^{67}Cu Production by Photon Activation of ^{71}Ga

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^{67}Cu is a desirable radionuclide for both therapeutic and diagnostic purposes. The efforts to establish a reliable supply of ^{67}Cu have exclusively focused on proton, neutron, and photon activation of zinc. We investigate the feasibility of ^{67}Cu production via the ^{71}Ga(γ, α)^{67}Cu reaction using a high power electron accelerator (U.S. patent pending). Despite a modest cross-section for this reaction, physical properties of gallium (wide temperature range in liquid state and low vapor pressure) make the method potentially competitive. FLUKA Monte Carlo code was used to optimize gallium irradiation setup and to calculate ∼50 mCi/h production of ^{67}Cu using a 50 kW electron beam on a ^{71}Ga target. Natural gallium target was used to experimentally validate the FLUKA calculations. For the activation study, an electron beam with 18.5 MeV energy was chosen because this is the threshold energy for the ^{69}Ga(γ, 2n)^{67}Ga reaction. Above this energy measuring ^{67}Cu yield in activated natural gallium is difficult due to the interference of ^{67}Ga, which decays with nearly the same half-life as ^{67}Cu and the decay photons have identical energies. Results of the validation study and projected ^{67}Cu yields at higher energies are presented.