

Abstract Submitted
for the SHOCK07 Meeting of
The American Physical Society

Retention of the Alpha-Prime Phase in a Pu-Ga Alloy After Hydrostatic Compression¹ A.J. SCHWARTZ, M.A. WALL, D.L. FARBER, K.T. MOORE, K.J.M. BLOBAUM, Lawrence Livermore National Laboratory — Delta-phase Pu-Ga specimens, 2.3 mm diameter by 100 microns thick were compressed to approximately 1 GPa in a large volume moissanite anvil cell to induce the transformation to the alpha-prime phase. The recovered samples were characterized at ambient pressure with optical microscopy, x-ray diffraction, and transmission electron microscopy. Optical microscopy revealed a very fine microstructure that appears to be single phase. This preliminary conclusion was supported by x-ray diffraction, which showed only the monoclinic reflections from the alpha-prime phase. However, transmission electron microscopy revealed small regions of delta-phase with a very high dislocation density. From these results, we conclude that hydrostatic compression to 1 GPa is not fully sufficient to form and retain 100% alpha-prime.

¹This work was performed under the auspices of the United States Department of Energy by the University of California, Lawrence Livermore National Laboratory, under Contract No. W-7405-Eng-48.

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Date submitted: 17 Apr 2007

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