EUR 3154.e

EUROPEAN ATOMIC ENERGY COMMUNITY - EURATOM

COMPUTER PROGRAM FOR THE CONSTRUCTION OF TABLES OF GAMMA PEAKS AND FOR CALCULATION OF SPECIFIC ACTIVITIES OF RADIOISOTOPES FORMED BY (n, γ) REACTION

by

G. GUZZI, J. PAULY, F. GIRARDI and B. DORPEMA

1966

Joint Nuclear Research Center
Ispra Establishment - Italy

Chemistry Department
and
Scientific Information Processing Center - CETIS

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Printed by Guyot, s.a.
Brussels, October 1966

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SUMMARY

A computer program called LIBRAR has been developped in order to derive tables of gamma peaks classified according to their energy and to calculate the specific activities of peaks from radiosotopes produced by (n, γ) reactions. Photoelectric peaks and double escape peaks were considered. The input data include the efficiency curves of the detector, cross-sections and gamma ray abundances of the isotopes considered : for these last quantities either literature data or values determined experimentally in this laboratory have been used. The list of the program and an example of the output data are given in appendices.

INTRODUCTION.

The identification of gamma emitting isotopes obtained by neutron activation is usually done by measuring the gamma peak energies.
The ratios of the photopeak areas is also often used as a further control of the identification.
Lists of isotopes and gamma ray energies especially studied as a help for the analyst are already available (1, 2, 3, 4, 5, 6, 7, 8, 9) but the ratio of photopeak areas is generally omitted. One of the reasons is certainly the fact that the value of these ratios, depending on the detector efficiency, varies from installation to installation, and would therefore be of little general use.

We have tried to cover this gap, by setting up a computer program, called LIBRAR, to obtain with the minimum effort, a complete library of isotopes, including ratios of photopeaks valid for the detector and source geometry actually used by the experimenter, and specific activities under the peaks, expressed in counts per minute. These last figures correspond to the irradiation at saturation of one μgm of element in a thermal flux of 10^{13} neutrons/cm^2 sec. The decay factor is taken equal to the unity and the counting time is assumed to be 1 minute.

This program is primarily intended to help laboratories which are using Ge-Li detectors in activation analysis, although the program can be used also for scintillators. The use of Ge-Li drifted detectors in activation analysis is limited up to now by the small efficiency of the detector, although they have already been found useful applications (10, 11, 12).

The photopeak efficiency of these detectors, and

Manuscript received on August 16, 1966

therefore the photopeak ratios, are certainly very different from that of the scintillators, and moreover dimensions and shapes, and therefore efficiencies, are constantly changing.
The program should be of help to keep the library up to date with the real detector situation of the laboratory.

INPUT DATA.

a) Photopeak efficiency of the detector vs. gamma ray energy.

The photopeak efficiency curve of the detector vs. gamma ray energy and the efficiency for double escape peaks are the experimental input data of the program, different from one installation to the other. They must be provided in tabular form for energy increments of 50 KeV from 0 to 5,500 KeV. They are called in the program TAB1 and TAB2 and are reported on Tables I and II for the detector used in our laboratory. The efficiency curves (as shown in Figure 1 for the same detector) can be obtained by means of calibrated radioactive sources. We found expecially useful for this purpose to use a sealed Th^{228} source, in equilibrium with its daughters. The advantage is the absence of decay problems and the presence in a single source of eight photopeaks useful for calibration purpose, and of energies ranging from 239 to 2,614 KeV. The radioisotopes produced by decay of Th^{228} are represented on Figure 2. The abundance of the principal gamma rays is also given. Most of these values are taken from reference 13. For some abundances however there exist discrepancies between the values from the literature and our experimental results: then the experimental abundances were reported on the Figure and indicated by an asterisk. For the double escape peaks the effi-

T A B L E I

GAMMA PEAKS EFFICIENCY TABLE

1	2	3	4	5
2.300E-02	1.700E-02	1.250E-02	9.000E-03	6.800E-03
5.400E-03	4.000E-03	3.200E-03	2.600E-03	2.100E-03
1.800E-03	1.500E-03	1.350E-03	1.200E-03	1.080E-03
10.000E-04	9.300E-04	8.700E-04	8.100E-04	7.600E-04
7.000E-04	6.800E-04	6.450E-04	6.000E-04	5.750E-04
5.500E-04	5.250E-04	5.000E-04	4.750E-04	4.500E-04
4.300E-04	4.150E-04	4.000E-04	3.800E-04	3.600E-04
3.450E-04	3.300E-04	3.200E-04	3.000E-04	2.900E-04
2.780E-04	2.680E-04	2.550E-04	2.450E-04	2.400E-04
2.250E-04	2.200E-04	2.160E-04	2.080E-04	2.000E-04
1.980E-04	1.900E-04	1.860E-04	1.800E-04	1.700E-04
1.720E-04	1.700E-04	1.680E-04	1.600E-04	1.590E-04
1.580E-04	1.570E-04	1.530E-04	1.500E-04	1.450E-04
1.410E-04	1.400E-04	1.370E-04	1.350E-04	1.300E-04
1.280E-04	1.220E-04	1.200E-04	1.180E-04	1.150E-04
1.120E-04	1.100E-04	1.080E-04	1.050E-04	1.020E-04
9.950E-05	9.600E-05	9.450E-05	9.200E-05	9.000E-05
8.750E-05	8.500E-05	8.350E-05	8.100E-05	8.000E-05
7.750E-05	7.600E-05	7.400E-05	7.200E-05	7.000E-05
6.900E-05	6.750E-05	6.500E-05	6.400E-05	6.250E-05
6.100E-05	5.950E-05	5.800E-05	5.700E-05	5.500E-05
5.400E-05	5.300E-05	5.200E-05		

T A B L E II

DOUBLE ESCAPE PEAKS EFFICIENCY TABLE

1	2	3	4	5
0.	0.	0.	0.	0.
0.	0.	0.	0.	0.
0.	0.	0.	0.	0.
0.	0.	0.	0.	0.
4.750E-07	9.500E-07	1.800E-06	3.000E-06	5.500E-06
9.000E-06	1.400E-05	2.000E-05	2.800E-05	3.800E-05
4.750E-05	6.000E-05	6.250E-05	8.500E-05	10.000E-05
1.200E-04	1.400E-04	1.600E-04	1.850E-04	2.100E-04
2.350E-04	2.600E-04	2.800E-04	3.080E-04	3.120E-04
3.450E-04	3.600E-04	3.800E-04	4.000E-04	4.250E-04
4.500E-04	4.600E-04	4.750E-04	5.000E-04	5.100E-04
5.250E-04	5.300E-04	5.500E-04	5.550E-04	5.700E-04
5.800E-04	6.000E-04	6.150E-04	6.200E-04	6.300E-04
6.450E-04	6.500E-04	6.550E-04	6.650E-04	6.700E-04
6.750E-04	6.800E-04	6.900E-04	6.920E-04	6.950E-04
7.000E-04	7.100E-04	7.200E-04	7.250E-04	7.400E-04
7.500E-04	7.550E-04	7.600E-04	7.750E-04	7.800E-04
7.950E-04	8.000E-04	8.100E-04	8.200E-04	8.250E-04
8.300E-04	8.450E-04	8.500E-04	8.550E-04	8.600E-04
8.700E-04	8.750E-04	8.800E-04	8.900E-04	9.000E-04
9.100E-04	9.200E-04	9.250E-04	9.400E-04	9.500E-04
9.600E-04	9.800E-04	9.950E-04		

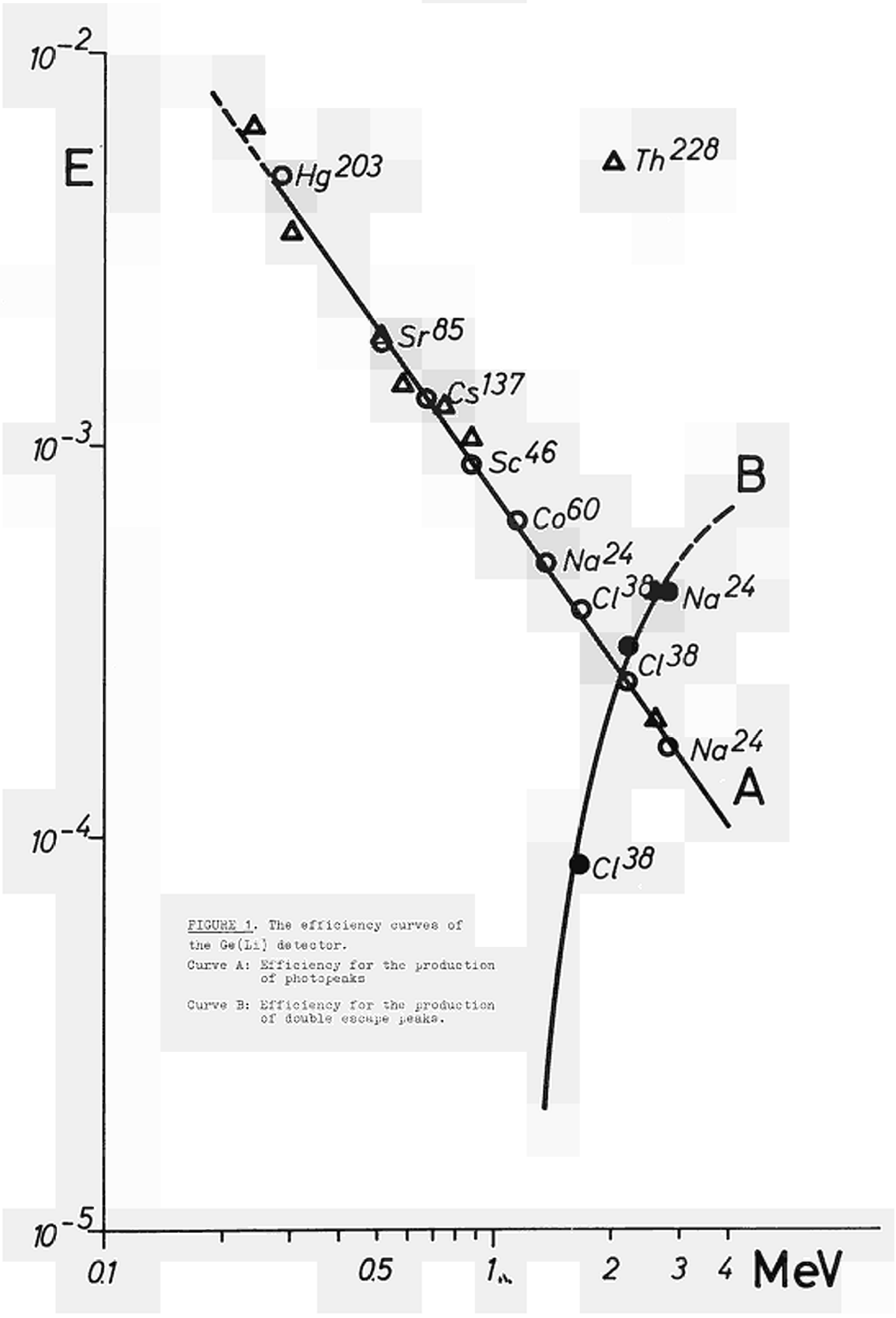


FIGURE 1. The efficiency curves of the Ge(Li) detector.

