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Low-density foam characterization using monochromatic soft x-ray sources J.M. TACCETTI, P.A. KEITER, N. LANIER, B.M. PATTERSON, Los Alamos National Laboratory — We present the characterization of low-density foam components using two monochromatic x-ray sources in the soft x-ray regime. The foams, with densities ranging from 30 to 125 mg/cm^3, are SiO_2 or CH foams used in targets for HEDP experiments at NIF and Omega laser facilities. An important issue that arises when fabricating such low-density foams is the uniformity of the foam sample density. Experience has shown that a skin-effect results when SiO_2 foam is cast inside a metal mold, due to more rapid cooling of the aerogel at the metal surface. And when machined, the machining process causes foam cells at the surface to collapse, also leading to a higher density at the surface. It is extremely important that we quantify any variation in density for each target to be used if we want to successfully compare results with simulations. For this reason, we have set up two soft x-ray sources, at 2.3 and 5.4 keV, to characterize the density of our foams by measuring the transmission through the sample. Our flexible setup, which will be described, should allow us to determine the density of a sample to within 2%.

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