$^{90}_{39}\mathrm{Y}_{51}$

1 Decay Scheme

Y-90 decays by beta minus emission, mainly to the Zr-90 ground state, with a small branch to the level at 1760 keV.

L' yttrium 90 se désintègre par émission bêta moins principalement vers le niveau fondamental du zirconium 90, il existe une faible branche vers le niveau excité de 1760 keV.

2 Nuclear Data

$T_{1/2}(^{90}\mathrm{Y}\ )$: 2,6684 (13) d
$Q^-(^{90}\mathrm{Y}\ )$: 2278,7 (16) keV

2.1 β^- Transitions

	Energy (keV)	Probability (%)	Nature	lg ft
$\beta^-_{0,2}$	92,4 (16)	0,0000014 (3)	1st Forbidden	11,1
$\beta^-_{0,1}$	518,0 (16)	0,017 (7)	Unique 1st Forbidden	9,4
$\beta^-_{0,0}$	2278,7 (16)	99,983 (7)	Unique 1st Forbidden	8,05

2.2 Gamma Transitions and Internal Conversion Coefficients

	Energy (keV)	$P_{\gamma+ce}$ (%)	Multipolarity	α_K (10^{-4})	α_L (10^{-4})	α_M (10^{-4})	α_T (10^{-4})	α_π (10^{-4})
$\gamma_{1,0}$(Zr)	1760,7 (2)	0,017 (7)	E0					0,326 (7)
$\gamma_{2,0}$(Zr)	2186,282 (10)	0,0000014 (3)	E2	1,223 (18)	0,1325 (19)	0,0229 (4)	5,36 (8)	3,97 (6)

3 Atomic Data

3.1 Zr

ω_K : 0,734 (4)
$\bar{\omega}_L$: 0,0317 (8)
n_{KL} : 1,062 (4)

4 Electron Emissions

		Energy (keV)	Electrons (per 100 disint.)
$ec^{\pm}_{1,0}$	(Zr)	768,7 (6)	0,00326 (7)
$ec_{1,0\ T}$	(Zr)	1742,70 - 1760,67	0,014 (7)
$\beta^-_{0,2}$	max:	92,4 (16)	0,0000014 (3)
	avg:	24,5 (5)	
$\beta^-_{0,1}$	max:	518,0 (16)	0,017 (7)
	avg:	163,7 (6)	
$\beta^-_{0,0}$	max:	2278,7 (16)	99,983 (7)
	avg:	926,7 (8)	

5 Photon Emissions

5.1 Gamma Emissions

	Energy (keV)	Photons (per 100 disint.)
$\gamma^{\pm}$	511	0,00638 (10)
$\gamma_{2,0(\mathrm{Zr})}$	2186,254 (10)	0,0000014 (3)

6 Main Production Modes

$\mathrm{Sr}-90(\beta^-)\mathrm{Y}-90$ $T_{1/2}$: 28,80 a

$\mathrm{Y}-89(\mathrm{d,p})\mathrm{Y}-90\mathrm{m}$

$\mathrm{Rb}-87(\alpha,\mathrm{n})\mathrm{Y}-90\mathrm{m}$

$\mathrm{Y}-90\mathrm{m}(\mathrm{I.T.})\mathrm{Y}-90$ $T_{1/2}$: 3,19 h

$\mathrm{Y}-89(\mathrm{n},\gamma)\mathrm{Y}-90$ σ : 1,28 (2) barns
Possible impurities: $\mathrm{Y}-91$

$\mathrm{Zr}-90(\mathrm{n,p})\mathrm{Y}-90$

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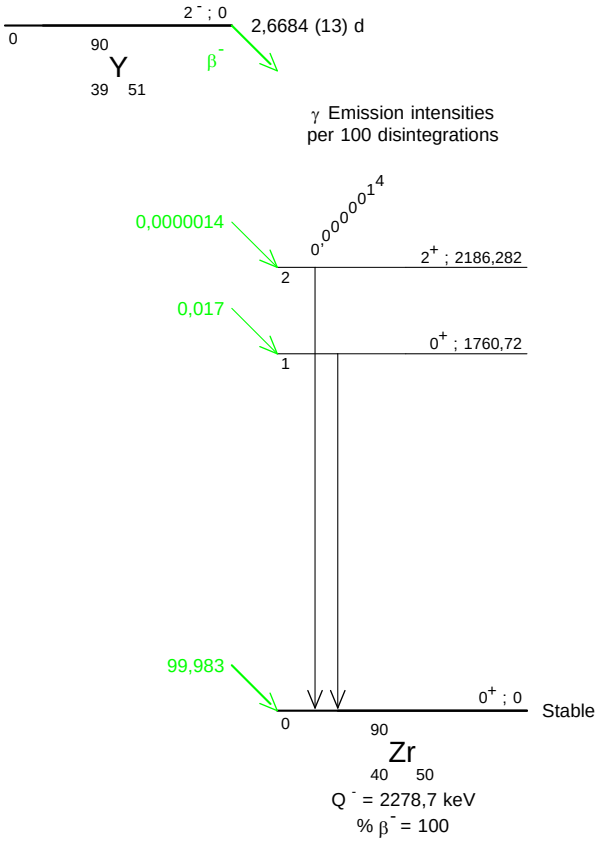
2 - ; 0
2,6684 (13) d
0
90
Y
39 51
β -
γ Emission intensities
per 100 disintegrations
0,0000014
0,017
99,983
0+ ; 2186,282
2
0+ ; 1760,72
1
0+ ; 0
Stable
0
90
Zr
40 50
Q - = 2278,7 keV
% β - = 100