Curve A: Efficiency for the production of photopeaks

Curve B: Efficiency for the production of double escape peaks.

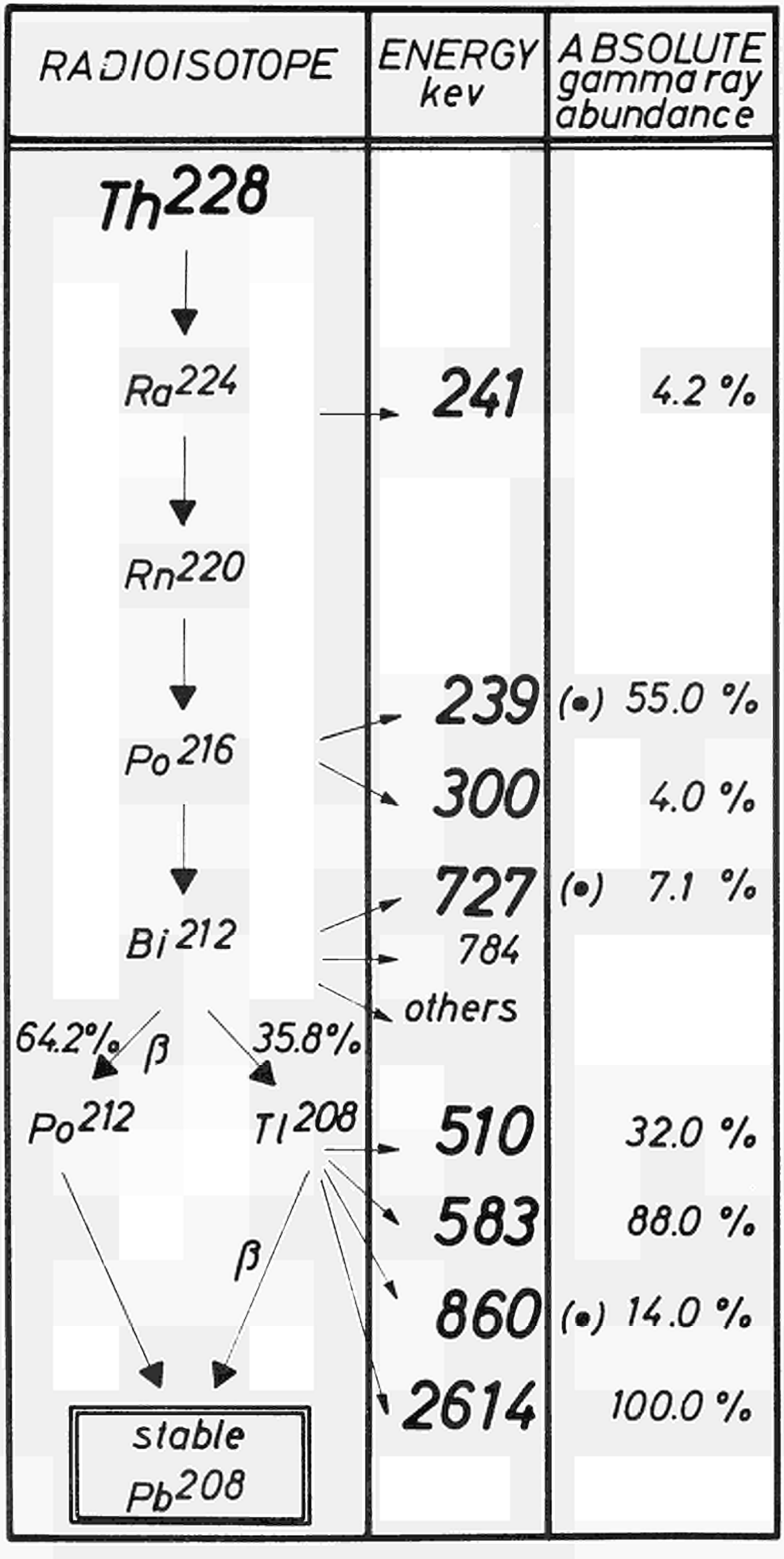


FIGURE 2. Decay Scheme of Th^{228}

ciencies are determined from sources containing Cl^{38} and Na^{24}. The absolute activities were previously determined on a calibrated NaI(Tl) detector (14).

b) Library.

A set of data cards with the nuclear data used for the compilation of the tables are also added as library data. The first card contains the symbol of the isotope (ELEM), the numerical value of its half-life (TP) the symbol which indicates the unity used for the half-life i.e. minute, hour, day, year (T), the number of gamma peaks considered for each isotope (NE), the cross-section (SIGMA) in cm^2/g of the element and an index KD which is equal to zero, if all the values for the isotope have been taken from the literature, and is one, if the experimentally determined values have been used. Experimental data can thus be introduced instead of literature data whenever preferred, or when literature data are lacking. The successive cards introduce the energy of the gamma ray (KEV) and their abundance (A).

The values for the half-lives and the cross-sections in cm^2/g are taken from the previously published Data Handbook for Sensitivity Calculations in Neutron Activation Analysis (8), the gamma ray energies come from reference (5) and the gamma ray abundances have been taken from the book on Activation Analysis published by W.Schulze (2). The library of nuclear data is reported on Table III.

COMPUTER PROGRAM.

A list of the program, written in Fortran IV is given in Appendix 1. First of all the input data are read, then the specific activity at saturation (AB) is calcula-

TABLE III

Library of nuclear data

	ISOTOPE	HALF LIFE	SIGMA	ENERGY(KEV)	ABUNDANCE
1	A41	1.80H	8.000E-03(0)	1290	9.910E-01
2	AG110M	260.00D	7.300E-03(1)	446	6.650E-02
				619	9.500E-02
				657	9.500E-01
				677	1.140E-01
				705	1.710E-01
				764	2.370E-01
				815	5.700E-02
				885	7.130E-01
				937	2.370E-01
				1384	2.600E-01
				1504	1.400E-01
3	AL28	2.30M	4.700E-03(0)	1780	1.000E 00
4	AS76	26.50H	5.700E-02(1)	561	4.140E-01
				648	8.300E-02
				1210	8.700E-02
				1410	8.000E-03
				2060	1.600E-02
5	AU198	2.69D	2.900E-01(0)	412	9.600E-01
				675	1.050E-02
				1089	2.300E-03
6	BA131	11.60D	1.100E-01(0)	124	3.220E-01
				216	2.410E-01
				239	7.000E-02
				249	8.200E-02
				374	1.620E-01
				498	5.780E-01
				620	5.270E-02
				820	3.200E-03
				920	1.130E-02
				1030	1.770E-02
7	BA139	1.42H	1.400E-03(1)	166	2.300E-01
				1410	1.900E-01
8	BR80	18.00M	3.200E-02(0)	620	1.375E-01
9	BR82	35.90H	1.250E-02(0)	554	7.150E-01
				619	4.650E-01
				698	2.850E-01
				777	8.450E-01
				828	2.350E-01
				1044	3.000E-01
				1317	2.750E-01
				1475	1.800E-01

TABLE III (continued)

	ISOTOPE	HALF LIFE	SIGMA	ENERGY(KEV)	ABUNDANCE
10	CA47	4.8CD	1.200E-07(0)	480	6.000E-02
				830	6.000E-02
				1290	7.700E-01
11	CA49	8.8CM	3.000E-05(0)	3100	8.900E-01
				4050	1.040E-01
				4690	6.000E-03
12	CD111M	6.7CH	1.300E-04(0)	150	2.800E-01
				246	9.400E-01
13	CD115	55.0CH	1.700E-03(0)	230	5.650E-03
				260	1.700E-02
				263	1.750E-03
				490	1.350E-01
				520	2.640E-01
14	IN115M	4.5CH	1.700E-03(0)	335	3.660E-01
15	CE141	32.0CD	1.200E-03(0)	142	5.290E-01
16	CE143	33.0CH	4.300E-04(0)	232	4.500E-02
				294	3.900E-01
				351	9.800E-03
				493	4.950E-02
				668	8.900E-02
				722	8.900E-01
17	CL38	37.3CM	1.550E-03(1)	1590	3.600E-01
				2164	4.250E-01
18	CO60	5.25Y	3.700E-01(0)	1172	1.000E 00
				1332	1.000E 00
19	CR51	27.8CD	3.900E-03(1)	325	9.000E-02
20	CS134M	3.2CH	1.400E-02(0)	127	4.000E-02
				137	4.000E-05
21	CS134	2.2CY	1.300E-01(0)	475	1.500E-02
				563	9.300E-02
				569	1.430E-01
				605	9.750E-01
				796	8.780E-01
				801	8.800E-02
				1038	1.030E-02
				1168	1.940E-02
				1368	3.370E-02
22	CU64	12.8CH	2.720E-03(1)	511	3.800E-01
				1340	5.000E-03
23	CU66	5.1CM	5.250E-03(0)	830	2.000E-03
				1040	9.200E-02
24	DY165	2.3CH	2.900E 00(0)	94	6.250E-02
				279	7.800E-03
				355	1.440E-02
25	ER171	7.5CH	4.800E-03(0)	112	1.880E-01
				117	1.400E-02
				124	7.000E-02
				296	1.880E-01
				308	5.860E-01
26	EU152M	9.2CH	2.650E 00(0)	122	6.980E-02
				344	2.450E-02
				837	1.020E-01
				961	1.045E-01
				963	9.800E-03
				1327	2.450E-02
				1410	1.830E-02
27	EU152	12.5CY	1.250E 01(0)	121	2.800E-01
				245	1.190E-01
				344	2.610E-01
				412	0.000E-03
				782	1.040E-01
				872	4.460E-02
				969	1.790E-01
				1090	1.490E-01
				1200	5.940E-02
				1420	2.690E-01
28	EU154	16.00Y	9.100E-01(0)	123	3.440E-01
				248	8.150E-02
				593	4.000E-02
				694	5.000E-03
				706	5.000E-03
				725	2.100E-01
				759	7.030E-02
				875	1.300E-01
				998	1.400E-01
				1007	1.700E-01
				1277	4.200E-01

TABLE III (continued)

