Adopted Levels

	Type	Author	History Citation	Literature Cutoff Date
	Full Evaluation	Balraj Singh	NDS 144, 297 (2017)	25-Aug-2017

Q(β^-)=210 *SY*; S(n)=5378 *4*; S(p)=4192 *6*; Q(α)=7271.3 *19*   2017Wa10
Estimated uncertainties (2017Wa10): 100 for Q(β^-).
S(2n)=11910 *120*, S(2p)=10080 *100* (syst,2017Wa10).
1968Hu06: first report of the identification of ^{258}Md isotope.
1970Fi12: ^{258}Md produced in ^{255}Es(α,n); measured T$_{1/2}$, Eα, Iα, $\alpha\gamma$-coin, $\alpha/(\alpha+\varepsilon)$ ratio.
1993Mo18: ^{258}Md produced in ^{254}Es(^{18}O,^{14}C), ^{254}Es(^{22}Ne,^{18}O) reactions followed by mass separation, and chemical techniques.
Additional information 1.
Theoretical studies: consult the NSR database at www.nndc.bnl.gov for about 15 references dealing with theoretical calculations of
   half-lives for different decay modes and other nuclear structure aspects.

^{258}Md Levels

E(level)	J$^\pi$	T$_{1/2}$	Comments
0	(8$^-$)	51.50 d *29*	%α=100
			%SF+%ε+%β^- ≤0.003 (1993Mo18)
			The upper limit on SF+ε+β^- branching was determined by 1993Mo18 from the number of SF events detected. Other measurements: 1968Hu06, 1970Fi12.
			J$^\pi$: analogy to ^{257}Fm and ^{257}Md and Gallagher-Moszkowski rule suggests 8$^-$ with configuration=π7/2[514] + ν9/2[615].
			T$_{1/2}$: measured by 1993Mo18. Other measurements: 56 d *7* (1970Fi12), 54 d *5* (1968Hu06).
0+x	(1$^-$)	57.0 min *9*	%ε=85 *15*; %α<1.2
			%SF+%β^- ≤30
			Decay branching ratios are from 1993Mo18.
			The ε decay branching was obtained by 1993Mo18 from fermium K x-ray counts preceding SF events from ^{258}Fm decay. The experimental K x-ray counts could not be corrected for summing of Fm K x-rays with any possible gammas from ε decay and with Fm L x-rays. 1993Mo18 set a lower limit of 70% for the ε decay branching by assuming that this decay populates only the g.s. band in ^{258}Fm.
			Origin of the observed SF events that were not correlated with the fermium K x-rays due to ^{258}Md ε decay, could either be the 57.0-min ^{258}Md or its β^- decay daughter, ^{258}No. Since these two possibilities could not be resolved, 1993Mo18 assigned the upper limit of 30% to the sum of SF and β^- decay branches.
			An upper limit of 1.2% for α branch was given by 1993Mo18 from absence of any 57.0-min α activity in their spectra.
			Possibility of decay by an isomeric transition to the ^{258}Md g.s. was also investigated, and an upper limit of 60% was obtained by 1993Mo18 for this decay mode by searching for growth of the particles from ^{258}Md g.s. by assuming that the ground state was not directly produced during the production of the 57.0-min state in ^{254}Es(^{18}O,^{14}C) and ^{254}Es(^{22}Ne,^{18}O) reactions.
			J$^\pi$: Gallagher-Moszkowski rule suggests 1$^-$ with configuration=π7/2[514] − ν9/2[615]. 1993Mo18 suggest also other K^π values with possible configurations: K^π=0$^-$ from π7/2[514] − ν7/2[613] or π3/2[521] − ν3/2[622], and K^π=2$^-$ from π1/2[521] + ν3/2[622].
			T$_{1/2}$: measurement of 1993Mo18. Other measurements: 60 min *2* (1986Hu05), 43 min *4* (1980Ho04).
			The isomer was produced by 1980Ho04 in ^{255}Es(α,n), and by 1993Mo18 in ^{254}Es(^{18}O,^{14}C) and ^{254}Es(^{22}Ne,^{18}O) reactions.