

Abstract Submitted  
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**Detailed Comparison of Blast Effects in Air and Vacuum**<sup>1</sup> J.W. TRINGE, J.D. MOLITORIS, R.G. GARZA, H.G. ANDRESKI, J.D. BATTEUX, L.M. LAUDERBACH, E.R. VINCENT, B.M. WONG, Lawrence Livermore National Laboratory, ENERGETIC MATERIALS CENTER TEAM — We have performed a detailed investigation of blast effects from high-explosive detonations in air and in vacuum. This research was done with 4 kg charges in a large- volume fully contained spherical firing tank. The most obvious consequence of detonation in vacuum is that prompt shock effects are negated as the detonation has no external medium for coupling. The nature of the fireball is also completely altered due to the lack of surface combustion. However, we find that the net effect of the blast on large area witness plates is remarkably very similar in the air and vacuum environments. Diagnostics for this blast characterization included multiple-view high-speed imaging systems and time resolved pressure data gauges. Experimental results and model simulations will be presented.

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