Abstract Submitted
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The Thermal Response of HMX-TATB Charges ROD DRAKE, Atomic Weapons Establishment — The use of formulations containing two explosives is one approach to achieving charge safety and performance requirements. The intention of this approach is to produce a formulation that only has the desirable features of the constituent materials. HMX and TATB have very different properties & have been used in a study to understand how the characteristics of the constituent materials affect the thermal response of a mixed formulation. A range of formulations were prepared in which the proportion and particle size distributions of the HMX and TATB were varied. Times to explosion of spherical charges were measured in the One-Dimensional Time-To-Explosion apparatus and compared to those of formulations based only on HMX and TATB. The response of the mixed formulations was found to be largely determined by the HMX. Small contributions to the responses were made by the binder type and the particle size of the TATB. Numerical models were developed and used to rationalise the results.

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