Shock Equation of State of Single Constituent and Multi-Constituent Epoxy-Based Particulate Composites JENNIFER JORDAN, Air Force Research Laboratory, DANA DATTELBAUM, Los Alamos National Laboratory, LOUIS FERRANTI, Lawrence Livermore National Laboratory, GERRIT SUTHERLAND, Naval Surface Warfare Center, D. WAYNE RICHARDS, Air Force Research Laboratory, STEVE SHEFFIELD, Los Alamos National Laboratory, RICHARD DICK, Shocks Unlimited, NARESH THADHANI, Georgia Institute of Technology — There are several studies in the literature regarding the equation of state of alumina-epoxy composites. Although these single component systems interact in a complex manor with shock waves, the addition of a second metal or ceramic particulate can result in even more complex interactions. This paper presents a review of shock loading studies on epoxy-based particulate composites, such as Al_2O_3-epoxy, Al-Fe_2O_3-epoxy, and, Al-MnO_2-epoxy. Comparisons between measured ultrasonic sound speeds and shock bulk sound speed are discussed. Finally, the relationship between equation of state parameters and particulate concentration is investigated.

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