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Energetics Measurements of Silver Halfraum Targets at the National Ignition Facility M.J. MAY, K.B. FOURNIER, C.G. BROWN, W.H. DUNLOP, J.O. KANE, P.B. MIRKARIMI, R. PATTERSON, M. SCHNEIDER, K. WIDMANN, LLNL, R. GUYTON, NSTec, E. GIRALDEZ, GA — The energetics of silver halfraum targets are presented from laser plasma experiments at the National Ignition Facility (NIF). Four beams from the NIF laser were used to heat the halfraum targets with $\sim$ 10 kJ of energy in a 1 ns square laser pulse. The silver halfraum targets were spheres 2 mm in diameter with an 800 μm laser entrance hole (LEH). Targets with different sphere wall thicknesses (8 to 16 μm) were characterized. The energetics and the laser coupling to the targets were determined to be 0.92 by using the NIF X-ray (Dante) and optical backscatter diagnostics (NBI and FABS). The energy losses from the targets were through X-ray radiation and backscatter from laser plasma instabilities (SRS and SBS) from the LEH. As expected the different wall thickness had different levels of burn through emission. The thickest walled target ($\sim$ 15.9 μm) had very low radiative losses through the target wall. The thinnest walled targets ($\sim$ 8 μm) radiated about 0.2 of the input energy into the X-ray region. This work was done under the auspices of the U. S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

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