

Abstract Submitted
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Optical characterization of defects in RDX VON WHITLEY, Naval Surface Warfare Center-Indian Head — The objective of this work was to study the effects of impurities and defects on the absorption spectra of RDX. RDX is known to exhibit a sample-to-sample variation in the shock and impact sensitivity. There have been a number of explanations for the variation in the sensitivity, from small voids, to molecular impurities, to dislocations of the crystalline lattice. Ultimately, the reason is still debated, but it is generally accepted that higher-quality crystals are less sensitive than lower-quality crystals. Simple methods to determine the quality of RDX crystals are needed. Defects in the crystalline lattice, whether it is an impurity, a vacancy or a dislocation, will interrupt the crystalline symmetry around the defect. This interruption of the crystalline symmetry can be optically detected via anomalous absorption features found in the normally forbidden band gap region. This could allow for a simple experimental method to determine the quality of RDX.

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