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The High-Pressure Characterization of Energetic Materials: Dihydrazinium 5, 5'-azotetrazolate dihydrate JENNIFER CIEZAK JENKINS, US Army Research Laboratory — The isothermal structural properties, equation of state, and vibrational dynamics of the high-nitrogen material Dihydrazinium 5, 5'azotetrazolate dihydrate (HAT) were studied under high-pressure using synchrotron X-ray diffraction and optical Raman and Infrared microspectroscopy. At pressures near 4.5 GPa, X-ray diffraction characterization revealed an abrupt discontinuity in the compressibility, which when correlated with the mode splitting and intensity changes observed in the spectroscopic measurements, suggests the onset of a subtle isostructural phase transition. This paper will discuss the structural characteristics of the high pressure phase of HAT as well as its implications for the energetic properties of the material.

> Jennifer Ciezak Jenkins US Army Research Laboratory

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