$^{125}_{53}\mathrm{I}_{72}$

1 Decay Scheme

I-125 disintegrates by 100% electron capture via the excited level of 35,5 keV of Te-125 into the ground state of Te-125. A direct transition to the ground state of Te-125 has not been observed.
L'iode 125 se désintègre à 100% par capture électronique vers le niveau fondamental de tellure 125 via le niveau excité de 35,5 keV.
Aucune transition directe vers le fondamental n'a été observée.

2 Nuclear Data

$T_{1/2}(^{125}\mathrm{I}\,)$: 59,388 (28) d
$Q^{+}(^{125}\mathrm{I}\,)$: 185,77 (6) keV

2.1 Electron Capture Transitions

	Energy keV	Probability × 100	Nature	lg ft	P_K	P_L	P_M
$\epsilon_{0,1}$	150,28 (6)	100	Allowed	5,4	0,8011 (17)	0,1561 (13)	0,0349 (7)

2.2 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ × 100	Multipolarity	α_K	α_L	α_M	α_T
$\gamma_{1,0}$(Te)	35,4922 (5)	100	M1 + 0,72 % E2	11,70 (17)	1,91 (8)	0,386 (16)	14,08 (22)

3 Atomic Data

3.1 Te

ω_K	:	0,875	(4)
$\bar{\omega}_L$	:	0,086	(4)
$\bar{\omega}_M$	:	0,00298	(20)
n_{KL}	:	0,917	(4)
$\bar{n}_{LM}$	:	1,643	(50)

3.1.1 X Radiations

		Energy keV		Relative probability
X_K				
	$K\alpha_2$	27,202		53,7
	$K\alpha_1$	27,4726		100
	$K\beta_3$	30,9446	}	
	$K\beta_1$	30,996	}	
	$K\beta_5''$	31,236	}	28,62
	$K\beta_2$	31,7008	}	
	$K\beta_4$	31,774	}	6,21
	$KO_{2,3}$	31,812	}	
X_L				
	$L\ell$	3,3348		
	$L\alpha$	3,7595 – 3,7697		
	$L\eta$	3,6052		
	$L\beta$	4,0299 – 4,3661		
	$L\gamma$	4,4448 – 4,8228		

3.1.2 Auger Electrons

	Energy keV	Relative probability
Auger K		
KLL	21,804 – 22,989	100
KLX	25,814 – 27,470	45,3
KXY	29,80 – 31,81	5,13
Auger L	2,3 – 4,8	

4 Electron Emissions

		Energy keV	Electrons per 100 disint.
e_{AL}	(Te)	2,3 - 4,8	158,2 (8)
e_{AK}	(Te)		19,7 (7)
	KLL	21,804 - 22,989	}
	KLX	25,814 - 27,470	}
	KXY	29,80 - 31,81	}
$ec_{1,0\ K}$	(Te)	3,6784 (5)	77,6 (13)
$ec_{1,0\ L}$	(Te)	30,5530 - 31,1508	12,7 (5)
$ec_{1,0\ M}$	(Te)	34,4860 - 34,9201	2,56 (11)
$ec_{1,0\ N}$	(Te)	35,3239 - 35,4524	0,497 (20)

5 Photon Emissions

5.1 X-Ray Emissions

		Energy keV	Photons per 100 disint.	
XL	(Te)	3,3348 — 4,8228	14,70 (28)	
$XK\alpha_2$	(Te)	27,202	39,3 (5)	} $K\alpha$
$XK\alpha_1$	(Te)	27,4726	73,2 (8)	}
$XK\beta_3$	(Te)	30,9446	}	
$XK\beta_1$	(Te)	30,996	} 20,9 (3)	$K'\beta_1$
$XK\beta_5''$	(Te)	31,236	}	
$XK\beta_2$	(Te)	31,7008	}	
$XK\beta_4$	(Te)	31,774	} 4,54 (13)	$K'\beta_2$
$XKO_{2,3}$	(Te)	31,812	}	

5.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{1,0}$(Te)	35,4922 (5)	6,63 (6)

6 Main Production Modes

$\mathrm{Xe-124(n,\gamma)Xe-125}$ $\quad \sigma : 165$ barns

$\left\{ \begin{array}{l} \mathrm{Xe-125(E.C.)I-125} \\ \text{Possible impurities : } \mathrm{T1/2 = 16{,}9h} \end{array} \right.$

$\left\{ \begin{array}{l} \mathrm{Te-125(d,2n)I-125} \\ \text{Possible impurities : } \mathrm{I-126} \end{array} \right.$

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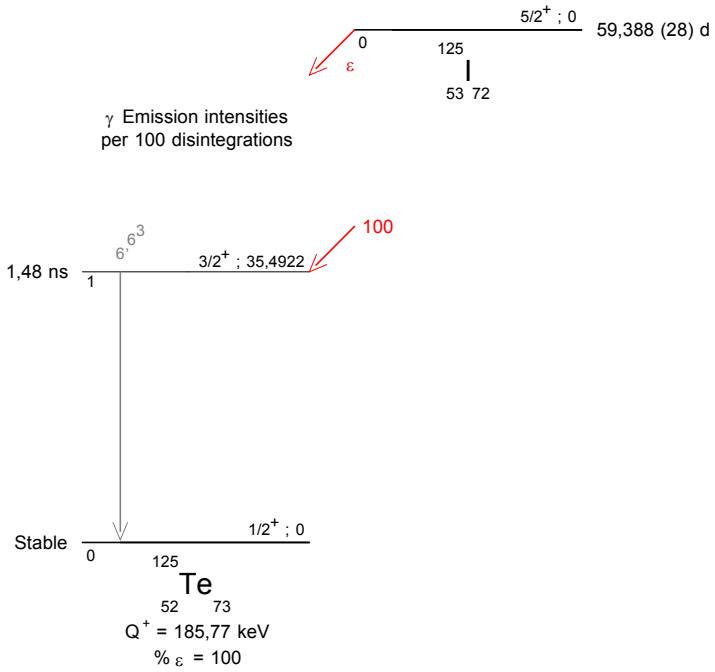
5/2+ ; 0
59,388 (28) d
0
ε
125
I
53 72
γ Emission intensities
per 100 disintegrations
100
6,6 3
1,48 ns
3/2+ ; 35,4922
1
Stable
1/2+ ; 0
0
125
Te
52 73
Q+ = 185,77 keV
% ε = 100