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Spall Response of 1100-O Aluminum CYRIL WILLLIAMS, Army Research Laboratory/The Johns Hopkins University, DATTA DANDEKAR, Army Research Laboratory, KALIAT RAMESH, The Johns Hopkins University, ARL/JHU COLLABORATION — Plate impact experiments were conducted to study the effects of peak shock stress, pulse duration, and loading rate on the pullback velocity of fully annealed 1100 aluminum. The results obtained from this work show a sharp increase in pullback velocity with increase in peak shock stress between 4.0 GPa and 8.5 GPa, followed by a sharp decrease up to 11.5 GPa. However, when the pulse duration was varied from 0.61 μs to 1.55 μs the pullback velocity was observed to decrease and tend towards saturation. This result is in agreement with the open literature. The key conclusion from this work is that recovery experiments are required to further probe the deformation mechanisms involved during the increasing and decreasing portion of the pullback velocity as the peak shock stress is increased.

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