

Method Development for Producing Thin ^{14}C Foils

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Thin, isotopic ^{14}C foils are of great interest to the nuclear physics community as neutron-rich targets. Historically, these foils have been extremely difficult to prepare and an effort is underway to make them readily available. The stock material of ^{14}C available at Argonne contains a number of oxide impurities (SiO_2 , MgO , and Al_2O_3), which affect the composition and stability of the fabricated foil. A simple, robust method was developed (using natC as a surrogate) to purify the ^{14}C material while minimizing loss and potential spread of the material. Thin foils were fabricated using the purified carbon, the unpurified carbon/oxide mix, and purchased high-purity carbon powder. A comparison of the resulting foils and the methodology for purifying the ^{14}C stock at Argonne will be discussed.

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