

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

 $T_{1/2}(^{90}Y)$: 2,6684 (13) d $Q^{-(90}Y)$: 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

	$\begin{array}{c} {\rm Energy} \\ {\rm (keV)} \end{array}$	$\begin{array}{c} P_{\gamma+ce} \\ (\%) \end{array}$	Multipolarity	$\begin{array}{c} \alpha_K \\ (10^{-4}) \end{array}$	$\begin{pmatrix} \alpha_L \\ (10^{-4}) \end{pmatrix}$	$\begin{array}{c} \alpha_M \\ (10^{-4}) \end{array}$	$\begin{array}{c} \alpha_T \\ (10^{-4}) \end{array}$	$\begin{array}{c} \alpha_{\pi} \\ (10^{-4}) \end{array}$
$\frac{\gamma_{1,0}(\mathrm{Zr})}{\gamma_{2,0}(\mathrm{Zr})}$	1760,7 (2) 2186,282 (10)	0,017 (7) 0,0000014 (3)	E0 E2	1,223 (18)	0,1325 (19)	0,0229 (4)	5,36 (8)	0,326 (7) 3,97 (6)

3 Atomic Data

3.1 Zr

4 Electron Emissions

		$\begin{array}{c} {\rm Energy} \\ ({\rm keV}) \end{array}$	Electrons (per 100 disint.)
$\begin{array}{c} ec_{1,0}^{\pm} \\ ec_{1,0} \end{array} T$	(Zr) (Zr)	768,7 (6) 1742,70 - 1760,67	0,00319 (5) 0,014 (7)
$\beta_{0,2}^-$	max: avg:	$\begin{array}{cc} 92,4 & (16) \\ 24,5 & (5) \end{array}$	} 0,0000014 (3)
$\beta_{0,1}^-$	max: avg:	518,0 (16) 163,7 (6)	0,017 (7)
$\beta_{0,0}^-$	max: avg:	2278,7 (16) 926,7 (8)	99,983 (7)

5 Photon Emissions

5.1 Gamma Emissions

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

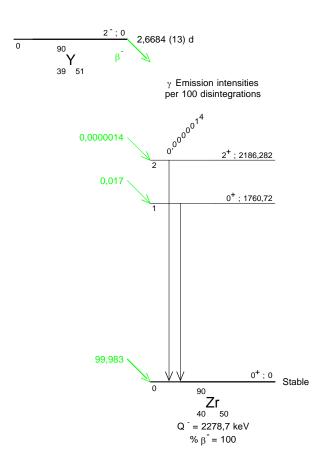
6 Main Production Modes

$$\begin{array}{lll} & \mathrm{Sr} - 90(\beta^-)\mathrm{Y} - 90 & T_{1/2}:\ 28,\!80\ \mathrm{a} \\ & \mathrm{Y} - 89(\mathrm{d},\!\mathrm{p})\mathrm{Y} - 90\mathrm{m} \\ & \mathrm{Rb} - 87(\alpha,\!\mathrm{n})\mathrm{Y} - 90\mathrm{m} \\ & \mathrm{Y} - 90\mathrm{m}(\mathrm{I}.\mathrm{T}.)\mathrm{Y} - 90 & T_{1/2}:\ 3,\!19\ \mathrm{h} \\ & \left\{ \begin{array}{ll} \mathrm{Y} - 89(\mathrm{n},\!\gamma)\mathrm{Y} - 90 & \sigma:1,\!28\ (2)\ \mathrm{barns} \\ \mathrm{Possible\ impurities:\ Y} - 91 \\ & \mathrm{Zr} - 90(\mathrm{n},\!\mathrm{p})\mathrm{Y} - 90 \end{array} \right. \end{array}$$

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