

Abstract Submitted
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Elastic Properties of Shock Loaded SiC-N in Conditions of Spherical Explosion VITALI F. NESTERENKO, University of California, San Diego, PAUL R. GEFKEN, DONALD R. CURRAN, SRI International, Menlo Park, JING CAI, University of California, San Diego — High accuracy measurements of elastic properties and Q factors of SiC-N before ($C_{11}=482.2$ GPa and $C_{44}=194.1$ GPa, $Q=10\ 000$) and after shock loading using DRS method will be reported. Silicon carbide (SiC-N) was tested in conditions of spherical explosion with measurements of particle velocity history on different distances from the cavity. Two type of explosives (10 mm radius charge with 6 g of Detasheet, test I, and 10 mm radius charge with 3.6 g of PETN at a density of 1.00 g/cc, Test II). Particle velocities were in the interval 450-60 m/s and 350-20 m/s for these two tests correspondingly. Elastic data indicate that catastrophic failure was not preceded by stage of bulk damage accumulation effecting elastic properties of the material between macrocracks. Containerless hot isostatic pressing of the damaged SiC-N allowed partial recovery of elastic properties of material with macrocracks.

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