

Abstract Submitted
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Links between crystal morphology and shock sensitivity in granular RDX HELEN CZERSKI, MARTIN GREENAWAY, WILLIAM PROUD, University of Cambridge — It has been known for several years that equivalent batches of the secondary explosive RDX can show significant variations in shock sensitivity. In particular, the relatively recent emergence of reduced sensitivity (RS-) RDX has focused attention to grain-level defects and heterogeneities. Although the role of particle size is well-known, there have been some papers reporting shock sensitivity correlating with marginal changes in grain roughness or density and the presence of internal voids or trapped gas. The aim of this research is correlate shock sensitivity with crystal morphology and defects for a large number of classes, types and manufacturers of RDX. A number of techniques have been employed, including volumetric adsorption (BET method), environmental scanning electron microscopy (ESEM), atomic force microscopy (AFM) and optical microscopy. This range of methods aims to yield quantitative data on internal voids, surface roughness and surface area to volume ratio. Shock sensitivity is quantified using small-scale gap tests.

Martin Greenaway
University of Cambridge

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