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Determination of Alpha-Emitting Activity of ²¹¹At in situ¹ LAURA MCCANN, JONATHAN BURNS, KYLIE LOFTON, LAUREN MCIN-TOSH, STEVEN SCHULTZ, GABRIEL TABACARU, EVGENY TERESHATOV, AMY VONDER HAAR, SHERRY YENNELLO, Texas AM University — The properties of astatine-211 make it a great candidate for targeted alpha therapy for cancer due to its short half-life (7.2 h) and non-toxic decay pathway. However, its natural occurrence is miniscule, and is produced in useful quantities via the $^{209}\text{Bi}(\alpha,2n)^{211}\text{At}$ using a 28.5 MeV alpha beam. The Texas A&M Cyclotron Institute has recently joined this effort to produce astatine-211 in a location proximal to major cancer research centers. It is useful to have an accurate procedure to determine the total activity of the astatine produced prior to removing the target from the irradiation chamber. Data from a high-purity germanium (HPGe) detector, a dose calibrator, and a cadmium-telluride (CdTe) detector are being cross-calibrated to determine the total astatine activity in the target chamber using the CdTe detector prior to extraction. This information allows for rapid determination of the quantity of astatine produced.

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