

Abstract Submitted
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Computational Comparisons of Homogeneous and Statistical Descriptions of AeroMet100 Steel Subjected to Explosive Loading MICHAEL HOPSON, CHRISTINE SCOTT, NSWC Dahlgren Division — Computational continuum codes can provide many details on the response of metals to explosive loading. However, most “production” level calculations use a homogeneous description of the metal. This representation is incorrect and a statistically compensated Johnson-Cook fracture model has been implemented into several computational continuum codes in an attempt to improve the predictive capability for fragment distributions from explosively loaded shells. This analysis employs a distribution of failure strains from experimental data to determine the parameters for the statistically compensated Johnson-Cook fracture model. Then the parameterized model was used in calculations of several experiments where fragments from explosively loaded shells were soft recovered. The results were analyzed and compared back to baseline homogeneous calculations.

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