

Abstract Submitted
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Fast Internal Temperature Measurements in PBX9501 LAURA SMILOWITZ, LANL, BRYAN HENSON, MARY SANDSTROM, BLAINE ASAY, GARY PARKER, DAVID OSCHWALD, PETER DICKSON, JERRY ROMERO — We have made spatially and temporally resolved temperature measurements internal to a thermal explosion in PBX9501. These measurements are made both by thermocouples with corrections applied to compensate for the thermocouple response time and with optical pyrometry. Our original goals were to test our kinetic model over a broader range of temperatures, to look for evidence of any late endotherms during final self heating, and to study the transition between ignition and ignition propagation. This meant we needed to be able to follow temperatures later into reaction (meaning further in time and closer to the ignition point). Our previous limit was 16ms prior to ignition limited only by the sampling rate on the logger. In order to sample faster, we switched to a direct voltage reading of the thermocouples and added fiber optic temperature measurements. In this talk, I will discuss our current capabilities for controlling and measuring the development of an ignition within a piece of heated PBX9501.

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