

1 Half-life, Q-value and Decay mode

$T_{1/2}$: 26.916 (44) min
 Q_{β^-} : 1019 (11) keV
 β^- : 100 %

2 β^- Transitions

	Energy keV	Probability $\times 100$	Nature	$\log ft$
$\beta_{0,9}^-$	180 (11)	2.762 (22)	Allowed	4.5
$\beta_{0,8}^-$	222 (11)	0.0196 (27)	Allowed	6.9
$\beta_{0,7}^-$	485 (11)	1.047 (17)	1st forbidden	6.2
$\beta_{0,5}^-$	667 (11)	46.52 (37)	1st forbidden	5.1
$\beta_{0,4}^-$	729 (11)	41.09 (39)	1st forbidden	5.2
$\beta_{0,0}^-$	1019 (11)	9.2 (7)	1st forbidden	6.3

3 Electron Emissions

		Energy keV	Electrons per 100 disint.	Energy keV
eAL	(Bi)	5.3 - 16.4	19.8 (3)	
eAK	(Bi)		0.80 (9)	
	KLL	57.49 - 63.42	}	
	KLX	70.02 - 77.10	}	
	KXY	82.45 - 90.52	}	
ec _{1,0} L	(Bi)	36.8400 - 39.8089	10.39 (31)	
ec _{1,0} M	(Bi)	49.2284 - 50.6479	2.46 (8)	
ec _{1,0} N	(Bi)	52.2893 - 53.0704	0.641 (20)	
ec _{4,1} K	(Bi)	151.471 (3)	5.26 (16)	
ec _{4,1} L	(Bi)	225.610 - 228.578	0.908 (28)	
ec _{4,1} M	(Bi)	237.998 - 239.417	0.214 (7)	
ec _{4,1} N	(Bi)	241.059 - 241.840	0.0560 (17)	
ec _{3,0} K	(Bi)	168.34 (3)	0.32 (1)	
ec _{3,0} L	(Bi)	242.48 - 245.45	0.0551 (17)	
ec _{3,0} M	(Bi)	254.87 - 256.29	0.01298 (38)	
ec _{4,0} K	(Bi)	204.698 (2)	7.22 (23)	
ec _{4,0} L	(Bi)	278.836 - 281.805	1.291 (40)	
ec _{4,0} M	(Bi)	291.225 - 292.644	0.305 (10)	
ec _{4,0} N	(Bi)	294.286 - 295.067	0.0797 (25)	
ec _{5,0} K	(Bi)	261.406 (2)	9.26 (29)	
ec _{5,0} L	(Bi)	335.544 - 338.513	1.584 (46)	
ec _{5,0} M	(Bi)	347.933 - 349.352	0.373 (11)	
ec _{5,0} N	(Bi)	350.994 - 351.775	0.0975 (29)	
$\beta_{0,9}^-$	max:	180 (11)	2.762 (22)	avg: 50 (3)
$\beta_{0,8}^-$	max:	222 (11)	0.0196 (27)	avg: 62 (3)

		Energy keV		Electrons per 100 disint.		Energy keV
$\beta_{0,7}^-$	max:	485	(11)	1.047 (17)	avg:	145 (4)
$\beta_{0,5}^-$	max:	667	(11)	46.52 (37)	avg:	207 (4)
$\beta_{0,4}^-$	max:	724	(11)	41.09 (39)	avg:	227 (4)
$\beta_{0,0}^-$	max:	1019	(11)	9.2 (7)	avg:	337 (4)

4 Photon Emissions

4.1 X-Ray Emissions

		Energy keV	Photons per 100 disint.
XL	(Bi)	9.42 — 16.36	12.42 (22)
XK α_2	(Bi)	74.8157	6.26 (12) } K α
XK α_1	(Bi)	77.1088	10.47 (20) }
XK β_3	(Bi)	86.835	}
XK β_1	(Bi)	87.344	} 3.59 (9) K β'_1
XK β_5''	(Bi)	87.862	}
XK β_2	(Bi)	89.732	}
XK β_4	(Bi)	90.074	} 1.10 (4) K β'_2
XKO _{2,3}	(Bi)	90.421	}

