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Laser Welding Micro-Holes in Beryllium Capsules[1] N.B. ALEXANDER, R. GALLIX, D.T. FREY, S.E. GRANT, General Atomics — In order to produce gas filled beryllium capsules for inertial confinement fusion (ICF) experiments, we are developing laser welding as a tool to seal micro-holes drilled through the capsule wall. Micro-holes of diameter 5 to 10 μm drilled through 100 micron thick cold rolled beryllium foils have been welded closed. Welds were tested to be leak tight with a helium leak detector. A windowed pressure chamber has been built to allow capsules to be welded while under a pressure of up to 30 atm. Cryocondensing fill gas into the capsules will potentially allow higher fill pressures. The current formulation of sputter-deposited beryllium used to produce capsules appears to be more susceptible to cracking than the cold-rolled beryllium foil. The progress on welding closed micro-holes in beryllium capsules made by sputter deposition will be presented.

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