

Abstract Submitted
for the SHOCK07 Meeting of
The American Physical Society

Analysis of Wave Curvature and Rate Stick Experiments for Monomodal Explosives with Different Crystal Quality and Particle Size Characteristics¹ GERRIT SUTHERLAND, Naval Surface Warfare Center, Indian Head Division — Wood-Kirkwood theory and computer simulations of rate stick and wave curvature experiments of two sets of monomodal explosives are presented. One set [1] included two explosives composed of RDX or reduced sensitivity RDX representing a range of crystal quality. The second set [2] of explosives had mean particle sizes of 6, 134 and 428 μm . Wood-Kirkwood theory was used to calculate the reaction zone width from the wave curvature experiments. Two-term ignition and growth reactive model simulations for the first set of experiments were performed. Ignition and growth parameters were determined from embedded gauge experiments and critical diameter tests. The ability of the simulations to adequately predict shape of detonation velocity versus diameter curves and to replicate wave curvature data is presented. 1. G.T. Sutherland, 13th International Detonation Symposium, to be published. 2. H. Moulard, 9th International Detonation Symposium, pp. 18-24.

¹Supported by NSWC Indian Head Division Core Research Program

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Date submitted: 21 Feb 2007

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