

## <sup>34</sup>Cl

The first observation of <sup>34</sup>Cl was reported by Frisch from Birbeck College in London in “Induced radioactivity of sodium and phosphorus” in 1934 ([1934Fr01](#)). A 1 mCi thorium B + C  $\alpha$  source was used to irradiate phosphorus targets and the subsequent activity was measured with a Geiger-Müller counter. “I have found that both sodium and phosphorus become active after  $\alpha$ -ray bombardment... Phosphorus (elementary red phosphorus) showed a very much longer lifetime. The half value period was found to be  $40 \pm 5$  minutes.... So for sodium and phosphorus the reactions would be  ${}_{11}\text{Na}^{23} + \alpha = {}_{13}\text{Al}^{26} + \text{neutron}$  and  ${}_{15}\text{P}^{31} + \alpha = {}_{17}\text{Cl}^{34} + \text{neutron}$ , respectively.” This half-life corresponds to an isomer and the ground state of 1.45 s was measured 19 years later by Stahelin and Preiswerk ([1953St42](#)).

Adapted from reference ([2012Th10](#))

- [1934Fr01](#) O. R. Frisch, *Nature* **133**, 721 (1934).  
[1953St42](#) P. Stahelin and P. Preiswerk, *Nuovo Cimento* **10**, 1219 (1953).  
[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](https://doi.org/10.11578/frib/2279152)”