

Abstract Submitted
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Solid and liquid Equation of state for initially porous aluminum where specific heat is constant JERRY W. FORBES, E.R. LEMAR, Energetics Technology Center, MARY BROWN, Applied Research Associates, Inc. — A porous solid's initial state is off the thermodynamic surface of the non-porous solid to start with but when pressure is high enough to cause total pore collapse or crush up, then the final states are on the condensed matter thermodynamic surfaces. The Hugoniot for the fully compacted solid is above the Principle Hugoniot with pressure, temperature and internal energy increased at a given v . There are a number of ways to define this hotter Hugoniot, which can be referenced to other thermodynamic paths on this thermodynamic surface. The choice here was to use the Vinet isotherm to define a consistent thermodynamic surface for the solid and melt phase of 6061 aluminum where specific heat is constant for the P-v-T space of interest. Analytical equations are developed for PH and TH.

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