4.2 Gamma Transitions and Emissions

	Energy keV	P _{γ+ce} × 100	Multipolarity	α_T	P _γ × 100
$\gamma_{1,0}$ (Bi)	53.2275 (21)	14.71 (42)	M1+E2	12.88 (39)	1.060 (7)
$\gamma_{-1,0}$ (Bi)	107.22 (9)	0.0068 (14)			0.0068 (14)
$\gamma_{-1,1}$ (Bi)	137.45 (30)	0.045 (18)			0.045 (18)
$\gamma_{-1,2}$ (Bi)	141.3 (6)	0.027 (14)			0.027 (14)
$\gamma_{-1,3}$ (Bi)	170.07 (6)	0.0146 (27)			0.0146 (27)
$\gamma_{3,2}$ (Bi)	196.20 (5)	0.069 (9)			0.069 (9)
$\gamma_{3,1}$ (Bi)	205.68 (9)	0.0114 (23)			0.0114 (23)
$\gamma_{-1,4}$ (Bi)	216.47 (7)	0.0100 (23)			0.0100 (23)
$\gamma_{4,1}$ (Bi)	241.997 (3)	13.72 (20)	M1(+E2)	0.888 (27)	7.268 (22)
$\gamma_{3,0}$ (Bi)	258.87 (3)	0.924 (13)	M1	0.737 (22)	0.5318 (36)
$\gamma_{7,3}$ (Bi)	274.80 (5)	0.504 (15)	M1+E2	0.392 (12)	0.362 (10)
$\gamma_{4,0}$ (Bi)	295.224 (2)	27.29 (26)	M1+E2	0.482 (14)	18.414 (36)
$\gamma_{9,7}$ (Bi)	305.26 (3)	0.0324 (22)	[E1]	0.0295 (9)	0.0315 (21)
$\gamma_{6,2}$ (Bi)	314.32 (7)	0.077 (6)			0.077 (6)
$\gamma_{6,1}$ (Bi)	323.83 (4)	0.0287 (32)			0.0287 (32)
$\gamma_{5,0}$ (Bi)	351.932 (2)	46.96 (37)	M1(+E2)	0.319 (10)	35.60 (7)
$\gamma_{9,6}$ (Bi)	462.00 (7)	0.213 (6)			0.213 (6)
$\gamma_{7,1}$ (Bi)	480.43 (2)	0.3838 (49)	M1(+E2)	0.1384 (42)	0.3371 (41)

	Energy keV	$P_{\gamma+ce}$ $\times 100$	Multipolarity	α_T	P_γ $\times 100$
$\gamma_{9,5}(\text{Bi})$	487.09 (7)	0.438 (6)	(E1)	0.01058 (32)	0.433 (6)
$\gamma_{7,0}(\text{Bi})$	533.66 (2)	0.192 (10)	[M1,E2]	0.06 (4)	0.182 (6)
$\gamma_{8,3}(\text{Bi})$	538.41 (8)	0.0196 (27)			0.0196 (27)
$\gamma_{9,4}(\text{Bi})$	543.81 (7)	0.050 (9)	E1+M2	0.00843 (25)	0.050 (9)
$\gamma_{9,3}(\text{Bi})$	580.13 (3)	0.372 (6)	(E1)	0.00740 (22)	0.369 (6)
$\gamma_{-1,5}(\text{Bi})$	765.96 (9)	0.053 (8)			0.053 (8)
$\gamma_{9,1}(\text{Bi})$	785.96 (9)	1.068 (13)	E1	0.00410 (12)	1.064 (13)
$\gamma_{9,0}(\text{Bi})$	839.04 (9)	0.589 (8)	(E1)	0.00363 (11)	0.587 (8)

