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Thermal Damage Characterization of Energetic Materials PETER HSU, MARTIN DEHAVEN, JON MAIENSCHEIN, Lawrence Livermore National Lab — Incidents caused by fire or other thermal events would expose energetic materials to unexpected heat that may damage explosive charges. The thermal damage may affect material handling safety, material properties, and degrade its performance. We recently conducted some thermal damage experiments on several high explosives including HMX-based formulations and TATB-based formulations, with temperatures from 150 C to 190 C. We also evaluated the handling safety, some physical properties (density, porosity, permeability), and detonation velocity of the damaged energetic materials. In this paper, we will describe our approach, instruments and equipment used for the study and share our experimental results.

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