	ISOTOPE	HALF LIFE	SIGMA	ENERGY(KEV)	ABUNDANCE
29	FE59	45.00D	3.400E-05(0)	145	0.000E-03
				191	2.790E-02
				1028	5.700E-01
				1289	4.300E-01
30	GA72	14.20H	1.500E-02(1)	601	7.170E-02
				630	2.353E-01
				834	7.540E-01
				894	8.390E-02
				1050	5.700E-02
				1535	1.020E-01
				1959	5.280E-02
				2202	2.670E-01
				2491	8.990E-02
				2508	1.679E-01
31	GD159	18.00H	3.800E-03(0)	220	4.700E-03
				300	2.480E-04
				364	1.880E-01
32	GE75	1.33H	1.350E-03(0)	199	1.540E-02
				264	1.290E-01
				427	3.200E-03
				477	3.000E-03
				628	2.300E-03
33	GE77	12.00H	1.300E-04(0)	210	2.343E-01
				215	2.520E-01
				265	5.510E-01
				360	1.680E-01
				416	2.715E-01
				563	1.021E-01
				632	1.131E-01
				709	1.014E-01
				920	6.420E-02
				1080	7.320E-02
				1370	7.050E-02
34	HF175	70.00D	9.620E-05(0)	114	2.960E-03
				270	6.020E-02
				343	8.200E-01
				430	1.380E-02
35	HF180M	5.50H	3.000E-03(0)	216	7.350E-01
				332	9.390E-01
				443	7.020E-01
				501	1.390E-01
36	HF181	45.00D	1.300E-03(1)	133	4.120E-01
				136	5.900E-02
				137	1.800E-02
				346	1.360E-01
				482	8.400E-01
				616	1.995E-01
37	HG197M	24.00H	1.900E-03(0)	133	3.590E-01
				164	5.820E-02
38	HG197	2.70D	5.700E-03(0)	192	5.860E-02
39	HG203	46.50D	3.400E-03(0)	279	8.250E-01
40	HO166	27.30H	2.200E-01(0)	80	8.370E-02
				1360	9.870E-03
				1530	1.970E-03
				1610	9.900E-04
41	I128	25.00M	2.600E-02(0)	450	1.760E-01
				540	1.790E-02
				750	2.000E-03
				990	3.000E-03
42	IN114M	49.00D	1.200E-02(0)	192	1.850E-01
				556	3.500E-02
				722	3.500E-02
				1299	0.000E-04
43	IN116M	54.00M	7.800E-01(0)	137	2.310E-02
				406	2.460E-01
				1085	5.400E-01
				1274	7.580E-01
				1437	2.100E-01
				2090	2.500E-01
44	IR192	74.00D	1.200E 00(0)	201	2.750E-03
				206	2.320E-02
				283	3.940E-03
				296	2.730E-01
				307	2.700E-01
				317	7.200E-01
				375	1.120E-02
				417	1.235E-02
				468	4.930E-01
				485	2.540E-02
				588	5.470E-02
				605	1.080E-01
				613	6.450E-02
				885	3.860E-03

TABLE III (continued)

	ISOTOPE	HALF LIFE	SIGMA	ENERGY(KEV)	ABUNDANCE
45	IR194	19.00H	2.500E-01(0)	293	4.300E-02
				328	2.590E-01
				630	1.620E-02
				643	5.720E-02
				937	2.790E-02
				1150	2.790E-02
				1479	1.700E-03
46	K42	12.50H	1.400E-03(0)	1530	1.800E-01
47	LA140	40.20H	3.603E-02(0)	329	3.220E-01
				438	5.950E-02
				487	4.900E-01
				815	4.540E-01
				1600	9.900E-01
				2500	9.000E-03
48	LU177	6.80D	3.600E-01(0)	113	3.120E-02
				208	6.220E-02
				250	2.900E-03
				321	2.070E-03
49	MG27	9.50M	1.400E-04(0)	172	7.000E-03
				843	7.000E-01
				1013	2.930E-01
50	MN56	2.60H	1.310E-01(1)	845	9.780E-01
				1806	2.240E-01
				2131	1.470E-01
				2651	1.200E-02
				2976	[illegible]
51	MO99	66.00H	7.900E-04(0)	140	1.250E 00
				181	6.600E-02
				372	[illegible]
				740	7.520E-02
				780	7.300E-02
52	MO101	14.60M	1.200E-04(0)	170	2.100E-02
				193	3.530E-03
				192	2.996E-01
				275	7.120E-03
				307	3.920E-01
				545	7.770E-01
				960	7.000E-01
53	NA24	15.00H	1.130E-02(1)	1368	1.000E 00
				2754	1.000E 00
54	NB94M	6.60M	6.500E-03(0)	874	9.990E-04
55	ND147	11.50D	1.300E-03(0)	121	5.700E-03
				277	1.730E-02
				321	2.380E-02
				412	1.260E-02
				441	1.760E-02
				533	1.150E-01
				600	4.000E-03
				638	7.000E-03
56	NI65	2.60H	1.475E-04(1)	368	3.620E-02
				1114	1.320E-01
				1482	2.150E-01
57	OS191	16.00D	6.700E-03(0)	129	2.440E-01
58	OS193	30.00H	2.100E-02(0)	139	3.260E-02
				281	4.200E-03
				321	2.450E-03
				388	5.080E-03
				460	2.170E-01
59	PR142	19.20H	4.600E-02(0)	1570	4.000E-02
60	PT197	18.00H	6.800E-04(0)	191	1.720E-02
				279	9.750E-03
61	PT199	30.00M	8.700E-04(0)	197	1.350E-02
				246	8.080E-02
				318	2.160E-01
				475	3.110E-01
				540	5.750E-01
				720	1.700E-02
				790	1.700E-02
				960	4.000E-03
62	AU199	3.20D	8.700E-04(0)	158	6.600E-01
				208	1.320E-01
63	RB86	18.00D	2.380E-03(1)	1079	8.950E-02

TABLE III (continued)

	ISOTOPE	HALF LIFE	SIGMA	ENERGY(KEV)	ABUNDANCE
64	RB88	17.80M	2.400E-04(0)	208	1.338E-01
				1390	1.750E-02
				1850	2.918E-01
				2110	1.310E-02
				2680	3.210E-02
				3010	4.100E-03
				3240	4.100E-03
				4870	4.100E-03
65	RE186	3.80D	1.450E-01(0)	122	9.000E-03
				137	1.020E-01
				631	6.750E-04
				768	3.980E-04
66	RE188	17.00H	1.400E-01(0)	155	9.000E-02
				478	6.000E-03
				633	0.000E-03
67	RU97	2.80D	7.100E-05(0)	109	1.130E-02
				216	7.570E-01
				325	5.450E-02
68	RU103	40.00D	2.700E-03(0)	440	5.000E-03
				498	9.000E-01
				560	4.800E-03
				610	5.960E-02
69	RU105	4.50H	7.600E-04(0)	130	2.500E-01
				726	9.995E-01
70	S37	5.04M	4.500E-07(0)	3100	9.000E-01
71	SB122	2.80D	3.000E-02(0)	564	6.600E-01
				696	3.280E-02
				1140	3.000E-02
				1260	7.000E-02
72	SB124	60.00D	5.700E-03(0)	603	9.200E-01
				646	9.500E-02
				714	1.580E-01
				722	5.500E-01
				870	4.300E-02
				1322	7.900E-02
				1694	4.470E-01
				2090	3.500E-02
73	SC46	84.00D	3.900E-01(0)	885	1.000E 00
				1119	1.000E 00
74	SE77	120.00D	1.700E-03(0)	121	1.540E-01
				136	5.160E-01
				200	1.650E-02
				265	5.550E-01
				400	2.350E-01
				713	1.070E-02
				902	1.380E-01
75	SE81M	24.00M	1.150E-01(0)	103	8.100E-02
76	SI31	2.60H	7.200E-05(0)	1260	7.000E-04
77	SM153	47.00H	1.500E-01(0)	103	3.300E-01
				170	2.000E-04
				543	6.500E-03
				615	0.300E-05
78	SN113	130.00D	6.500E-05(0)	260	2.000E-02
				392	6.950E-01
79	SN117M	14.00D	5.660E-06(1)	159	9.500E-01
80	SN123	40.00M	3.850E-05(0)	153	8.200E-01
81	SN125M	9.50M	6.050E-05(0)	326	9.570E-01
				640	3.000E-03
				1070	3.000E-03
				1394	1.700E-02
82	SR85	65.00D	5.300E-05(0)	513	9.920E-01
83	SR87M	2.80H	1.100E-03(0)	388	7.300E-01
84	TA182M	16.50M	0.000E-05(0)	180	1.900E-01
85	TA182	115.00D	6.300E-02(0)	100	1.330E-02
				114	2.920E-02
				152	1.180E-01
				179	5.400E-02
				222	1.190E-01
				1122	3.380E-01
				1189	1.510E-01
				1222	3.200E-01
				1231	1.680E-01

TABLE III (continued)

	ISOTOPE	HALF LIFE	SIGMA	ENERGY(KEV)	ABUNDANCE
86	TB160	73.0D	8.000E-02(0)	197 299 391 830 964 1199 1270	1.120E-01 5.000E-01 3.300E-02 3.300E-01 3.500E-01 1.600E-01 8.000E-02
87	I131	8.10D	3.600E-04(0)	284 364 637 723	5.150E-02 8.200E-01 9.250E-02 2.790E-02
88	PA233	27.0D	2.000E-02(0)	301 313 341 400	6.800E-02 4.650E-01 1.900E-02 2.000E-02
89	TI51	5.80M	9.400E-05(0)	323 605 933	9.590E-01 1.400E-02 4.200E-01
90	NP239	2.35D	7.000E-03(0)	106 228 278	3.950E-01 2.240E-01 2.850E-01
91	V52	3.75M	5.300E-02(0)	1440	1.000E 00
92	W187	24.00H	3.200E-02(0)	134 480 552 619 686 774 268	1.090E-01 2.080E-01 8.250E-02 5.150E-02 3.860E-01 4.120E-02 2.400E-02
93	YB169	32.0D	5.350E-03(0)	110 118 131 177 197 261 308	1.700E-01 1.730E-01 9.550E-03 2.040E-02 3.740E-01 5.250E-02 1.190E-01
94	YB175	4.20D	6.600E-02(0)	114 178 185 251 282 396	2.770E-02 1.240E-01 5.300E-03 3.430E-02 5.150E-03 8.250E-02
95	YB177	1.90H	2.400E-03(0)	118 140 147 950 1020 1120 1240	3.500E-03 2.700E-02 6.820E-02 3.200E-03 1.630E-02 2.200E-02 1.460E-02
96	ZN65	245.0D	8.450E-04(1)	511 1114	3.000E-02 4.400E-01
97	ZN69M	13.8H	1.700E-04(0)	438	9.470E-01
98	ZR95	65.0D	6.700E-05(0)	722 754	4.900E-01 4.900E-01
99	NB95	35.0D	8.700E-05(0)	765	9.980E-01
100	ZR97	17.0H	9.800E-06(0)	665 747 1350 1620 2200	9.985E-01 2.850E-01 4.000E-02 2.000E-02 6.000E-03

ted for the photopeaks. Therefore the cross-section (SIGMA) of each element is multiplied by the abundance (A) of the gamma ray considered and by the values of the detector efficiency derived by interpolation from the TAB1 array. A constant factor equal to $60 \times 10^{13}/10^{6} = 6 \times 10^{8}$ is introduced to reduce the specific activity at saturation to more convenient experimental conditions: a counting time of 1 minute, a thermal flux of 10^{13} neutrons/cm^2 sec and a weight of 1 microgram.

For the gamma ray having an energy larger than 1,022 KeV the double escape peak energy is derived and the specific activity computed by applying the same procedure with the TAB2 array. An index KP is added to the value of the specific activity. Index (2) means that the peak is a photoelectric peak; index (3) means that it is a double escape peak.

The different gamma peak are then classified according to their energy. The results in the order of increasing energies are given on Table IV which will be discussed in the next section.

