

Abstract Submitted  
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**Department of Homeland Security (DHS) Proficiency Testing on Small-Scale Safety and Thermal Testing of Improvised Explosives<sup>1</sup>** JOHN G. REYNOLDS, LLNL, MARY M. SANDSTROM, GEOFFREY W. BROWN, LANL, KIRSTIN F. WARNER, NSWC-IHD, JASON J. PHILLIPS, SNL, TIMOTHY J. SHELLEY, ATF Huntsville, JOSE A. REYES, ARA Tyndall AFB, PETER C. HSU, LLNL — One of the first steps in establishing safe handling procedures for explosives is small-scale safety and thermal (SSST) testing. To better understand the response of improvised materials or HMEs to SSST testing, 18 HME materials were compared to 3 standard military explosives in a proficiency-type round robin study among five laboratories—2 DoD and 3 DOE—sponsored by DHS. The testing matrix has been designed to address problems encountered with improvised materials—powder mixtures, liquid suspensions, partially wetted solids, immiscible liquids, and reactive materials. Over 30 issues have been identified that indicate standard test methods may require modification when applied to HMEs to derive accurate sensitivity assessments needed for development safe handling and storage practices. This presentation will discuss experimental difficulties encountered when testing these problematic samples, show inter-laboratory testing results, show some statistical interpretation of the results, and highlight some of the testing issues.

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