Adopted Levels

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	31-Jan-2021

S(n)=14560 *SY*; S(p)=1510 *SY*; Q(α)=−3130 *SY* 2017Wa10

Estimated uncertainties (2017Wa10): 640 for S(n), 570 for S(p) and Q(α).

S(2p)=2210 *500*, Q(εp)=12180 *400*, Q(ε)=12970 *500* (syst, 2017Wa10); 10.2 MeV *17* (2018Pa20, from implants-β^+ correlated energy curve, assuming that the observed endpoint energy corresponds to g.s. to g.s. β^+ transition). S(2n)=32120 (theory, 2019Mo01).

2011StZW (also 2008KrZW): production and identification of ^{95}Cd in ^{9}Be(^{124}Xe,X) at E=1 GeV/nucleon. Measured yield and half-life of the decay of ^{95}Cd using FRS separator and RISING detector array for γ rays at GSI facility. Fig. 3.5 of A/Q versus Z particle identification plot, 42 counts were assigned to ^{95}Cd (in Fig. 3 of 2008KrZW, about ten events seem assigned to ^{95}Cd).

2016Ce02: ^{95}Cd nuclide produced and identified at RIBF-RIKEN facility in ^{9}Be(^{124}Xe,X) reaction at E=345 MeV/nucleon with an average beam intensity of 30 pnA. Identification of ^{95}Cd was made by determining atomic Z and mass-to-charge ratio A/Q, where Q=charge state of the ions. The selectivity of ions was based on magnetic rigidity, time-of-flight and energy loss using BigRIPS separator and zero degree spectrometer ZDS. The separated nuclei were implanted in a wide range silicon-strip stopper array for ion and β particle detection WAS3ABi, consisting of three highly-segmented 1 mm thick double-sided silicon detectors, a stack of ten segmented 1 mm thick single-sided silicon strip detectors. The γ rays were detected by EURICA array of 84 HPGe detectors surrounding the WAS3ABi system. In addition an array of 18 $LaBr_3$(Ce) detectors was used for γ detection in fast-timing measurements.

2017Da07: ^{95}Cd produced in fragmentation of 345 MeV/nucleon ^{124}Xe beam on a 740 mg/cm^2 ^{9}Be target at RIBF-RIKEN facility. Fragments were separated using the BigRIPS separator, followed by implantation into the active stopper SIMBA consisting of three double-sided silicon strip detectors (DSSSDs), and surrounded by the EURICA array consisting of 84 HPGe detectors. Measured Eγ, Iγ, E(p), I(p), $\beta\gamma$-coin, β^+p-coin, $\beta^+\gamma$p-coin, and half-life of the decay of ^{95}Cd.

2018Pa20: ^{95}Cd nuclide produced at RIBF-RIKEN facility in ^{9}Be(^{124}Xe,X) reaction at E=345 MeV/nucleon with target thickness of 740 mg/cm^2. Identification of ^{95}Cd was made by determining atomic Z and mass-to-charge ratio A/Q, where Q=charge state of the ions. The selectivity of ions was based first on magnetic rigidity (Bρ), and energy loss (ΔE) using BigRIPS separator and, in the second stage by Bρ-tof-ΔE measurement in the later stages of BigRIPS separator and ZeroDegree spectrometer (ZDS) using position-sensitive parallel-plate avalanche counters, plastic scintillators, and a gas-filled ionization chamber. The flight time through the separation and identification systems ranged from 600 to 630 ns depending on A and Z. The separated nuclei were implanted in a wide range segmented silicon-strip stopper array for ion and β particle detection system WAS3ABi, consisting of three highly-segmented 1 mm thick double-sided silicon strip detectors (DSSSDs). Q(β) value was measured using ten single-sided segmented strip detectors (SSSSDs) placed farther downstream. Measured (implant)β correlated decay curve, with a time correlation window of 5 seconds before and after ion implantation. The EURICA array was used for gamma-ray detection in coincidence with β particles and implants. No beta-delayed γ rays were observed in the decay of ^{95}Cd. Events for proton emission were separated from the positron events by requiring a minimum of 1500 keV energy deposited in a single pixel of a DSSSD. The β-decay correlation fraction was determined as the ratio of the integral of the parent β-decay fit components and the number of implanted ions which did not decay by βp events.

2018Pa20, 2017Da07 and 2016Ce02 are from experiments at the same laboratory (RIBF-RIKEN facility), with some of the same authors on these three papers.

^{95}Cd Levels

E(level)	$T_{1/2}$	Comments
0	32 ms *3*	%β^+=100; %β^+p=4.5 *+12−10* (2018Pa20) ε decay considered as negligible by 2018Pa20. %β^+p: from number of single-pixel events with ΔE>1500 keV (2018Pa20). 476 implantation counts were assigned to ^{95}Cd by 2018Pa20. β-decay correlation fraction=68% *3*. As no beta-delayed γ rays were observed, 2018Pa20 assumed 100−(%β^+p)=95.5 *+10−12* β^+ feeding to the g.s. of ^{95}Ag, implying log *ft*=3.1 *5* for this transition. J$^\pi$: (9/2$^+$) proposed by 2017Da07, based on $g_{9/2}$ neutron orbital. 7/2$^+$, from Ω_n=7/2$^+$ orbital proposed in 2019Mo01.

Continued on next page (footnotes at end of table)

Adopted Levels (continued)

^{95}Cd Levels (continued)

E(level)	$T_{1/2}$	Comments
		$T_{1/2}$: measured by 2018Pa20, using maximum likelihood method (MLH) for (implant)(β^+)-correlated decay curve, where the fit function contained the parent, β-daughter, and βp-daughter decay components with half-lives and %βp branching ratios, and a constant background for random correlations. Two generations of isotopes were considered in the Bateman equation. Decay constants for ^{95}Ag and ^{94}Pd daughters were taken from literature. Others: 29 ms *8* (2017Da07), 73 ms *+53−28* (2011StZV, from 17 correlated events, and using maximum likelihood method (MLH)). Theoretical $T_{1/2}$=54 ms (2019Mo01), 31.7 ms (1997He24, shell-model calculations).
		Measured production σ=1.0 pb *1* (2016Ce02), 5.4 pb *28* (2011StZV).