

${}^{10}\text{B}(\text{p},2\text{n}), {}^{11}\text{B}(\text{p},3\text{n}), {}^{12}\text{C}(\text{P},\text{D}2\text{N})$ [1965Ha09,1972Es05](#)

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, B. Grees		ENSDF	31-July-2020

[1965Ha09](#): A measurement of the β -delayed proton emissions of ${}^9\text{C}$ utilized the ${}^{10}\text{B}(\text{p},2\text{n})$, ${}^{11}\text{B}(\text{p},3\text{n})$ and ${}^{12}\text{C}(\text{p},2\text{n})$ reactions to produce ${}^9\text{C}$ ions at the McGill synchrocyclotron. A probe containing the target foil and a Si detector ΔE -E telescope counter were inserted into the internal cyclotron beam for a short activation period, and then the delayed proton emissions were measured. The decay rate of groups in the range of $E_p=4\text{-}10$ MeV and at 12.25 MeV were analyzed and resulted in $T_{1/2}=127$ ms 3 .

[1971Ha05,1972Es05](#): A preliminary report on the ${}^9\text{C}$ lifetime is given in ([1971Ha05](#)); the focus is on ${}^{17}\text{Ne}$ and ${}^{33}\text{Ar}$ decays, but known properties of ${}^9\text{C}$ decay are used to evaluate the apparatus and method. In ([1972Es05](#)), the ${}^9\text{C}$ data are more completely analyzed in a study of both the decay lifetime and the ${}^9\text{B}$ levels populated in the decay. They report on ${}^9\text{C}$ populated in the ${}^{10}\text{B}(\text{p},2\text{n})$ reaction using a 43 MeV proton beam at the Berkeley 88-in cyclotron. The target was comprised of enriched boric acid that was pressed into five 100 mesh tungsten screens. After activation, a burst of oxygen gas was used to transport the ${}^9\text{C}$ from the screen into the counting chamber. In the counting chamber, a ΔE -E telescope was used to identify the β -delayed protons for a period of about 700 ms. The observed proton energies and intensities were used to determine a decay level scheme in ${}^9\text{B}$. The reported lifetime is 126.5 ms 10 .

 ${}^9\text{C}$ Levels

E(level)	$T_{1/2}$	Comments
0	126.5 ms 10	$T_{1/2}$: From 1972Es05 . See also 127 ms 3 in 1965Ha09 .