

Abstract Submitted
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The ODTX System for the Study of Thermal Sensitivity and Thermal Explosion Violence of Energetic Materials¹ PETER HSU, GARY HUST, JOHN REYNOLDS, KEO SPRINGER, LARRY FRIED, JON MAIENSCHEIN, Lawrence Livermore National Laboratory — Incidents caused by fire and combat operations in battlefields can expose energetic materials to unexpected heat that may cause thermal explosion, structural damage and casualty. Some explosives may thermally explode at fairly low temperatures (<100 C) and the violence from thermal explosion may cause a significant damage. Thus it is important to understand the response of energetic materials to thermal insults. The One Dimensional Time to Explosion (ODTX) system at the Lawrence Livermore National Laboratory can measure times to explosion, threshold thermal explosion temperature, and determine kinetic parameters of energetic materials. Samples of different configurations (pressed part, powder, paste, and liquid) can be tested in the system. The ODTX testing can also provide useful data for assessing the thermal explosion violence of energetic materials. In this paper, we will present some recent ODTX experimental data and compare thermal explosion violence of different energetic materials.

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