

### 1 Half-life, Q-value and Decay mode

$T_{1/2}$	:	2.455	(6)	$\times 10^5$	y
$Q_\alpha$	:	4857.7	(7)		keV
$\alpha$	:	100			%

### 2 $\alpha$ Emissions

	Energy keV	Probability $\times 100$
$\alpha_{0,5}$	4108.6 (7)	0.000007
$\alpha_{0,4}$	4150.6 (7)	0.000026
$\alpha_{0,3}$	4275.2 (7)	0.00004 (1)
$\alpha_{0,2}$	4603.5 (7)	0.210 (2)
$\alpha_{0,1}$	4722.4 (7)	28.42 (2)
$\alpha_{0,0}$	4774.6 (7)	71.37 (2)

### 3 Electron Emissions

		Energy keV	Electrons per 100 disint.
e <sub>AL</sub>	(Th)	5.8 - 20.3	10.8 (4)
e <sub>AK</sub>	(Th)		0.00029 (5)
	KLL	68.406 - 76.745	}
	KLX	83.857 - 93.345	}
	KXY	99.29 - 109.64	}
ec <sub>1,0</sub> L	(Th)	32.7 - 36.9	20.9 (12)
ec <sub>1,0</sub> M	(Th)	48.0 - 49.9	5.70 (32)
ec <sub>1,0</sub> N	(Th)	51.9 - 52.9	1.53 (9)
ec <sub>2,1</sub> L	(Th)	100.4 - 104.6	0.132 (12)
ec <sub>2,1</sub> M	(Th)	115.7 - 117.6	0.0363 (34)

### 4 Photon Emissions

#### 4.1 X-Ray Emissions

		Energy keV	Photons per 100 disint.	
XL	(Th)	11.118 — 19.504	10.2 (4)	
XK $\alpha_2$	(Th)	89.954	0.00269 (25)	} K $\alpha$
XK $\alpha_1$	(Th)	93.351	0.0044 (4)	}
XK $\beta_3$	(Th)	104.819	}	
XK $\beta_1$	(Th)	105.604	}	0.00155 (15) K $\beta'_1$
XK $\beta'_5$	(Th)	106.239	}	

		Energy keV	Photons per 100 disint.		
XK $\beta_2$	(Th)	108.509	}		
XK $\beta_4$	(Th)	108.955	}	0.00052 (5)	K $\beta'_2$
XKO $_{2,3}$	(Th)	109.442	}		

## 4.2 Gamma Transitions and Emissions

	Energy keV	P $_{\gamma+ce}$ $\times 100$	Multipolarity	$\alpha_T$	P $_{\gamma}$ $\times 100$
$\gamma_{1,0}$ (Th)	53.20 (2)	28.7 (13)	E2+M3	228 (7)	0.1253 (40)
$\gamma_{2,1}$ (Th)	120.90 (4)	0.228 (48)	E2	4.92 (15)	0.0386 (32)
$\gamma_{3,1}$ (Th)	454.96 (5)	0.000025 (6)	E1	0.01526 (46)	0.000025 (6)
$\gamma_{5,2}$ (Th)	503.5 (1)	0.00000095	[E2]	0.0418 (13)	0.00000095
$\gamma_{3,0}$ (Th)	508.16 (5)	0.0000152 (39)	E1	0.01221 (37)	0.0000150 (39)
$\gamma_{4,1}$ (Th)	581.7 (1)	0.000012 (5)	E2	0.0300 (9)	0.000012 (5)
$\gamma_{5,1}$ (Th)	624.4 (1)	0.00005	E0+E2+M1	5.1 (20)	0.00000082
$\gamma_{5,0}$ (Th)	677.6 (1)	0.000001	[E2]	0.0216 (6)	0.000001

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