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Hysteresis in the Electrical Transport Properties of Boron Carbide. CRONIN B. VINING, C. WOOD, Jet Propulsion Laboratory/California Institute of Technology, D. EMIN and T. ASELAGE, Sandia National Laboratories--X-ray diffraction measurements have been performed at room temperature and 900 °C on a sample of hot pressed boron carbide with nominal composition $B_{15}C_2$ in an effort to understand thermal hysteresis previously reported in the electrical transport properties.¹ In addition to X-ray lines corresponding to the expected rhombohedral boron carbide phase, a small number of additional lines of low intensity were observed in both the room temperature and 900 °C data, indicating the presence of at least one minority phase. Two minority phase lines observed in the room temperature scan are absent in the high temperature scan, but reappear upon cooling to room temperature. These lines indicate a change occurs in the distribution of minority phases as a function of thermal history. Correlation between the phase distribution and hysteresis in the transport properties will be discussed.

* Carried out under contract with the National Aeronautics and Space Administration.

- 1 C. Wood, in *AIP Conference Proceedings* 140: *Boron-Rich Solids*, edited by D. Emin, T. Aselage, C.L. Beckel, I.A. Howard and C. Wood (AIP, New York, 1986), p. 206.



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