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**Flame Spread Across Surfaces of PBX 9501** STEVEN F. SON, Los Alamos National Laboratory, H. LAINE BERGHOUT, Weber State University, LOS ALAMOS NATIONAL LABORATORY COLLABORATION — The safe use of energetic materials has been scientifically studied for over 100 years. Even with this long history of scientific inquiry, the level of understanding of the important deflagration phenomena in accidental initiations of high explosives remains inadequate to predict the response to possible thermal and mechanical (impact) scenarios. Currently, the most significant uncertainties are in the processes immediately following ignition. Flame spread across surfaces of explosives, such as PBX 9501, is of relevance to safety scenarios. We report the results of flame spread experiments in PBX 9501. Horizontal flame spread across the surface of PBX 9501 represents the limiting case of an infinitely wide crack. The flame spread rate for PBX 9501 as a function of pressure from  $2 \times 10^5$  Pa –  $1.7 \times 10^7$  Pa obeys  $r_{s=0.253} P^{0.545}$  (cm/s) where  $P$  is the dimensionless experimental pressure defined as  $P/P_0$  with  $P_0 = 10^5$  Pa.

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