## Be($^{238}$U,F) 2017Wu04

History

| Type | Author | Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | M. Shamsuzzoha Basunia | NDS 213,1 (2026) | 1-Jul-2026 |

Edited/Adapted the XUNDL dataset compiled by F.G. Kondev (ANL); February 17, 2017.

2017Wu04: The $^{166}$Gd nuclide was produced at the RIBF-RIKEN facility using the $^{9}$Be($^{238}$U,F) reaction at E=345 MeV/nucleon. Two experiments, optimized for the transmission of $^{158}$Nd and $^{170}$Dy ions, were carried out with average beam intensities of 7 pnA and 12 pnA, respectively. The identification of the nuclide of interest was made in the BigRIPS separator by determining the atomic number and the mass-to-charge ratio of the ion using the tof-B$\rho$-$\Delta$E method. The reaction products were transported through the ZeroDegree Spectrometer and implanted into the beta-counting system WAS3ABi that was surrounded by the EURICA array comprising of 84 HPGe detectors. The typical implantation rate was about 100 ions/s. Measured: implanted ion-$\beta^-$-t, implanted ion-$\beta^-$-$\gamma$-t and implanted ions-$\gamma$-t correlations. Deduced: $T_{1/2}$.

### $^{166}$Gd Levels

| E(level) | $J^\pi$ | $T_{1/2}$ | Comments |
|---|---|---|---|
| 0.0 | $0^+$ | 5.4 s *12* | $T_{1/2}$: from a fit to the implanted ion-$\beta^-$-t spectrum using the least-squares and maximum-likelihood methods. The data analysis included contributions from the parent, daughter and grand-daughter decays, as well as a constant background. |