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Advances in the Manufacture of Omega-scale Double-shell Targets¹ M. BONO, R. HIBBARD, D. BENNETT, H. ROBEY, A. HAMZA, J. MILOVICH, P. AMENDT, LLNL — The double-shell ignition target design consists of a low-Z outer shell that absorbs hohlraum-generated x-rays, implodes, and collides with a high-Z inner shell containing DT fuel. Efforts are continuing to field scaled ignition-like double shells on the Omega laser facility over a range of innershell Z. Previous ignition-like double-shell implosions on Omega used a low-Z CH inner shell [1]. The current target contains a higher-Z glass inner shell of diameter 216 microns, which is supported by SiO_2 aerogel inside a Br-doped CH ablator shell of diameter 550 microns. Fielding double-shell targets has historically been limited by the ability to successfully fabricate them, but several technological advances have recently been made in the manufacturing process. The inner capsule will be cast in SiO_2 aerogel of density 50 mg/cc, whose outer contour will be machined concentric to the inner capsule. This piece will then be assembled between two hemispherical ablator shells that mate at a step-joint with an adhesive-filled gap of thickness 100 nm. Three-dimensional tomographs made of each target using an x-ray microtomography system will allow precise characterization of the targets. [1] P. Amendt et al., Phys. Rev. Lett. 94, 065004 (2005).

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