^{33}Ar

The discovery of ^{33}Ar was reported in 1964 by Reeder et al. in "New delayed-proton emitters: Ti^{41}, Ca^{37}, and Ar^{33}" (1964Re08). The Brookhaven 60-in. cyclotron bombarded gaseous H_2S and solid sulfur targets with ^{3}He at a maximum energy of 31.8 MeV. Proton spectra were measured by two surface barrier detectors. "The excitation function observed for Ca^{37} has a threshold at 20±2 MeV which is consistent with the predicted threshold of 19.4 MeV for the (He^3,2*n*) reaction. "Three new nuclides, Ti^{41}, Ca^{37}, and Ar^{33}, have been observed to be delayed proton emitters of the type that undergo beta decay to proton unstable states of daughter nuclei." The reported half-life was 182(5) ms. Independently, Hardy and Verrall reported a 178(10) ms only two weeks later (1965Ha08).

Adapted from reference (2012Th10)

1964Re08 P. L. Reeder, A. M. Poskanzer, and R. A. Esterlund, Phys. Rev. Lett. **13**, 767 (1964).

1965Ha08 J. C. Hardy and R. I. Verrall, Can. J. Phys. **43**, 418 (1965).

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

Please cite this abstract as: "FRIB Nuclear Data Group, *Discovery of Nuclides Project*, Isotope Database, doi:10.11578/frib/2279152"