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**Hydrocode Simulation of Wedge Tests to Determine How the Test Method Affects the Pop Plot** GERRIT SUTHERLAND, Army Research Laboratory, Aberdeen Proving Ground, MD — Most of the available shock reactivity data for explosives comes from either wedge tests or from embedded gauge data obtained from flyer plate tests. A question arises, what effect does the test method have on the Pop Plot obtained? A flyer plate test will impart a constant input pressure whereas wedge testing using a plane wave lens (PWL) system will not. To gauge this effect, explicit numerical simulations were performed for 4" and 8" diameter wedge tests using a PWL system and for flyer plate impact tests. For the flyer plate tests, the simulations modeled the flyer plate and explosive sample. For the PWL system, the simulations modeled the PWL, the booster explosive, the attenuator and the explosive sample. The simulations resulted in distance-time curves of the shock or detonation wave traveling into the sample. These curves, when differentiated, resulted in shock velocity versus distance and shock velocity versus time plots. Inspection of these plots for various input pressures allowed for prediction of pop plots (log of run distance versus log of time and log of run distance versus log of input pressure). Comparison of the Pop Plots indicated the effect of the test method on Pop Plot slope and intercept. Simulations were performed for both an ideal and a non-ideal explosive.

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