5 References

- M.CURIE, A.DEBIERNE, A.S.EVE, H.GEIGER, O.HAHN, S.C.LIND, S.MEYER, E.RUTHERFORD, E.SCHWEIDLER, Rev. Mod. Phys. 3 (1931) 427
(Half-life)
- E.E.BERLOVICH, Bull. Rus. Acad. Sci. Phys. 16 (1952) 314
(Beta emission intensities)
- K.SAGEYAMA, J. Phys. Soc. (Japan) 8 (1953) 689
(Beta emission intensities)
- H.DANIEL, R.NIERHAUS, Z. Naturforsch. 11a (1956) 212
(Half-life)
- K.O.NIELSEN, O.B.NIELSEN, M.A.WAGGONER, Nucl. Phys. 2 (1957) 476
(Beta emission intensities)
- H.DANIEL, Z. Naturforsch. 11a (1958) 759
(Beta emission intensities)
- G.T.EWAN, J.TAVENDALE, Can. J. Phys. 42 (1964) 2286
(Gamma-ray emission intensities)
- E.W.A.LINGEMAN, J.KONIJN, P.POLAK, A.H.WAPSTRA, Nucl. Phys. A133 (1969) 630
(Gamma-ray emission intensities)
- G.WALLACE, G.E.COOTE, Nucl. Instrum. Methods 74 (1969) 353
(Gamma-ray emission intensities)
- K.YA.GROMOV, B.M.SABIROV, J.J.URBANETS, Bull. Rus. Acad. Sci. Phys. 33 (1970) 1510
(Gamma-ray emission intensities)
- R.S.MOWATT, Can. J. Phys. 48 (1970) 2606
(Gamma-ray emission probabilities)
- A.HACHEM, Compt. Rend. Acad. Sci. (Paris) Ser. B 281 (1975) 45
(Gamma-ray emission intensities)
- V.ZOBEL, J.EMBER, E.EUBE, Nucl. Instrum. Methods 141 (1977) 329
(Gamma-ray emission intensities)
- F.RÖSEL, At. Data Nucl. Data Tables 21 (1978) 91
(Theoretical ICC)
- G.MOUZE, Compt. Rend. Acad. Sci. (Paris) 292 (1981) 1243
(Gamma-ray emission intensities)
- H.AKCAY, G.MOUZE, D.MAILLARD, CH.YTHIER, Radiochem. Radioanal. Lett. 51 (1982) 1
(Gamma-ray emission intensities)
- M.A.FAROUK, A.M.AL-SORAYA, Nucl. Instrum. Methods 200 (1982) 593
(Gamma-ray emission intensities)
- D.G.OLSON, Nucl. Instrum. Methods 206 (1983) 313
(Gamma-ray emission intensities)
- U.SCHÖTZIG, K.DEBERTIN, Int. J. Appl. Radiat. Isotop. 34 (1983) 533
(Gamma-ray emission intensities)
- I.PENEV, W.ANDREJTSCHEFF, CH.PROTOCHRISTOW, Zh.ZELEV, Z. Phys. A318 (1984) 213
(Half-life (E=53 keV))
- Y.A.AKOVALI, Nucl. Data Sheets 55 (1988) 665
(Energy level, spin, parity, multipolarity)

- G.MOUZE, J.F.COMANDUCCI, C.YTHIER, Rev. Roum. Phys. 35 (1990) 337
(Gamma-ray emission intensities)
- G.MOUZE, O.DIALLO, P.BECHLICH, J.F.COMANDUCCI, C.YTHIER, Radiochim. Acta 49 (1990) 13
(Gamma-ray emission intensities)
- W.-J.LIN, G.HARBOTTLE, J. Radioanal. Nucl. Chem. Lett. 153 (1991) 137
(Gamma-ray emission intensities)
- O.DIALLO, G.MOUZE, C.YTHIER, J.F.COMANDUCCI, Nuovo Cim. 106A (1993) 1321
(Gamma-ray emission intensities)
- Y.A.AKOVALI, Nucl. Data Sheets 76 (1995) 127
(Energy level, spin, parity, multipolarity)
- E.SCHÖNFELD, H.JANSSEN, Nucl. Instrum. Methods Phys. Res. A369 (1996) 527
(Atomic data)
- J.MOREL, M.ETCHEVERRY, J.L.PICOLO, Appl. Radiat. Isot. 49 (1998) 1387
(Gamma-ray emission intensities)
- D.SARDARI, T.D.MCMAHON, J. Radioanal. Nucl. Chem. 244 (2000) 463
(Gamma-ray emission intensities)
- J.U.DELGADO, J.MOREL, M.ETCHEVERRY, Appl. Radiat. Isot. 56 (2002) 137
(Gamma-ray emission intensities)
- G.L.MOLNAR, Z.S.RÉVAY, T.BELGYA, Proc. 11th Int. Symp. on Capture Gamma-ray Spectroscopy, 2-6 September 2002, Pruhonice (2002) 522
(Gamma-ray emission intensities)
- I.M.BAND, M.B.TRZHASKOVSKAYA, C.W.NESTOR JR., P.O.TIKKANEN, S.RAMAN, At. Data Nucl. Data Tables 81 (2002) 1
(Theoretical ICC)
- G.AUDI, A.H.WAPSTRA, C.THIBAULT, Nucl. Phys. A729 (2003) 129
(Q)
- J.MOREL, S.SPEMAN, M.RASKO, E.TERECHTCHENKO, J.U.DELGADO, Appl. Radiat. Isot. 60 (2004) 341
(Gamma-ray emission intensities)
- R.G.ELMER, in Update of X Ray and Gamma Ray Decay Data Standards for Detector Calibration and Other Applications Vol. 1, STI/PUB/1287, IAEA, Vienna (2007) 19
(Gamma-ray emission intensities)