Numeric investigations of the sensitivity of debris cloud thermodynamic state to equation of state AARON WARD, Marquette University, Milwaukee, WI, ROBERT NANCE, Corvid Technologies, Mooresville, NC, JOHN BORG, Marquette University, Milwaukee, WI, JOHN COGAR, Corvid Technologies, Mooresville, NC — Modeling of hypervelocity impact generated debris clouds with hydrocodes has been focused primarily on the cloud shape and behavior. Little attention has been paid to understanding the thermodynamic state, temperature and phase of the debris. This paper will examine such thermodynamic effects through modifications to existing analytical equations of state (EOSs) in order to demonstrate the sensitivity of debris cloud thermodynamics to changes in EOS. A companion paper (Nance, Worsham, and Cogar, "Equation of State Effects in Hypervelocity Impact Simulations") will focus on modeling such impacts using tabular EOSs.

Aaron Ward
Marquette University