

Mg(p, ^{17}Ne) [1988Bo39](#)

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, G. C. Sheu		ENSDF	16-Jan-2018

[1988Bo39](#): A beam of ^{17}Ne ions was produced at the CERN/ISOLDE facility, using proton spallation reactions on a MgO target. Neon ions from the target were collected, post-accelerated to 60 keV and magnetically separated to obtain the ^{17}Ne beam, which was implanted in a $50\text{ }\mu\text{g}/\text{cm}^2$ carbon foil. An annular plastic scintillator detector was placed on the upstream side of the target (w.r.t. beam) while a series of different ΔE Si surface-barrier detectors (covering $\approx 0.2\%$ of 4π) were separately placed on the downstream side of the target. The Si detectors ranged had thicknesses of 10, 15, 27 and $1000\text{ }\mu\text{m}$ and were used to characterize the proton and α groups the delayed particle spectrum. Twenty-eight different groups of β -delayed protons and α s were identified. The lifetime was measured by collecting ^{17}Ne ions for 0.2 s and counting for 1.0 s. The value $T=109.3\text{ ms}$ δ was obtained.

See other results on decay to ^{17}F in ([1993Bo36](#)).

[2004Ba12](#): A beam of 260 keV ^{17}Ne ions, produced in spallation reactions of protons on a MgO target at the CERN/REX ISOLDE facility, was polarized via the tilted foil technique and implanted in a Pt stopper foil. The induced polarization was 2-3%. Analysis of the β asymmetry, mainly to $^{17}\text{F}^*(4700,5520)$, indicated $\mu=0.74\text{ }3$.

[2005Ge06](#): A followup of ([2004Ba12](#)) measured the magnetic moments of $^{17,23,25}\text{Ne}$ at CERN/ISOLDE; the ^{17}Ne production technique is not detailed in the text. The fast-beam collinear laser spectroscopy technique was utilized to analyze the β activity and to deduce the hyperfine structures for the $J^\pi=1/2^-$ ground state. The value $\mu=0.7873\text{ }14$ was deduced.

[2008Ge07](#): ^{17}Ne ions, produced via proton spallation of a MgO target at CERN/ISOLDE, were investigated in the ISOLTRAP Penning trap, where the mass was measured. The mass $17.01771475\text{ u }57$ was deduced. See also ([2006HeZS](#)).

In addition, a collinear laser spectroscopy technique was utilized to study the isotope shifts of $^{17-22}\text{Ne}$ ions; by comparing with the known charge radius of ^{20}Ne , it was possible to deduce $r_{\text{charge}}(^{17}\text{Ne})=3.042\text{ fm }21$. Using a fermionic molecular dynamics model, $r_{\text{matter}}=2.75\text{ fm}$ was deduced. See related work reported in ([2011Ma48](#)).

 ^{17}Ne Levels

E(level)	J^π	$T_{1/2}$	Comments
0	$1/2^-$	$109.3\text{ ms }6$	$\mu=+0.7873\text{ }14$ (2005Ge06) $r_{\text{charge}}(^{17}\text{Ne})=3.042\text{ fm }21$ (2008Ge07).