$^{127}_{52}\mathrm{Te}_{75}$

1 Decay Scheme

Te-127 undergoes beta decay to various nuclear levels of I-127 through five β^- and nine subsequent γ emissions.
Le tellure 127 se désintègre par émissions bêta moins vers des niveaux excités et, principalement, vers le niveau fondamental de l'iode 127.

2 Nuclear Data

$T_{1/2}(^{127}\mathrm{Te}\ )$: 9,35 (10) h
$Q^-(^{127}\mathrm{Te}\ )$: 702 (4) keV

2.1 β^- Transitions

	Energy keV	Probability × 100	Nature	lg ft
$\beta^-_{0,5}$	84 (4)	0,00013 (2)	allowed	8,38
$\beta^-_{0,4}$	284 (4)	1,19 (2)	allowed	6,086
$\beta^-_{0,3}$	327 (4)	0,0006 (3)	allowed	9,58
$\beta^-_{0,2}$	499 (4)	0,025 (3)	allowed	8,57
$\beta^-_{0,0}$	702 (4)	98,780 (14)	allowed	5,49

2.2 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ × 100	Multipolarity	α_K	α_L	α_M	α_T
$\gamma_{1,0}$(I)	57,608 (11)	0,144 (3)	M1+0.7%E2	3,16 (5)	0,449 (8)	0,0910 (16)	3,72 (6)
$\gamma_{2,1}$(I)	145,252 (14)	0,0059 (9)	E2	0,357 (5)	0,0907 (13)	0,0189 (3)	0,471 (7)
$\gamma_{3,2}$(I)	172,132 (12)	0,00035 (23)	M1+0,7%E2	0,1419 (20)	0,0185 (3)	0,00373 (6)	0,1650 (24)
$\gamma_{2,0}$(I)	202,860 (8)	0,062 (2)	M1+21%E2	0,0965 (17)	0,0142 (5)	0,00289 (10)	0,1143 (22)
$\gamma_{4,2}$(I)	215,13 (6)	0,043 (2)	M1+4,0%E2	0,0782 (11)	0,01031 (16)	0,00208 (4)	0,0910 (13)

	Energy keV	$P_{\gamma+ce}$ × 100	Multipolarity	α_K	α_L	α_M	α_T
$\gamma_{4,1}$(I)	360,38 (6)	0,139 (2)	M1+3,6%E2	0,0201 (3)	0,00256 (4)	0,000514 (8)	0,0232 (4)
$\gamma_{3,0}$(I)	374,992 (9)	0,0003 (2)	E2	0,01671 (24)	0,00257 (4)	0,000524 (8)	0,0199 (3)
$\gamma_{4,0}$(I)	417,99 (6)	1,013 (11)	M1+0,6%E2	0,01381 (20)	0,001741 (25)	0,000350 (5)	0,01598 (23)
$\gamma_{5,0}$(I)	618,31 (13)	0,00013 (2)	M1+50%E2	0,0047 (4)	0,00061 (3)	0,000123 (6)	0,0055 (4)

3 Atomic Data

3.1 I

ω_K : 0,882 (4)
$\bar{\omega}_L$: 0,092 (4)
n_{KL} : 0,909 (4)

3.1.1 X Radiations

		Energy keV		Relative probability
X_K				
	$K\alpha_2$	28,3175		53,8
	$K\alpha_1$	28,6123		100
	$K\beta_3$	32,2397	}	
	$K\beta_1$	32,2951	}	
	$K\beta''_5$	32,539	}	28,7
	$K\beta'_5$	32,55	}	
	$K\beta_2$	33,042	}	
	$K\beta_4$	33,12	}	6,52
	$KO_{2,3}$	33,166	}	
X_L				
	$L\ell$	3,485		
	$L\alpha$	3,927 – 3,938		
	$L\eta$	3,779		
	$L\beta$	4,221 – 4,508		
	$L\gamma$	4,801 – 5,060		

3.1.2 Auger Electrons

	Energy keV	Relative probability
Auger K		
KLL	22,659 – 23,909	100
KLX	26,853 – 28,609	45,9
KXY	31,02 – 33,16	5,28
Auger L	2,38 – 3,88	1223

4 Electron Emissions

		Energy keV	Electrons per 100 disint.
e_{AL}	(I)	2,38 - 3,88	0,1174 (18)
e_{AK}	(I)		0,0145 (6)
	KLL	22,659 - 23,909	
	KLX	26,853 - 28,609	
	KXY	31,02 - 33,16	
$\beta^-_{0,5}$	max:	84 (4)	0,00013 (2)
$\beta^-_{0,5}$	avg:	21,8 (11)	
$\beta^-_{0,4}$	max:	284 (4)	1,19 (2)
$\beta^-_{0,4}$	avg:	80,7 (13)	
$\beta^-_{0,3}$	max:	327 (4)	0,0006 (3)
$\beta^-_{0,3}$	avg:	94,5 (13)	
$\beta^-_{0,2}$	max:	499 (4)	0,025 (3)
$\beta^-_{0,2}$	avg:	153,0 (15)	
$\beta^-_{0,0}$	max:	702 (4)	98,780 (14)
$\beta^-_{0,0}$	avg:	227,8 (16)	

5 Photon Emissions

5.1 X-Ray Emissions

		Energy keV	Photons per 100 disint.	
XL	(I)	3,485 — 5,060	0,0119 (6)	
XKα_2	(I)	28,3175	0,0309 (7)	} Kα
XKα_1	(I)	28,6123	0,0574 (12)	}
XKβ_3	(I)	32,2397	}	
XKβ_1	(I)	32,2951	} 0,0165 (4)	K$'\beta_1$
XKβ''_5	(I)	32,539	}	
XKβ'_5	(I)	32,55	}	
XKβ_2	(I)	33,042	}	
XKβ_4	(I)	33,12	} 0,00374 (12)	K$'\beta_2$
XKO$_{2,3}$	(I)	33,166	}	

5.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{1,0}$(I)	57,608 (11)	0,0306 (6)
$\gamma_{2,1}$(I)	145,252 (14)	0,0040 (6)
$\gamma_{3,2}$(I)	172,132 (12)	0,0003 (2)
$\gamma_{2,0}$(I)	202,860 (8)	0,056 (2)
$\gamma_{4,2}$(I)	215,13 (6)	0,039 (2)
$\gamma_{4,1}$(I)	360,38 (6)	0,136 (2)
$\gamma_{3,0}$(I)	374,991 (9)	0,0003 (2)
$\gamma_{4,0}$(I)	417,99 (6)	0,997 (11)
$\gamma_{5,0}$(I)	618,31 (13)	0,00013 (2)

6 Main Production Modes

$\mathrm{Te-126(n,\gamma)Te-127}$

$\mathrm{Te-128(n,2n)Te-127}$

$\mathrm{U-235(n,f)Sb-127}$

$\mathrm{Sb-127}(\beta^-)\mathrm{Te-127}$

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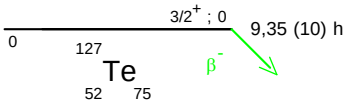

γ Emission intensities
per 100 disintegrations