

Analysis of the Beta Decay of ^{34}Mg

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The study of the decay pathway of ^{34}Mg requires information on the ratios at which it and its daughter isotopes decay via beta decay, beta-delayed neutron emission, and beta-delayed two-neutron emission. This analysis tries to find these ratios by simulating the grow-in and decay of ^{34}Mg and its decay chain. This process utilizes the Bateman Equations and previously found half-life and decay ratio values. The experiment from which the data originated relied on scintillator detectors that counted electrons being emitted from decaying isotopes. A process called E0 transition is observed in ^{34}Si , which provides extra electrons that were originally unexpected. The final point of this analysis is to extract the beam intensity which would then give an absolute decay rate to help determine the decay feeding intensity.