

Abstract Submitted
for the SHOCK05 Meeting of
The American Physical Society

Detonation and Shock Reactivity Properties of Explosives Containing RDX and Reduced Sensitivity RDX GERRIT SUTHERLAND, JOHN O'CONNOR, ERIC SCHLEGEL, ALAN ZAKRAYSEK, Naval Surface Warfare Center, Indian Head, MD 20640 — The detonation and shock reactivity properties of two monomodal research explosives were measured to assess how these properties change when different quality RDX is used. One explosive contained class 1 (coarse) RDX and HTPB binder; the other explosive contained reduced sensitivity (high quality) class 1 RDX (I-RDX) and HTPB binder. Experiments performed included wave curvature, rate stick and flyer plate experiments. Wave curvature and rate stick experiments indicate that the reaction zone length is shorter for the explosive containing RDX. Our results show that decrement and wave curvature results are bounded by the results of Moulard and coworkers^{1,2} for similar explosives containing fine and very coarse RDX particles. We will also present work of ongoing shock reactivity experiments. In these experiments, a flyer impacts an explosive sample containing multiple embedded pressure gauges. Analyses of the pressure gauge records allow us to determine shock reactivity trends for each explosive. ¹Moulard, H., Kury, J.W., Delclos, A., Proceedings of Eighth Symposium (International) on Detonation, Albuquerque, NM, 1985, pg. 902-913. ² Moulard, H., Proceedings of the Ninth Symposium (International) on Detonation, Portland, Oregon, 1989, pg. 18-24.

Gerrit Sutherland
NSWC Indian Head Division

Date submitted: 07 Apr 2005

Electronic form version 1.4