INTERNATIONAL ATOMIC ENERGY AGENCY

NUCLEAR DATA SERVICES

DOCUMENTATION SERIES OF THE IAEA NUCLEAR DATA SECTION

IAEA-NDS-111
August 1992

"Narita Gammas"

List of strong gamma-rays emitted from radionuclides

by T. Narita and K. Kitao

Documentation of the PC diskette

by H.D. Lemmel

Abstract: The PC diskette containing the "List of strong gamma-rays emitted from radionuclides" as published by T. Narita and K. Kitao in the report JAERI-M-92-051, is described. The diskette is available from the IAEA Nuclear Data Section, costfree, upon request.

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The PC diskette contains one text file "GAMMATBL" of 526.334 bytes. The text file is a page-by-page image of the listing contained in the report JAERI-M-92-051 by Tsutomu Narita and Kensuke Kitao, JAERI, Japan.

Some introductory pages from this report are attached.

The tabulation includes the columns: energy, intensity, parent nuclide, decay code, half-life, no. of G, energies and intensities of two other intense gamma-rays.

JAERI-M 92-051

List of Strong Gamma-rays Emitted from Radionuclides

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(Received March 2, 1992)

This is a compilation of intense gamma-rays, with energy value greater than 1 keV, emitted from decay of radioactive nuclides. These gamma-rays are three strongest of gamma-rays originating from each radionuclide. These gamma-rays are listed in the order of increasing energy. The table contains the energy and the intensity of the gamma-rays, the parent nuclide, the decay mode and the half-life of the parent nuclide and the total number of gamma-rays originating from the nuclide, and is also accompanied with energies and intensities of other two of the three gamma-rays in the same row. The list can be used as a quick guide to identify radionuclides in gamma-ray spectrometry. An annex contains the list of radionuclides having no measured gamma-ray intensities, together with energy values of the gamma-rays. The numerical values given in the list are taken from the values adopted in the Evaluated Nuclear Structure Data File (ENSDF) maintained by the National Nuclear Data Center at Brookhaven National Laboratory, as of February 1991. The list has also been prepared on a floppy diskette.

Keywords: Gamma-rays, Radioactive Nuclide, Gamma-ray Energy, Gamma-ray Intensity, Decay Mode, Parent Nuclide, Half-life, ENSDF

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* The National Institute of Radiological Sciences

放射性核種から放出される放出割合の大きいγ線

Symboles and Abbreviations

---	Unknown
<	Upper limit
～	Approximate value
*	relative value
U	unplaced gamma-rays in the decay scheme
B-	Negatron decay
B+	Positron decay
EC	Electron capture
A	Alpha decay
IT	Isomeric transition
B-N	Negatron decay following neutron emission
B-P	Positron decay following proton emission
ECP	Electron capture following proton emission

Energy 1.1 - 21.8 (KeV)