OUTPUT DATA.

On Table IV the gamma peaks of 100 radioisotopes are reported in order of gamma ray energy. The energy in KeV is given in the first column. Peaks with energy lower than 100 KeV were omitted as the adsorption within the detector chamber can introduce a large discrepancy between the theoretical and the experimental values.
Moreover the presence of a high number of elements with low energy peaks makes the interpretation of the low energy region of the gamma spectrum very hard or even illusory in

TABLE IV

Gamma Peaks in order of increasing energies

	ISOTOPE	HALF LIFE	ENERGIES KEV	SPECIFIC ACTIVITY
1	A41	1.80H	1290	0.2521E 04
2	AG110M	260.00D	446	0.6233E 03
			619	0.5330E 03
			657	0.4023E 04
			677	0.5563E 03
			705	0.8029E 03
			764	0.1018E 04
			815	0.2377E 03
			885	0.3536E 04
			937	0.8024E 03
			1384	0.5500E 03
			1504	0.2029E 03
			492	0.2974E 02
3	AL28	2.30M	1780	0.9475E 03
			758	0.3722E 03
4	AS76	26.50H	561	0.1343E 05
			643	0.2222E 04
			1210	0.1101E 04
			1410	0.3347E 02
			2060	0.9235E 02
			1038	0.9377E 02
5	AU198	2.69D	412	0.4143E 06
			675	0.2033E 04
			1089	0.2412E 03
6	BA131	11.60D	124	0.2292E-00
			216	0.1010E-00
			330	0.2637E-01
			349	0.2938E-01
			374	0.3114E-01
			498	0.6912E-01
			620	0.4437E-02
			320	0.1913E-03
			920	0.5822E-03
			1030	0.8057E-03
7	BA139	1.42H	166	0.1603E 04
			1410	0.7501E 02
8	BR80	18.00M	620	0.3406E 04
9	BR82	35.90H	554	0.7979E 04
			619	0.4509E 04
			698	0.2319E 04
			777	0.6098E 04
			828	0.1916E 04
			1044	0.1535E 04
			1317	0.1065E 04
			1475	0.5940E 03
			453	0.5771E 02

TABLE IV (continued)

	ISOTOPE	HALF LIFE	ENERGIES KEV	SPECIFIC ACTIVITY
10	CA47	4.80D	480 330 1290	0.8294E-02 0.3362E-02 0.2938E-01
11	CA49	8.8CM	3100 4050 4630 2028 3028 3658	0.2451E 01 0.1797E-00 0.7645E-02 0.9852E 01 0.1413E 01 0.9266E-01
12	CD111M	6.70H	150 246	0.1966E 03 0.4041E 02
13	CD115	55.00H	230 260 263 490 520	0.3435E 02 0.8373E 05 0.8089E 01 0.2561E 03 0.4624E 03
14	IN115M	4.50H	335	0.1284E 04
15	CE141	32.00D	142	0.4123E 04
16	CE143	33.00H	232 294 351 493 668 722	0.7173E 02 0.4339E 03 0.3435E 01 0.2462E 02 0.2780E 02 0.2511E 03
17	CL38	37.5C1	1590 2164 568 1642	0.1749E 03 0.2623E 02 0.2476E 02 0.1222E 03
18	CO60	5.25Y	1172 1332	0.1708E 06 0.1130E 06
19	CR51	27.80D	325	0.1730E 04
20	CS134M	3.20H	127 137	0.3365E 04 0.3730E 01
21	CS134	2.20Y	475 563 569 605 796 801 1038 1168 1368	0.2281E 04 0.9859E 04 0.1598E 05 0.1811E 06 0.6407E 05 0.6375E 04 0.5502E 03 0.2041E 03 0.1291E 04
22	CU64	12.8CH	511 1340	0.1077E 05 0.4121E 02
23	CU66	5.1CM	830 1040	0.5832E 01 0.1932E 03
24	DY165	2.32H	94 279 355	0.1418E 07 0.5748E 05 0.7963E 05
25	ER171	7.5CH	112 117 124 296 308	0.6713E 04 0.4560E 03 0.2131E 04 0.2026E 04 0.2175E 04
26	EU152M	9.2CH	122 344 357 961 983 1327 1410	0.1216E 07 0.1334E 04 0.1436E 06 0.1241E 06 0.1233E 05 0.1298E 05 0.1760E 05
27	EU152	12.5CY	121 245 344 412 738 872 964 1090 1200 1420	0.2516E 08 0.4954E 07 0.6452E 07 0.1260E 06 0.7451E 06 0.3402E 06 0.8307E 06 0.7236E 06 0.2562E 06 0.9381E 06
28	EU154	16.0CY	123 248 593 694 706 725 759 875 993 1007 1277	0.2045E 07 0.2425E 06 0.2274E 05 0.2338E 04 0.5922E 04 0.1112E 06 0.3790E 05 0.5962E 05 0.5369E 05 0.6471E 05 0.1230E 06
29	FE59	45.0CD	145 191 1098 1289	0.1207E 01 0.4026E 01 0.7516E 01 0.4654E 01

TABLE IV (continued)

	ISOTOPE	HALF LIFE	ENERGIES KEV	SPECIFIC ACTIVITY
30	GA72	14.20H	601	0.8622E 03
			630	0.2668E 04
			834	0.6034E 04
			894	0.6538E 03
			1050	0.3044E 03
			1595	0.3718E 03
			1959	0.1369E 03
			2203	0.6176E 02
			2491	0.1685E 03
			2508	0.2271E 03
			573	0.5765E 02
			937	0.1019E 03
			1181	0.8110E 02
			1469	0.3560E 03
			1836	0.6820E 03
31	GD159	18.00H	220	0.6687E 02
			300	0.8646E 01
			364	0.1300E 04
32	GE75	1.33H	199	0.8537E 02
			264	0.5233E 03
			427	0.6039E 01
			477	0.4709E 01
			628	0.2359E 01
33	GE77	12.00H	210	0.1192E 03
			215	0.1254E 03
			265	0.2140E 03
			368	0.3910E 02
			416	0.5167E 02
			563	0.1733E 02
			632	0.1104E 02
			709	0.8428E 01
			920	0.3956E 01
			1080	0.4020E 01
			1370	0.2695E 01
34	HF175	70.00D	114	0.1968E 03
			230	0.2071E 04
			343	0.1644E 05
			430	0.1345E 03
35	HF180M	5.5OH	216	0.8918E 05
			332	0.5895E 05
			443	0.3054E 05
			501	0.6303E 04
36	HF181	45.00D	133	0.3330E 05
			136	0.4593E 04
			137	0.1321E 04
			346	0.3462E 04
			482	0.1250E 05
			616	0.2016E 04
37	HG197M	24.00H	133	0.4170E 04
			164	0.5563E 03
38	HG197	2.70D	192	0.1433E 03
39	HG203	46.50D	279	0.7722E 04
40	HO166	27.3OH	80	0.1580E 06
			1360	0.6449E 03
			1530	0.1095E 03
			1610	0.5175E 02
			508	0.1430E 02
			588	0.3756E 01
41	I128	25.00M	450	0.5766E 04
			540	0.4356E 03
			750	0.3120E 02
			990	0.3332E 02
42	IN114M	49.00D	192	0.9526E 04
			556	0.3735E 03
			722	0.2633E 03
			1299	0.3784E 01
43	IN116M	54.00M	137	0.1071E 06
			406	0.2224E 06
			1035	0.1657E 06
			1274	0.1338E 06
			1487	0.4277E 05
			2090	0.3002E 05
			465	0.4426E 04
			1068	0.3229E 05
44	IR192	74.00D	201	0.1341E 05
			206	0.1108E 06
			283	0.1270E 05
			296	0.8083E 06
			302	0.7496E 06
			317	0.1233E 07
			375	0.2339E 05
			417	0.2161E 05
			468	0.7071E 06
			485	0.3456E 05
			588	0.5459E 05
			605	0.1039E 06
			613	0.6088E 05
			885	0.2301E 04

TABLE IV (continued)

	ISOTOPE	HALF LIFE	ENERGIES KEV	SPECIFIC ACTIVITY
45	IR194	19.0CH	293	0.3021E 05
			329	0.1374E 06
			620	0.3135E 04
			643	0.1048E 05
			937	0.3235E 04
			1150	0.2511E 04
			1478	0.1251E 03
			456	0.1235E 02
46	K42	12.5CH	1530	0.6366E 02
			308	0.8316E 01
47	LA140	40.2CH	329	0.2218E 05
			488	0.2953E 04
			487	0.1988E 05
			815	0.8943E 04
			1600	0.8854E 04
			2500	0.3849E 02
			578	0.1356E 04
			1478	0.8748E 02
48	LU177	6.8CD	113	0.7811E 05
			208	0.9301E 05
			250	0.1038E 05
			351	0.5557E 04
49	MG27	9.5CM	172	0.4723E 01
			843	0.5165E 02
			1015	0.1708E 02
50	MN56	2.6CH	845	0.6734E 05
			1806	0.7340E 04
			2131	0.2075E 04
			2651	0.2546E 03
			3374	0.4933E 02
			784	0.3172E 04
			1133	0.3836E 04
			1639	0.7077E 03
			1954	0.1308E 03
51	MO99	66.0CH	140	0.5347E 04
			181	0.3339E 03
			372	0.1016E 02
			740	0.3555E 02
			780	0.3315E 01
52	MO101	14.6CM	130	0.1632E 02
			188	0.1913E 01
			192	0.5147E 02
			295	0.2284E 01
			307	0.2491E 03
			545	0.7037E 01
			960	0.3770E 02
53	NA24	15.0CH	1368	0.3329E 04
			2754	0.1165E 04
			1732	0.1562E 04
54	NB94M	6.6CM	878	0.3345E 01
55	ND147	11.5CD	121	0.4860E 02
			277	0.6267E 02
			321	0.8231E 02
			412	0.3791E 01
			441	0.3006E 02
			535	0.1437E 02
			600	0.4212E 01
			683	0.6054E 01
56	NI65	2.6CH	768	0.9817E 01
			1114	0.7463E 01
			1482	0.3403E 01
			460	0.9473E 00
57	OS191	16.0CD	129	0.1027E 05
58	OS193	32.0CH	139	0.4875E 04
			281	0.2398E 03
			321	0.1131E 03
			388	0.1756E 03
			460	0.5578E 04
59	PR142	19.2CH	1570	0.4515E 03
			548	0.6734E 02
60	PT197	18.0CH	191	0.5050E 02
			279	0.1325E 02
61	PT199	30.0CM	197	0.4335E 02
			246	0.2325E 03
			518	0.4185E 03
			475	0.3166E 03
			540	0.4682E 03
			720	0.9500E 01
			790	0.8377E 01
			960	0.1562E 01
62	AU199	3.2CD	158	0.2979E 04
			208	0.4737E 03
63	RB86	19.0CD	1077	0.8431E 02

TABLE IV (continued)

