

Abstract Submitted  
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**Thickness Measurements and Isotopic Identification of Cd, Sn, and Te Targets**<sup>1</sup> ANDREW AREND — In preparation for measuring some of the reaction rates relevant to the p-process of stellar nucleosynthesis we characterized a set of 73 thin foil targets of Cd, Sn, or Te. The targets had Al or C backings and Al or Ta frames. Using Particle Induced X-ray Emission, we determined the elemental composition of each target by comparing the observed x-ray emission lines with that of the characteristic emissions of the relevant elements. We concluded that PIXE is not an accurate method of measuring foil thickness. We next used Rutherford Backscattering with  $^{12}\text{C}^{3+}$  beam to determine the isotopic composition and thicknesses of the targets. A Silicon detector was placed at 150 degrees with respect to the beam direction to detect the back-scattered  $^{12}\text{C}$  particles. A mixed alpha-source was used to ensure a good energy calibration. Analyzing the energy at the leading edge of the energy spectrum of the scattered particles allowed identification of the specific isotopes of in each sample. The width of the scattered  $^{12}\text{C}$  peak, indicating the maximum energy loss of  $^{12}\text{C}$  in a target, yielded the thickness of the target when compared to calculations. The thicknesses range from about 50 to 650  $\mu\text{g}/\text{cm}^2$ .

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Andrew Arend

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