Energy (KeV)	Intensity (%)	Parent Nuclide	Dcay Mode	Half Life	No. of G	Other two intense gamma-rays Energy(Intensity)	Energy(Intensity)
1.11	---	Ag -110	IT	3.16 S	2	116.48(8.0E-05)	
1.5	---	Er -160	EC	28.58 H	2	59.98(0.11)	
1.58	---	Sm -141	IT	40.0 S	2	174.20(---)	
1.64	---	Pt -193	IT	3.9 S	3	135.50(---)	12.63(---)
2.17	---	Tc - 99	IT	65.94 H	3	140.51(89.1)	
5.	---	Pb -199	IT	27 M	2	424.10(18.1)	
5.	---	Pb -203	IT	11.76 H	3	825.20(71.4)	820.20(6.4)
5.	---	Po -203	A	36.7 M	1		
6.24	1.0	W -181	EC	121.2 D	3	136.28(0.03)	
6.29	---	Sn -121	IT	3.88 M	1		
6.33	---	*In -112	IT	14.97 M	4	187.80(132.0)	262.70(100.0)
6.5	---	Po -201	IT	89 S	2	417.90(6.6)	
6.5	---	At -201	EC	89 S	3	571.00(---)	417.90(---)
6.9	33.0	Ag -104	IT	42.3 S	1		
6.92	---	Sr - 85	IT	67.63 M	3	231.86(84.4)	
8.	---	Hg -185	IT	28 S	3	65.30(0.03)	26.10(0.02)
8.41	0.16	Er -169	B-	9.40 D	3		
9.3	3.5E-06	Ag -102	IT	207 D	1		
9.4	4.4	Kr - 83	IT	2.40 H	2	32.16(0.05)	
9.56	---	Pt -191	IT	3.18 H	3	48.20(0.21)	91.10(12.0)
10.	---	Ho -162	IT	67.0 M	3	57.80(---)	38.30(---)
10.	---	Pa -234	IT	4.468E+9 Y	2	73.92(---)	
10.2	---	Y - 86	IT	48 M	2	208.10(---)	
10.86	0.003	Sb -124	IT	3.17 S	1		
11.23	0.94	Cs -134	IT	52.6 M	3	127.50(12.7)	
12.33	1.5	Ba -133	IT	5.243 D	3	275.92(17.5)	
12.4	0.18	Sc - 45	IT	163.8 D	1		
12.47	---	Ca - 45	B-	163.8 D	1		
12.63	---	Pt -193	IT	3.9 S	3	135.50(---)	1.64(---)
12.76	0.30 U	Ra -228	B-	5.75 Y	11	13.52(1.6 U)	16.18(0.72 U)
13.06	---	Ge - 73	IT	4.86 H	2	53.53(---)	
13.26	---	As - 73	EC	80.30 D	2	53.44(---)	
13.52	1.6 U	Ra -228	B-	5.75 Y	11	12.76(0.30 U)	16.18(0.72 U)
13.7	---	Au -191	IT	3.18 H	4	253.00(61.0)	241.00(13.0)
14.	---	Gd -155	IT	4.68 Y	3	86.00(---)	22.00(---)
14.41	10.5	Mn - 57	B-	87.2 S	23	692.00(5.7)	122.06(14.4)
14.41	9.7	Co - 57	EC	271.80 D	10	136.47(10.3)	122.06(85.9)
15.	---	Hg -185	A	49 S	3	94.00(---)	79.00(---)
15.2	0.05	Ac -227	B-	21.773 Y	3	24.50(0.003)	
16.	8.0	Nd -152	B-	11.4 M	7	250.10(21.8)	278.50(32.0)
16.18	0.72 U	Ra -228	B-	5.75 Y	11	13.52(1.6 U)	12.76(0.30 U)
16.21	0.16	Hg -195	IT	9.9 H	4	122.78(0.03)	37.09(1.8)
16.26	---	Ta -182	IT	9E6 Y	1		
16.4	8.3	Zn - 72	B-	46.5 H	9	144.70(82.9)	191.50(9.4)
16.8	---	Ac -233	B-	145 S	3	539.60(37.6)	522.80(56.4)
17.	18.0	Ti - 52	B-	1.7 M	2	124.45(100.0)	
17.1	---	Gd -159	IT	18.7 M	3	67.80(---)	50.70(---)
17.7	4.4E-05	Sb -126	IT	1.5 S	1		
18.21	1.3	Eu -152	IT	7.52 M	5	89.85(69.9)	
18.5	27.2	Pd -112	B-	21.03 H	1		
19.1	---	*Au -189	EC	4.59 M	4	166.70(20.8)	321.10(4.0)
19.39	13.8	Lu -171	EC	8.24 D	95	667.43(11.1)	739.80(48.1)
19.5	---	Au -187	IT	8.4 M	2	101.10(0.81)	
20.	---	Sb -128	IT	0.9 S	1		
20.1	17.3	Os -180	EC	21.5 M	21	717.40(---)	667.00(---)
21.54	0.03	Sm -151	B-	90 Y	1		
21.6	---	Te -117	IT	2.3 M	3	274.40(---)	
21.8	2.2	La -136	IT	9.87 M	8	95.70(44.4)	33.50(39.2)