	ISOTOPE	HALF LIFE	ENERGIES KEV	SPECIFIC ACTIVITY
64	RB88	17.8CM	908	0.2123E 02
			1390	0.1210E 01
			1850	0.1545E 02
			2110	0.4773E-00
			2680	0.8265E 00
			3010	0.9317E-01
			3240	0.8372E-01
			4370	0.3214E-01
			808	0.6723E 01
			1083	0.5338E 00
			1658	0.8339E 01
			1938	0.3449E-00
			2218	0.3790E-00
			3848	0.5219E 00
65	RE186	3.8CD	123	0.8527E 04
			137	0.8794E 05
			631	0.7582E 02
			768	0.3375E 02
66	RE188	17.00H	155	0.6658E 05
			478	0.9737E 03
			633	0.1051E 04
67	RU97	2.8CD	109	0.5714E 01
			216	0.2075E 03
			325	0.8758E 01
68	RU103	40.00D	440	0.1732E 02
			498	0.2642E 04
			560	0.1143E 02
			610	0.1274E 03
69	RU105	4.50H	130	0.1186E 04
			726	0.4733E 03
70	S37	5.04M	3100	0.3719E-01
			2078	0.1494E-00
71	SB122	2.80D	564	0.1155E 05
			686	0.4533E 03
			1140	0.2122E 03
			1260	0.4378E 03
72	SB124	60.00D	603	0.3923E 04
			646	0.3661E 03
			714	0.5714E 03
			723	0.1335E 04
			970	0.1006E 03
			1332	0.1321E 03
			1694	0.5151E 03
			2090	0.2356E 02
			672	0.1396E 03
			1068	0.3072E 02
73	SC46	84.00D	385	0.1490E 04
			1119	0.1130E 06
74	SE75	120.00D	121	0.1737E 04
			136	0.5253E 04
			200	0.1144E 03
			265	0.2319E 04
			280	0.1186E 04
			315	0.4104E 02
			402	0.3432E 03
75	SE81M	26.00M	103	0.6869E 05
76	SI31	2.60H	1260	0.1648E-01
77	SM153	47.00H	103	0.3650E 06
			170	0.1862E 03
			543	0.3001E 03
			615	0.1174E 02
78	SN113	120.00D	260	0.3294E 01
			392	0.7509E 02
79	SN117M	14.00D	159	0.1725E 02
80	SN123	40.00M	153	0.1630E 03
81	SN125M	9.50M	326	0.1245E 03
			640	0.1332E-00
			1070	0.7253E-01
			1394	0.2950E-00
82	SR85	65.00D	513	0.5432E 02
83	SR87M	2.80H	388	0.1413E 04
84	TA182M	16.50M	180	0.8755E 02
85	TA182	115.00D	100	0.6284E 04
			114	0.1272E 05
			152	0.3975E 05
			179	0.1577E 05
			222	0.2782E 05
			1122	0.7988E 04
			1189	0.3313E 04
			1222	0.6822E 04
			1231	0.3553E 04

TABLE IV (continued)

	ISOTOPE	HALF LIFE	ENERGIES KEV	SPECIFIC ACTIVITY
86	TB160	73.0CD	197	0.3960E 05
			299	0.3800E 05
			321	0.4289E 04
			330	0.1321E 05
			964	0.1289E 05
			1180	0.4493E 04
			1270	0.2374E 04
87	I131	8.10D	284	0.4977E 02
			364	0.5239E 03
			637	0.2476E 02
			722	0.6396E 01
88	PA233	27.0CD	301	0.3361E 04
			312	0.2116E 05
			341	0.7584E 03
			400	0.6240E 03
89	TI51	5.80M	323	0.1962E 03
			605	0.1054E 01
			928	0.1652E 02
90	ND239	2.35D	106	0.2004E 05
			228	0.5660E 04
			278	0.4008E 04
91	V52	3.75M	1440	0.1447E 05
92	W187	24.0CH	134	0.2118E 05
			480	0.7520E 04
			552	0.2766E 04
			619	0.1522E 04
			626	0.9427E 04
			772	0.7608E 03
			866	0.3920E 03
93	YB169	32.0CD	110	0.6439E 05
			118	0.6154E 04
			131	0.3266E 04
			177	0.5166E 04
			197	0.7477E 05
			261	0.8581E 04
			308	0.1479E 05
94	YB175	4.20D	114	0.1264E 05
			133	0.7579E 03
			145	0.1962E 04
			251	0.7275E 03
			283	0.9037E 04
			396	0.9335E 04
95	YB177	1.9CH	118	0.5665E 02
			140	0.3771E 02
			147	0.3382E 03
			250	0.3502E 01
			1070	0.1521E 02
			1120	0.1936E 01
			1240	0.1167E 02
96	ZN65	245.0CD	511	0.2637E 02
			1114	0.1411E 03
97	ZN69M	13.8CH	439	0.2144E 03
98	ZR95	65.0CD	722	0.2672E 02
			754	0.3543E 02
99	NB95	35.0CD	765	0.5100E 02
100	ZR97	17.0CH	665	0.6234E 01
			747	0.5320E 01
			1350	0.1176E-00
			1620	0.4410E-01
			2200	0.1411E-01
			523	0.2408E-02
			1173	0.1235E-01

FIGURE 3. Schematic representation of the counting geometry used in this work.

a) Source-crystal distance: 9 mm

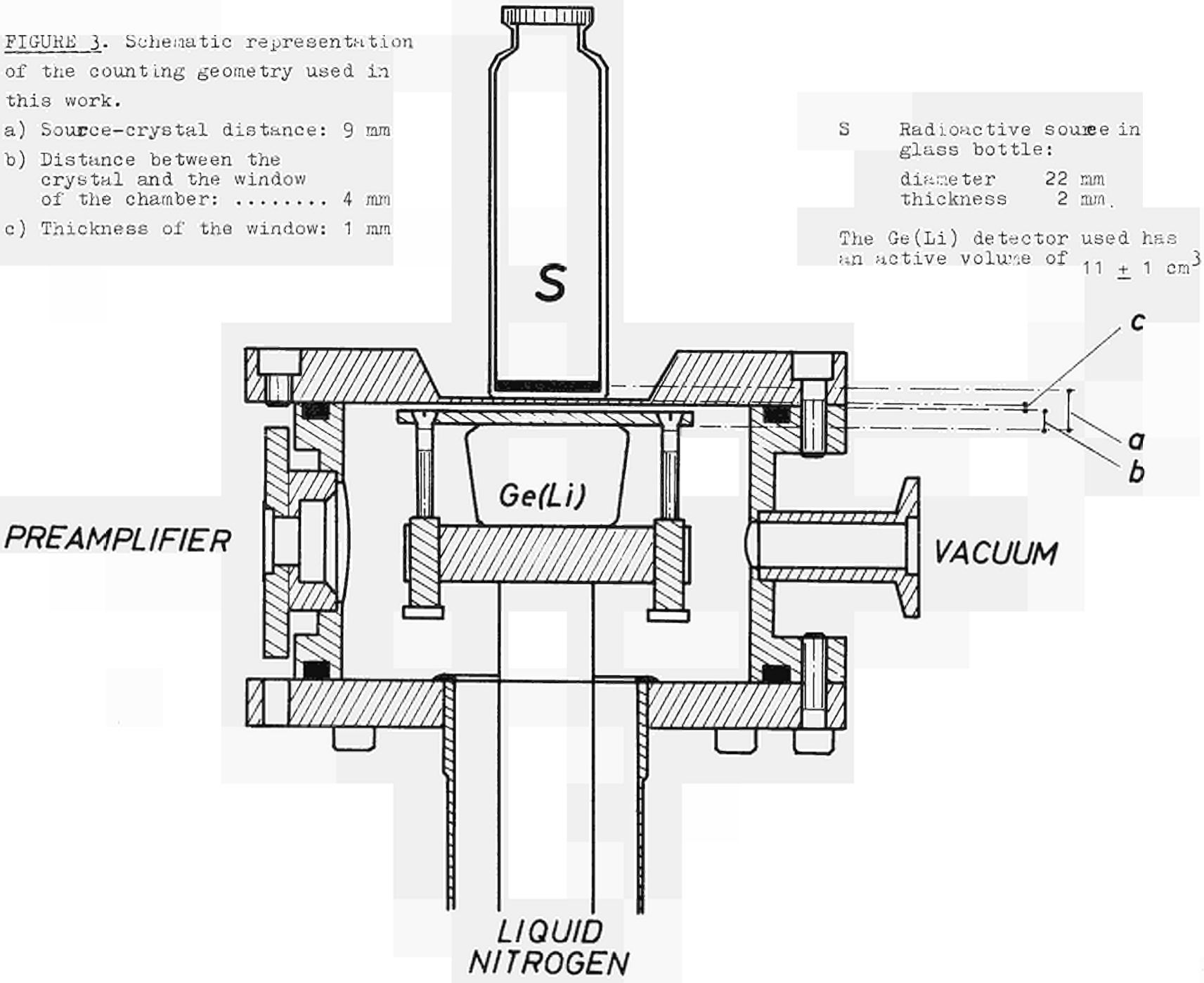
b) Distance between the crystal and the window of the chamber: ..... 4 mm

c) Thickness of the window: 1 mm

S Radioactive source in glass bottle:

diameter 22 mm
thickness 2 mm.

The Ge(Li) detector used has an active volume of 11 ± 1 cm^3



activation analysis. The symbol of the isotope is given next. It is followed between parenthesis by the value of the index KD which is (0) if all the numerical data used for the isotope are taken from the literature.
If some experimental values have been adopted this index is (1).

In the third column the half-life is reported then the energies for the different peaks produced by the isotope, are given. The values corresponding to photoelectric peaks are proceded by the index (2), for the double escape peaks the index (3) has been chosen.

Then the specific activity in c.p.m. under the peaks for the particular detector considered, is reported. It corresponds to the saturation and the irradiation of one μgm of element at a flux of 10^{13} thermal neutrons/cm^2 sec.

The last column gives the relative specific activity in percents of the largest peak.
An exemple of the output data, obtained for a Ge-Li drifted detector of a coaxial type, with an active volume of 11 cm^3, is given in Appendix 2. The source geometry is a thin disk of 22 mm diameter, placed at 9 mm from the upper surface of the detector, as shown on Figure 3.

ACKNOWLEDGEMENT.

Drs. F.Cappellani and G.Restelli who have furnished us the Ge-Li drifted detector used in this work, are gratefully acknowledged.

REFERENCES.

(1) Salmon, L., Report A.E.R.E. C/R 2377 (1) (1959).

(2) Schulze, W., Neutronenaktivierung als analytisches Hilfsmittel, Ferdinand Enke, Stuttgart, 1962.

(3) Heath, R.L., A.E.C. Report IDO 16880-1 (1964).

(4) Crouthamel, C.E., Applied Gamma Ray Spectrometry, Pergamon Press, Oxford, 1960.

(5) P.G. Report 223 (W) (1961).

(6) Rakow, A., Tabelle zur Identifizierung unbekannter Gammaspektren, Thiemig, München, 1961.

(7) Westermark, T., Sjöstrand, B., Int. Journ. Appl. Rad. and Isotopes, Vol. 9 pp. 63-77 (1960).

(8) Girardi, F., Guzzi, G., Pauly, J., Report EUR 1898.e (1964).

