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Cost effective production of solid Hg targets useful for measuring nuclear reaction cross-sections.[1] KHUSHI BHATT, SHIVI SAXENA, RAMAKRISHNA GUDA, ASGHAR KAYANI, MICHAEL FAMIANO, Western Michigan University — The rarest of all the stable nuclei that exist in the universe are p-nuclei (proton-rich nuclei). The astrophysical processes responsible for their synthesis is not properly understood. The heaviest p-nucleus, Hg196, is studied through the method of activation, to better understand (p, γ), (α, γ) and (p, n) reaction cross-sections. The experiment requires solid mercury target with thickness between 1 mg/cm^2 and 10 mg/cm^2. Production of solid Hg targets is technically challenging. Challenges include reducing contaminants in compound targets, creating targets of uniform thickness, and creating the targets that are self-supporting. Cost effective production processes such as palletization, drop casting, electroplating, amalgamation and wet chemistry methods will be discussed along with advantages and disadvantages. Target characterization will also be presented.

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