

⁴²Ar

In 1952, Katcoff reported the observation of ⁴²Ar in “Thermal neutron capture cross section of A⁴⁰ and observation of A⁴²” (1952Ka44). Pure argon gas was irradiated with neutrons from the Brookhaven pile and ⁴²Ar was formed by two successive neutron captures. The resulting activities were measured with a proportional counter. “No attempt was made to detect the A⁴² radiations directly because of the greatly preponderant activity of A³⁹. Rather, the A⁴² was detected by successive extractions of its 12.5-hr K⁴² daughter... In 13 extractions over a period of 400 days, the corrected activity of A⁴² showed no apparent decrease; consideration of the possible errors indicates that it could not have gone down by more than 20 percent. This sets a lower limit of 3.5 years on the half life of A⁴²...”

Adapted from reference (2012Th10)

1952Ka44 S. Katcoff, Phys. Rev. **87**, 886 (1952).

2012Th10 M. Thoennessen, At. Data Nucl. Data Tables **98**, 933 (2012).

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