(9) Girardi, F., Guzzi, G., Pauly, J., Report EUR 2408.e (1965).

(10) Girardi, F., Guzzi, G., Pauly, J., Radiochimica Acta, 4, 109-110 (1965).

(11) Prussin, S.G., Harris, J.A., Hollander, J.M., Anal. Chem. Vol. 37, 1127 (1965).

(12) Schroeder, G.L., Evans, R.D., Ragaini, R.C., Anal. Chem. Vol. 38, 432 (1966).

(13) Strominger, D., Hollander, J.M., Seaborg, G.T., Rev. Modern Physics, Vol. 30 n°2, Part 2 (April 1958).

(14) Girardi, F., Guzzi, G., Pauly, J., Anal. Chem. Vol. 36, 1588 (1964).

A P P E N D I X 1

Listing of the program LIBRAR

```
C
C      THIS PROGRAM TRANSFORMS THE GIVEN LIST OF RADIOISOTOPES IN DIFFERE
C     1NT LIBRARIES
C      CALCULATES THE ENERGIES DUE TO DOUBLE ESCAPE PEAKS FORMATION ,THE
C     1SPECIFIC ACTIVITIES AND THE RELATIVE ABUNDANCE OF EACH PHOTOPEAK
C
       DIMENSION M(10),NUM(5000),TAB1(150),TAB2(150),ELEM(130),TP(130),T(
      1130),NE(130),SIGMA(130),KV(20),A(20),AB(130,20),KEV(130,20),NEP(13
      20),LUM(500),MX(10)
       DIMENSION KD(130),KP(130,20)
C
       M(1)=1                                                              ,1
       M(2)=123                                                            ,2
       M(3)=M(2)*123                                                       ,3
       M(4)=M(3)*123                                                       ,4
       M(5)=M(4)*123                                                       ,5
       DO 1  I=1,5000                                                      ,6
     1 NUM(I)=0
C                                                                          ,7      ,8
       READ (5,101) L2,L3,NTAB1,NTAB2                                      ,9      ,10     ,11     ,12     ,13     ,14

       READ (5,102) (TAB1(I),I=1,NTAB1)                                    ,15     ,16     ,17     ,18     , 9
       READ (5,103) (TAB2(I),I=1,NTAB2)
C                                                                          ,20     ,21     ,22     ,23     ,24
       WRITE (6,105) (I,I=1,5)                                             ,25     ,26     ,27     ,28     ,29
       WRITE (6,107) (TAB1(I),I=1,NTAB1)                                   ,30     ,31     ,32     ,33     ,34
       WRITE (6,206) (I,I=1,5)                                             ,35     ,36     ,37     ,38     ,39
       WRITE (6,107) (TAB2(I),I=1,NTAB2)
C                                                                          ,40     ,41     ,42     ,43     ,44
  101 FORMAT (4I3)
  103 FORMAT (9E8.3)
  105 FORMAT (1H1,28HGAMMA PEAKS EFFICIENCY TABLE/1H0,6X11,4(10X11)/1H0)
  206 FORMAT (1H1,36HDOUBLE ESCAPE PEAKS EFFICIENCY TABLE/1H0,6X11,4(10X
     1I1)/1H0)
  107 FORMAT ((1H0,1P5E11.3))
  111 FORMAT (A6,F5.2,A1,I6,E9.3,44X,I1)
  113 FORMAT (6(I4,E8.3))
  115 FORMAT (1H0,19HWARNING.............,I6,I6,I6/1H0)
C
       READ (5,101) NELEM                                                  ,45     ,46     ,47
       NEF=1000                                                            ,48
       DO 20 J=1,NELEM                                                     ,49
       READ (5,111) ELEM(J),TP(J),T(J),NE(J),SIGMA(J),KD(J)                ,50     ,51     ,52
       IF(NEF-45)154,155,155                                               ,53
  155 WRITE (6,209)                                                        ,54     ,55
       NEF=0                                                               ,56
  154 KE=NE(J)                                                             ,57
       KEF=KE                                                              ,58
       READ (5,113) (KV(I),A(I),I=1,KE)                                    ,59     ,60     ,61     ,62     ,63
       WRITE (6,208) J,ELEM(J),TP(J),T(J),SIGMA(J),KD(J)                   ,64     ,65     ,66
       WRITE (6,210) (KV(I),A(I),I=1,KE)                                   ,67     ,68     ,69     ,70     ,71
       NEF=NEF+KEF+1                                                       ,
  209 FORMAT (1H1,65H     ISOTOPE   HALF LIFE       SIGMA       ENERGY(KE
     1V)   ABUNDANCE//)
  208 FORMAT (1H0,I3,A9,F9.2,A2,6X,1PE9.3,1H(I1,1H))
```

```
  210 FORMAT (1H+,45X,I4,7X,1PE9.3/(46X,I4,7X,1PE9.3))
C
      DO 10 K=1,KE
      IT=KV(K)/50+1
      EV=KV(K)-50*(IT-1)
      EV=EV/50.0
      AB(J,K)=A(K)*(TAB1(IT)+EV*(TAB1(IT+1)-TAB1(IT)))*SIGMA(J)*6.E+3
      KP(J,K)=2
      KEV(J,K)=KV(K)
      IF(IT-30)10,2,2
    2 KEF=KEF+1
      KEV(J,KEF)=KV(K)-1000
      AB(J,KEF)=A(K)*(TAB2(IT)+EV*(TAB2(IT+1)-TAB2(IT)))*SIGMA(J)*6.E+3
      KP(J,KEF)=3
   10 CONTINUE
      NEP(J)=KEF
      DO 20 I=1,KEF
      IND=KEV(J,I)
      DO 11 K=1,5
      IF(NUM(IND)/M(K))12,12,11
   11 CONTINUE
      WRITE (6,115) J,I,KEV(J,I)
      GO TO 20
   12 NUM(IND)=J*M(K)+NUM(IND)
   20 CONTINUE
      K=0
      DO 30 I=1,5000
      IF(NUM(I))30,30,24
   24 K=K+1
      NUM(K)=NUM(I)
      LUM(K)=I
   30 CONTINUE
      KLUM=K
C
   31 DO 40 I=1,K
      IF(MOD(I,50)-1)33,32,33
   32 WRITE (6,121)
   33 DO 34 J=1,5
      MX(J)=MOD(NUM(I)/M(J),100)
      IF(MX(J))34,36,34
   34 CONTINUE
      GO TO 38
   36 J=J-1
   38 DO 39 I2=1,5
      IND=MX(I2)
   39 A(I2)=ELEM(IND)
      WRITE (6,123)I,LUM(I),(MX(KA),A(KA),KA=1,J)

   40 CONTINUE
C
      IF(L2)999,999,41
   41 LET=1000
      DO 50 I=1,NELEM
      IF(LET-48)44,42,42
   42 WRITE (6,123)
      LET=0
```

```
   44 WRITE (6,125) I,ELEM(I),TP(I),T(I),KEV(I,1),AB(I,1)
      KEF=NEP(I)
      IF(KEF-1)50,50,46
   46 DO 48 J=2,KEF
   48 WRITE (6,127) KEV(I,J),AB(I,J)
   50 LET=LET+KEF+1
C
      IF(L3) 999,999,100
  100 LET=1000
      DO 150 MI=1,K
      DO 106 J=1,5
      MX(J)=MOD(NUM(MI)/M(J),100)
      IF(MX(J))106,103,106
  106 CONTINUE
      GO TO 110
  108 J=J-1
  110 JX=J
      DO 140 I2=1,JX
      I=MX(I2)
      KEF=NEP(I)
      BIG=0.0
      DO 114 J=1,KEF
      IF(BIG-AB(I,J))112,114,114
  112 BIG=AB(I,J)
  114 CONTINUE
      DO 116 J=1,KEF
  116 A(J)=AB(I,J)*100.0/BIG
      IF(LET-45)120,118,118
  118 WRITE (6,129)
      LET=0
  120 WRITE (6,131) NUM(MI),ELEM(I),KD(I),TP(I),T(I),KP(I,1),KEV(I,1),AB
     1(I,1),A(1)
      IF(KEF-1)126,126,122
  122 DO 124 J=2,KEF
  124 WRITE (6,133) KP(I,J),KEV(I,J),AB(I,J),A(J)
  126 LET=LET+KEF+1
  140 CONTINUE
  150 CONTINUE
C
  121 FORMAT (1H1,5X11HENERGY(KEV),20X8HISOTOPES/1H0)
  123 FORMAT (1H ,I3,6XI4,5(2XI4,A8))
  125 FORMAT (1H0,I3,A9,F9.2,A2,11X,I6,6X,E14.4)
  127 FORMAT (1H ,34X,I6,6X,E14.4)
  128 FORMAT (1H1,5X,7HISOTOPE,2X,9HHALF LIFE,11X,8HENERGIES,10X,9HSPECI
     1FIC/37X,3HKEV,13X,8HACTIVITY////)
  129 FORMAT (1H1,2X,6HENERGY,6X,7HISOTOPE,4X,9HHALF LIFE,11X,8HENERGIES
     1,3X,8HSPECIFIC,4X,8HRELATIVE/5X,3HKEV,41X,3HKEV,5X,8HACTIVITY,3X,9
     2HABUNDANCE////)
  131 FORMAT (1H0,I6,5X,A9,1H(I1,1H),F9.2,A2,9X,1H(I1,1H),I5,1PE14.3,0PF
     111.5)
  133 FORMAT (1H ,43X,1H(I1,1H),I5,1PE14.5,0PF11.5)
C
      WRITE (6,134)
  134 FORMAT (1H0////39H (0)  THEORETICAL VALUES OF ABUNDANCES//40H (1)
     1  EXPERIMENTAL VALUES OF ABUNDANCES//17H (2)  PHOTOPEAKS//25H (3)
     2 DOUBLE ESCAPE PEAKS)
  999 STOP
      END
```

