactic Foams J.
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Syntactic foams [SF] are a porous composite material that results from the mixture
of Hollow Glass Micro Spheres [HGMS] with a polymeric binder. Beyond a set
of technological advantages over the polymer considered alone, SF present as an
essential feature the possibility to control in wide limits the amount, the shape
and the size of the porous and by that reason is being used for benchmarking in
the area of the shock wave [SW] behaviour of porous materials. In this paper SW
loading experiments of SF samples were performed in order to assess the high-
pressure range Hugoniot equation of state as a function of the SF initial density.
Hugoniot data was assessed coupling the SW velocity within the SF samples with
the SW velocity in a reference material or with manganin gauge results. The results
obtained present a significant variation with the initial specific mass and can be
described with appreciable precision by the Thouvenin/Hofmann model while the
concordance between the experimental results and the Grüneisen model seems to be
very dependent on the Grüneisen coefficient values.

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