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Modeling PBX 9501 High Explosive Cylinder Experiments and an Evaluation of WSD and AWSD Parameter Sets MARVIN ZOCHER, TARIQ ASLAM, MATTHEW PRICE, Los Alamos National Laboratory — Cylindrical assemblies are often used in experiments aimed at calibrating and validating continuum level models of reactive burn, and of the so-called equation of state model (constitutive model for the spherical part of the Cauchy tensor). Such is the case in work to be discussed here. In particular, work will be described involving the modeling of a series of experiments involving PBX 9501 encased in a copper cylinder. The objective of the work is to test and perhaps refine a set of phenomenological parameters for the Wescott-Stewart-Davis (WSD) and Arrhenius-WSD (AWSD) reactive burn models. The focus of this talk will be on modeling the experiments, which turned out to be non-trivial. Always difficult to handle due to the extremely short reaction zone of PBX 9501, scaling is employed to address issues related to detonation velocity. The modeling is conducted using ALE methodology.

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