A P P E N D I X 2 - Output data of the program

ENERGY KEV	ISOTOPE	HALF LIFE	ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
80	HO166(0)	27.30H	(2) 80	1.57992E 05	100.00000
			(2) 1360	6.44906E 02	0.40819
			(2) 1530	1.09477E 02	0.06929
			(2) 1610	5.17493E 01	0.03275
			(3) 508	1.43022E 01	0.00905
			(3) 588	8.75556E 00	0.00554
94	DY165(0)	2.32H	(2) 94	1.41810E 06	100.00000
			(2) 279	5.74785E 04	4.05320
			(2) 355	7.86758E 04	5.54798
100	TA182(0)	115.00D	(2) 100	6.28425E 03	15.80900
			(2) 114	1.27153E 04	31.98734
			(2) 152	3.97511E 04	100.00000
			(2) 179	1.57662E 04	39.66239
			(2) 222	2.78169E 04	69.97763
			(2) 1122	7.98781E 03	20.09456
			(2) 1189	3.31338E 03	8.33531
			(2) 1222	6.82214E 03	17.16216
			(2) 1231	3.55305E 03	8.93824
103	SE81M(0)	26.00M	(2) 103	6.86898E 04	100.00000
103	SM153(0)	47.00H	(2) 103	3.65013E 05	100.00000
			(2) 170	1.46160E 02	0.04004
			(2) 543	9.02070E 02	0.24713
			(2) 615	1.17450E 01	0.00322
106	NP239(0)	2.35D	(2) 106	2.00407E 04	100.00000
			(2) 228	5.65985E 03	28.24176
			(2) 278	4.80803E 03	23.99128
109	RU97(0)	2.80D	(2) 109	5.71398E 00	2.75311
			(2) 216	2.07547E 02	100.00000
			(2) 325	8.35812E 00	4.02711
110	YB169(0)	32.00D	(2) 110	6.43926E 04	86.12576
			(2) 118	6.13367E 03	8.20384
			(2) 131	3.26619E 03	4.36856
			(2) 177	5.16576E 03	6.90926
			(2) 197	7.47658E 04	100.00000
			(2) 261	8.58129E 03	11.47757
			(2) 308	1.47907E 04	19.78265
112	ER171(0)	7.50H	(2) 112	6.31319E 03	96.61030
			(2) 117	4.56019E 02	6.97843
			(2) 124	2.18131E 03	33.38046
			(2) 296	2.22640E 03	34.07046
			(2) 308	6.53470E 03	100.00000
113	LU177(0)	6.80D	(2) 113	7.81073E 04	79.69428
			(2) 208	9.80087E 04	100.00000
			(2) 250	1.03810E 04	10.59188
			(2) 351	5.55707E 03	5.66997
114	HF175(0)	70.00D	(2) 114	1.96821E 02	1.19717
			(2) 230	2.07095E 03	12.59662
			(2) 343	1.64405E 04	100.00000
			(2) 430	1.84531E 02	1.12242
114	TA182(0)	115.00D	(2) 100	6.28425E 03	15.80900
			(2) 114	1.27153E 04	31.98734
			(2) 152	3.97511E 04	100.00000
			(2) 179	1.57662E 04	39.66239
			(2) 222	2.78169E 04	69.97763
			(2) 1122	7.98781E 03	20.09456
			(2) 1189	3.31338E 03	8.33531
			(2) 1222	6.82214E 03	17.16216
			(2) 1231	3.55305E 03	8.93824
114	YB175(0)	4.20D	(2) 114	1.26365E 04	100.00000
			(2) 138	7.57896E 02	5.99767
			(2) 145	1.96238E 03	15.52942
			(2) 251	7.27541E 02	5.75745
			(2) 283	9.83735E 03	77.84860
			(2) 396	9.38504E 03	74.26920
117	ER171(0)	7.50H	(2) 112	6.31319E 03	96.61030
			(2) 117	4.56019E 02	6.97843
			(2) 124	2.18131E 03	33.38046
			(2) 296	2.22640E 03	34.07046
			(2) 308	6.53470E 03	100.00000
118	YB169(0)	32.00D	(2) 110	6.43926E 04	86.12576
			(2) 118	6.13367E 03	8.20384
			(2) 131	3.26619E 03	4.36856
			(2) 177	5.16576E 03	6.90926
			(2) 197	7.47658E 04	100.00000
			(2) 261	8.58129E 03	11.47757
			(2) 308	1.47907E 04	19.78265
118	YB177(0)	1.90H	(2) 118	5.66496E 01	6.75861
			(2) 140	3.77136E 01	4.49944
			(2) 147	8.38184E 02	100.00000
			(2) 950	3.50208E 00	0.41782
			(2) 1090	1.52099E 01	1.81462
			(2) 1120	1.98634E 00	0.23698
			(2) 1240	1.16683E 01	1.39210

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
121	EU152(0)	12.50Y	(2)	121	2.31630E 07	100.00000
			(2)	245	4.94445E 06	21.34633
			(2)	344	6.45192E 06	27.85442
			(2)	412	1.86000E 05	0.80300
			(2)	782	7.45056E 05	3.21658
			(2)	872	2.82184E 05	1.21825
			(2)	969	9.89691E 05	4.27272
			(2)	1090	7.28610E 05	3.14558
			(2)	1200	2.56162E 05	1.10591
			(2)	1420	9.38137E 05	4.05016
121	ND147(0)	11.50D	(2)	121	4.55980E 01	31.73153
			(2)	277	6.26661E 01	43.60918
			(2)	321	8.23081E 01	57.27797
			(2)	412	3.79142E 00	2.63844
			(2)	441	3.00643E 01	20.92167
			(2)	533	1.43699E 02	100.00000
			(2)	600	4.21200E 00	2.93112
			(2)	688	6.05405E 00	4.21299
121	SE75(0)	120.00D	(2)	121	1.73259E 03	32.98496
			(2)	136	5.25267E 03	100.00000
			(2)	200	1.14444E 02	2.17878
			(2)	265	2.81918E 03	53.67130
			(2)	280	1.18606E 03	22.58004
			(2)	315	4.10366E 01	0.78125
			(2)	402	3.63161E 02	6.91383
122	EU152M(0)	9.20H	(2)	122	1.21636E 06	100.00000
			(2)	344	1.28396E 05	10.55571
			(2)	837	1.43627E 05	11.80788
			(2)	961	1.24085E 05	10.20128
			(2)	983	1.12253E 04	0.92286
			(2)	1327	1.99255E 04	1.63812
			(2)	1410	1.36009E 04	1.11816
123	EU154(0)	16.00Y	(2)	123	2.04540E 06	100.00000
			(2)	248	2.42787E 05	11.86986
			(2)	593	2.99426E 04	1.46390
			(2)	694	2.98771E 03	0.14607
			(2)	706	2.92219E 03	0.14287
			(2)	725	1.19246E 05	5.82997
			(2)	759	3.79002E 04	1.85294
			(2)	875	5.96232E 04	2.91498
			(2)	998	5.36915E 04	2.62498
			(2)	1007	6.47141E 04	3.16388
			(2)	1277	1.23030E 05	6.01496
123	RE186(0)	3.80D	(2)	123	8.52687E 03	9.69609
			(2)	137	8.79413E 04	100.00000
			(2)	631	7.38173E 01	0.08394
			(2)	768	3.37534E 01	0.03838
124	BA131(0)	11.60D	(2)	124	2.29947E-01	100.00000
			(2)	216	1.01035E-01	43.93842
			(2)	239	2.63710E-02	11.46830
			(2)	249	2.93763E-02	12.77528
			(2)	374	3.11351E-02	13.54014
			(2)	498	6.91242E-02	30.06096
			(2)	620	4.48688E-03	1.95127
			(2)	820	1.91347E-04	0.08321
			(2)	920	5.89182E-04	0.25623
			(2)	1030	8.03722E-04	0.34953
124	ER171(0)	7.50H	(2)	112	6.31319E 03	96.61030
			(2)	117	4.56019E 02	6.97843
			(2)	124	2.18131E 03	33.38046
			(2)	296	2.22640E 03	34.07046
			(2)	308	6.53470E 03	100.00000
127	CS134M(0)	3.20H	(2)	127	3.56496E 03	100.00000
			(2)	137	3.32976E 00	0.09340
129	OS191(0)	16.00D	(2)	129	1.02698E 04	100.00000
130	MO101(0)	14.60M	(2)	130	1.63238E 01	3.17129
			(2)	183	1.91840E 00	0.37269
			(2)	192	5.14738E 02	100.00000
			(2)	235	2.98356E 00	0.57963
			(2)	307	2.49143E 02	48.40191
			(2)	545	7.98660E 00	1.55159
			(2)	960	3.76992E 01	7.32396
130	RU105(0)	4.50H	(2)	130	1.18560E 03	100.00000
			(2)	726	4.73274E 02	39.91849
131	YB169(0)	32.00D	(2)	110	6.43926E 04	86.12576
			(2)	118	6.13367E 03	8.20384
			(2)	131	3.26619E 03	4.36856
			(2)	177	5.16576E 03	6.90926
			(2)	197	7.47658E 04	100.00000
			(2)	261	8.58129E 03	11.47757
			(2)	308	1.47907E 04	19.78265

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
133	HF181(1)	45.00D	(2)	133	3.33030E 04	100.00000
			(2)	136	4.59280E 03	13.79096
			(2)	137	1.39136E 03	4.17790
			(2)	346	3.46245E 03	10.39683
			(2)	482	1.25012E 04	37.53785
			(2)	616	2.01589E 03	6.05318
133	HG197M(0)	24.00H	(2)	133	4.17036E 03	100.00000
			(2)	164	5.56262E 02	13.33846
134	W187(0)	24.00H	(2)	134	2.11791E 04	100.00000
			(2)	480	7.52026E 03	35.50785
			(2)	552	2.36650E 03	11.17371
			(2)	619	1.52181E 03	7.18542
			(2)	626	9.42705E 03	44.51101
			(2)	774	7.60750E 02	3.59198
			(2)	866	3.92049E 02	1.85111
136	HF181(1)	45.00D	(2)	133	3.33030E 04	100.00000
			(2)	136	4.59280E 03	13.79096
			(2)	137	1.39136E 03	4.17790
			(2)	346	3.46245E 03	10.39683
			(2)	482	1.25012E 04	37.53785
			(2)	616	2.01589E 03	6.05318
136	SE75(0)	120.00D	(2)	121	1.73259E 03	32.98496
			(2)	136	5.25267E 03	100.00000
			(2)	200	1.14444E 02	2.17878
			(2)	265	2.81918E 03	53.67130
			(2)	280	1.18606E 03	22.58004
			(2)	315	4.10366E 01	0.78125
			(2)	402	3.63161E 02	6.91383
137	CS134M(0)	3.20H	(2)	127	3.56496E 03	100.00000
			(2)	137	3.32976E 00	0.09340
137	HF181(1)	45.00D	(2)	133	3.33030E 04	100.00000
			(2)	136	4.59280E 03	13.79096
			(2)	137	1.39136E 03	4.17790
			(2)	346	3.46245E 03	10.39683
			(2)	482	1.25012E 04	37.53785
			(2)	616	2.01589E 03	6.05318
137	IN116M(0)	54.00M	(2)	137	1.07135E 05	36.63674
			(2)	406	2.92425E 05	100.00000
			(2)	1085	1.65658E 05	56.64970
			(2)	1274	1.88838E 05	64.57653
			(2)	1487	4.27715E 04	14.62646
			(2)	2090	3.00222E 04	10.26663
			(3)	465	4.42555E 03	1.51340
			(3)	1068	3.22920E 04	11.04283
137	RE186(0)	3.80D	(2)	123	8.52687E 03	9.69609
			(2)	137	8.79413E 04	100.00000
			(2)	631	7.38173E 01	0.08394
			(2)	768	3.37534E 01	0.03838
138	YB175(0)	4.20D	(2)	114	1.26365E 04	100.00000
			(2)	138	7.57896E 02	5.99767
			(2)	145	1.96238E 03	15.52942
			(2)	251	7.27541E 02	5.75745
			(2)	283	9.83735E 03	77.84860
			(2)	396	9.38504E 03	74.26920
139	OS193(0)	32.00H	(2)	139	4.87484E 03	87.39767
			(2)	281	2.39833E 02	4.29981
			(2)	321	1.13108E 02	2.02783
			(2)	388	1.75638E 02	3.14889
			(2)	460	5.57777E 03	100.00000
140	MO99(0)	66.00H	(2)	140	5.74725E 03	100.00000
			(2)	181	2.38885E 02	4.15650
			(2)	372	1.01591E 01	0.17677
			(2)	740	3.65522E 01	0.63600
			(2)	780	3.31487E 00	0.05768
140	YB177(0)	1.90H	(2)	118	5.66496E 01	6.75861
			(2)	140	3.77136E 01	4.49944
			(2)	147	8.38184E 02	100.00000
			(2)	950	3.50208E 00	0.41782
			(2)	1090	1.52099E 01	1.81462
			(2)	1120	1.98634E 00	0.23698
			(2)	1240	1.16683E 01	1.39210
142	CE141(0)	32.00D	(2)	142	4.12304E 03	100.00000
145	FE59(0)	45.00D	(2)	145	1.90740E 00	25.37672
			(2)	191	4.09568E 00	54.49029
			(2)	1098	7.51634E 00	100.00000
			(2)	1289	4.65355E 00	61.91240
145	YB175(0)	4.20D	(2)	114	1.26365E 04	100.00000
			(2)	138	7.57896E 02	5.99767
			(2)	145	1.96238E 03	15.52942
			(2)	251	7.27541E 02	5.75745
			(2)	283	9.83735E 03	77.84860
			(2)	396	9.38504E 03	74.26920

