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Experimental study of thick target yield from the 13C(α,n0)16O reaction

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The thick-target neutron spectra from the 13C(α,n0)16O reaction were measured for the energy range of 3.0-6.5 MeV at 10 angles in the laboratory angle interval of 0-150°. The thick target yield was determined by integration of the neutron spectra over the neutron energy range corresponding to the 13C(α,n0)16O reaction followed by integration of the obtained angular distribution of the differential thick target yield over the solid angle 4pi. The content of 13C atoms in the target was determined by ion beam analysis with accuracy of <1%. The obtained thick target yield values support the calculated ones based on the 16O(n,α0)13C reaction cross-section evaluation from the ENDF/B-VIII.0 library.

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