

Abstract Submitted  
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**Removal of long-lived Rn-222 daughters by electropolishing thin layers of stainless steel** J. FRASCATORE, R.W. SCHNEE, M.A. BOWLES, R. BUNKER, K. MCCABE, J. WHITE, Syracuse University, P. CUSHMAN, M. PEPIN, University of Minnesota, V.E. GUISEPPE, University of South Dakota — Long-lived daughter particles from the  $^{222}\text{Rn}$  decay chain may present a limiting background in dark matter detecting experiments. Electropolishing has proven to be an effective method at removing these daughter particles from material surfaces, particularly stainless steel. The removal of  $<1\mu$  m of stainless steel reduces the sample daughter contamination by a factor  $> 100$ . The total thickness removed due to electropolishing is fairly uniform, as observed by examining samples with a scanning electron microscope. Electropolishing can therefore be used for precision-machined equipment and applications which require the removal of uniform and significantly small thicknesses. Here, the relationship between thickness removed and removal of daughter contamination is studied, including corrections for systematic uncertainties produced by drifts in the digital scale calibration, alpha detector gain drifts, and grow-in of  $^{210}\text{Po}$ .

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