^{240}Cm α decay

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Shaofei Zhu	NDS 182, 2 (2022).	1-Apr-2022

Parent: ^{240}Cm: E=0.0; $J^\pi=0^+$; $T_{1/2}$=27 d *1*; Q(α)=6397.8 *6*; %α decay=99.7 *3*

^{240}Cm-$T_{1/2}$: From the Adopted Levels of ^{240}Cm (2008Si25).

^{240}Cm-Q(α): From 2021Wa16.

The measured half-lives are 26.8 d (1949Se01) and 28 d (1967Ba42). $T_{1/2}$(^{240}Cm)=27 d *1*, adopted by 1990Sh04, is used in calculations.

%ε(^{240}Cm)<0.5 was deduced by 1952Hi11 from nonobservation of ε decay to ^{240}Am. %α=99.7 *3* is used here in order to calculate Δr_0.

^{236}Pu Levels

E(level)[†]	J^π[†]
0.0[‡]	0^+
44.63[‡] *9*	2^+
147.45[‡] *9*	4^+
305.80[‡] *10*	6^+

[†] From the Adopted Levels.

[‡] Band(A): K=0^+ g.s. rotational band.

α radiations

Eα[†]	E(level)	Iα[‡@]	HF[#]
5989	305.80	0.014	165
6147	147.45	0.052	270
6247.7 *5*	44.63	28.9 *8*	1.52 *5*
6290.5 *5*	0.0	71.1 *8*	1.0

[†] Energies of α particles to the g.s. and to the 44.63-keV level are values recommended in 1991Ry01; Eα's to higher levels are from 1976BaZZ, as adopted in 1991Sc08.

[‡] α particle intensity per 100 α decays. Iα of α particles to the g.s. and to the 44.63-keV level are values recommended in 1991Ry01. Their uncertainties should be equal. The evaluator recommends ΔIα=0.8. Iα to higher levels are from 1976BaZZ, as adopted in 1991Sc08.

[#] r_0(^{236}Pu)=1.4949 *18*, calculated from HF(6290.5α)=1.0.

[@] For absolute intensity per 100 decays, multiply by 0.997 *3*.

^{240}Cm α decay

Band(A): K=0$^+$ g.s. rotational band

6$^+$ 305.80

4$^+$ 147.45

2$^+$ 44.63

0$^+$ 0.0

$^{236}_{94}Pu_{142}$