



1 Decay Scheme

Y-90 disintegrates by beta minus emission mainly to the Zr-90 fundamental level.

L'yttrium 90 se désintègre par émission bêta moins principalement vers le niveau fondamental du zirconium 90 et vers le niveau excité 1760 keV avec une probabilité de 0,017 %.

2 Nuclear Data

$$T_{1/2}({}^{90}\text{Y}) : 2,6684 \quad (13) \quad \text{d}$$

$$Q^{-}({}^{90}\text{Y}) : 2279,8 \quad (17) \quad \text{keV}$$

2.1 β^{-} Transitions

	Energy keV	Probability $\times 100$	Nature	lg <i>ft</i>
$\beta_{0,2}^{-}$	93,5 (17)	0,0000014 (3)	1st Forbidden	11,1
$\beta_{0,1}^{-}$	519,1 (17)	0,017 (6)	Unique 1st Forbidden	9,4
$\beta_{0,0}^{-}$	2279,8 (17)	99,983 (6)	Unique 1st Forbidden	8,05

2.2 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ $\times 100$	Multipolarity	α_K	α_L	α_T
$\gamma_{1,0}(\text{Zr})$	1760,7 (2)	0,017 (6)	E0			4,3 (21)
$\gamma_{2,0}(\text{Zr})$	2186,282 (10)	0,0000014 (3)	E2	0,000123 (40)	0,0000133 (40)	0,000139 (40)

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.
$ec_{1,0}^{\pm}$	(Zr)	768,7	(6)	0,00319 (5)
$\beta_{0,2}^-$	max:	93,5	(17)	0,0000014 (3)
$\beta_{0,2}^-$	avg:	24,5	(5)	
$\beta_{0,1}^-$	max:	519,1	(17)	0,017 (6)
$\beta_{0,1}^-$	avg:	163,7	(6)	
$\beta_{0,0}^-$	max:	2279,8	(17)	99,983 (6)
$\beta_{0,0}^-$	avg:	926,7	(8)	

5 Photon Emissions

5.1 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{2,0}(\text{Zr})$	2186,254 (10)	0,0000014 (3)

6 Main Production Modes

Sr – 90(β^-)Y – 90
Y – 89(d,p)Y – 90m
Y – 90m(I.T.)Y – 90
Rb – 87(α ,n)Y – 90m
Y – 90m(I.T.)Y – 90
$\left\{ \begin{array}{l} \text{Y – 89(n,}\gamma\text{)Y – 90} \quad \sigma : 1,28 \text{ (2) barns} \\ \text{Possible impurities : Y – 91} \end{array} \right.$

7 References

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