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV		SPECIFIC ACTIVITY		RELATIVE ABUNDANCE
147	YB177(0)	1.90H	(2)	113	5.66496E	01		6.75861
			(2)	140	3.77136E	01		4.49944
			(2)	147	8.38184E	02		100.00000
			(2)	950	3.50208E	00		0.41782
			(2)	1090	1.52099E	01		1.81462
			(2)	1130	1.98634E	00		0.23698
			(2)	1240	1.16683E	01		1.39210
150	CD111M(0)	6.70H	(2)	150	1.96560E	02		48.63663
			(2)	246	4.04140E	02		100.00000
152	TA182(0)	115.00D	(2)	100	6.28425E	03		15.80900
			(2)	114	1.27153E	04		31.98734
			(2)	152	3.97511E	04		100.00000
			(2)	179	1.57662E	04		39.66239
			(2)	222	2.78169E	04		69.97763
			(2)	1122	7.98781E	03		20.09456
			(2)	1189	3.31338E	03		8.33531
			(2)	1222	6.82214E	03		17.16216
			(2)	1231	3.55305E	03		8.93824
153	SN123(0)	40.00M	(2)	153	1.67978E	02		100.00000
155	RE188(0)	17.00H	(2)	155	6.63768E	04		100.00000
			(2)	478	9.73728E	02		1.46697
			(2)	633	1.05084E	03		1.58314
158	AU199(0)	3.20D	(2)	158	2.97941E	03		100.00000
			(2)	208	4.73709E	02		15.89942
159	SN117M(1)	14.00D	(2)	159	1.79497E	01		100.00000
164	HG197M(0)	24.00H	(2)	137	4.17036E	03		100.00000
			(2)	164	5.56262E	02		13.33846
166	BA139(1)	1.42H	(2)	166	1.60279E	03		100.00000
			(2)	1410	7.50120E	01		4.68010
170	SM153(0)	47.00H	(2)	103	3.65013E	05		100.00000
			(2)	170	1.46160E	02		0.04004
			(2)	543	9.02070E	02		0.24713
			(2)	615	1.17450E	01		0.00322
172	MG27(0)	9.50M	(2)	172	4.72282E	00		9.14390
			(2)	343	5.16499E	01		100.00000
			(2)	1015	1.70907E	01		33.07019
177	YB169(0)	32.00D	(2)	110	6.43926E	04		86.12576
			(2)	118	6.13367E	03		8.20384
			(2)	131	3.26619E	03		4.36856
			(2)	177	5.16576E	03		6.90926
			(2)	197	7.47658E	04		100.00000
			(2)	261	8.58129E	03		11.47757
			(2)	308	1.47907E	04		19.78265
179	TA182(0)	115.00D	(2)	100	6.28425E	03		15.80900
			(2)	114	1.27153E	04		31.98734
			(2)	152	3.97511E	04		100.00000
			(2)	179	1.57662E	04		39.66239
			(2)	222	2.78169E	04		69.97763
			(2)	1122	7.98781E	03		20.09456
			(2)	1189	3.31338E	03		8.33531
			(2)	1222	6.82214E	03		17.16216
			(2)	1231	3.55305E	03		8.93824
180	TA182M(0)	16.50M	(2)	180	8.75520E	01		100.00000
181	MO99(0)	66.00H	(2)	140	5.74725E	03		100.00000
			(2)	181	2.38985E	02		4.15650
			(2)	372	1.01591E	01		0.17677
			(2)	740	3.65522E	01		0.63600
			(2)	780	3.31487E	00		0.05768
183	MO101(0)	14.60M	(2)	130	1.63238E	01		3.17129
			(2)	183	1.91840E	00		0.37269
			(2)	192	5.14738E	02		100.00000
			(2)	235	2.98356E	00		0.57963
			(2)	307	2.49143E	02		48.40191
			(2)	545	7.99660E	00		1.55159
			(2)	960	3.76992E	01		7.32396
191	FE59(0)	45.00D	(2)	145	1.90740E	00		25.37672
			(2)	191	4.09568E	00		54.49029
			(2)	1098	7.51634E	00		100.00000
			(2)	1289	4.65355E	00		61.91240
191	PT197(0)	18.00H	(2)	191	5.04986E	01		100.00000
			(2)	279	1.82511E	01		36.14169
192	HG197(0)	2.70D	(2)	192	1.43335E	02		100.00000
192	IN114M(0)	49.00D	(2)	192	9.52646E	03		100.00000
			(2)	556	3.73464E	02		3.92028
			(2)	722	2.63290E	02		2.76377
			(2)	1299	3.78360E	00		0.03972

ENERGY KEV	ISOTOPE	HALF LIFE	ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
192	MO101(0)	14.60M	(2) 130	1.63238E 01	3.17129
			(2) 183	1.91840E 00	0.37269
			(2) 192	5.14738E 02	100.00000
			(2) 235	2.98356E 00	0.57963
			(2) 307	2.49143E 02	48.40191
			(2) 545	7.98660E 00	1.55159
			(2) 960	3.76992E 01	7.32396
197	PT199(0)	30.00M	(2) 197	4.88498E 01	10.43278
			(2) 246	2.32483E 02	49.65101
			(2) 318	4.18535E 02	89.38595
			(2) 475	3.16567E 02	67.60869
			(2) 540	4.69234E 02	100.00000
			(2) 720	9.29995E 00	1.98618
			(2) 790	8.37706E 00	1.78907
			(2) 960	1.56182E 00	0.33356
197	TB160(0)	73.00D	(2) 197	3.95956E 04	68.26448
			(2) 299	5.80032E 04	100.00000
			(2) 391	4.28947E 03	7.39523
			(2) 830	1.32106E 04	22.77557
			(2) 964	1.24858E 04	21.52598
			(2) 1180	4.49280E 03	7.74578
			(2) 1270	2.07360E 03	3.57498
197	YB169(0)	32.00D	(2) 110	6.43926E 04	86.12576
			(2) 118	6.13367E 03	8.20384
			(2) 131	3.26619E 03	4.36856
			(2) 177	5.16576E 03	6.90926
			(2) 197	7.47658E 04	100.00000
			(2) 261	8.58129E 03	11.47757
			(2) 308	1.47907E 04	19.78265
199	GE75(0)	1.33H	(2) 139	8.53721E 01	16.31461
			(2) 264	5.23286E 02	100.00000
			(2) 427	6.03936E 00	1.15412
			(2) 477	4.70934E 00	0.89996
			(2) 628	2.35856E 00	0.45072
200	SE75(0)	120.00D	(2) 121	1.73259E 03	32.98496
			(2) 136	5.25267E 03	100.00000
			(2) 200	1.14444E 02	2.17878
			(2) 265	2.81918E 03	53.67130
			(2) 280	1.18606E 03	22.58004
			(2) 315	4.10366E 01	0.78125
			(2) 402	3.63161E 02	6.91383
201	IR192(0)	74.00D	(2) 201	1.34086E 04	0.69381
			(2) 206	1.10781E 05	5.73224
			(2) 283	1.26975E 04	0.65702
			(2) 296	8.08255E 05	41.82224
			(2) 309	7.49606E 05	38.78755
			(2) 317	1.93260E 06	100.00000
			(2) 375	2.33856E 04	1.21006
			(2) 417	2.16076E 04	1.11806
			(2) 468	7.07080E 05	36.58709
			(2) 485	3.45643E 04	1.78849
			(2) 588	5.45862E 04	2.82450
			(2) 605	1.03810E 05	5.37151
			(2) 613	6.08828E 04	3.15032
			(2) 885	2.30118E 03	0.11907
206	IR192(0)	74.00D	(2) 201	1.34086E 04	0.69381
			(2) 206	1.10781E 05	5.73224
			(2) 283	1.26975E 04	0.65702
			(2) 296	8.08255E 05	41.82224
			(2) 309	7.49606E 05	38.78755
			(2) 317	1.93260E 06	100.00000
			(2) 375	2.33856E 04	1.21006
			(2) 417	2.16076E 04	1.11806
			(2) 468	7.07080E 05	36.58709
			(2) 485	3.45643E 04	1.78849
			(2) 588	5.45862E 04	2.82450
			(2) 605	1.03810E 05	5.37151
			(2) 613	6.08828E 04	3.15032
			(2) 885	2.30118E 03	0.11907
208	LU177(0)	6.80D	(2) 113	7.81073E 04	79.69428
			(2) 208	9.80087E 04	100.00000
			(2) 250	1.03810E 04	10.59188
			(2) 351	5.55707E 03	5.66997
208	AU199(0)	3.20D	(2) 158	2.97941E 03	100.00000
			(2) 208	4.73709E 02	15.89942
210	GE77(0)	12.00H	(2) 210	1.19156E 02	55.67227
			(2) 215	1.25405E 02	58.59226
			(2) 265	2.14030E 02	100.00000
			(2) 368	3.91023E 01	18.26952
			(2) 416	5.16719E 01	24.14230
			(2) 563	1.73330E 01	8.09839
			(2) 632	1.10625E 01	5.16867
			(2) 709	8.42804E 00	3.93778
			(2) 920	3.95600E 00	1.84834
			(2) 1080	4.01964E 00	1.87807
			(2) 1370	2.69451E 00	1.25894

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
215	GE77(0)	12.00H	(2)	210	1.19156E 02	55.67227
			(2)	215	1.25405E 02	58.59226
			(2)	265	2.14030E 02	100.00000
			(2)	368	3.91023E 01	18.26952
			(2)	416	5.16719E 01	24.14230
			(2)	563	1.73330E 01	8.09839
			(2)	632	1.10625E 01	5.16867
			(2)	709	8.42804E 00	3.93778
			(2)	920	3.95600E 00	1.84834
			(2)	1090	4.01964E 00	1.87807
			(2)	1370	2.69451E 00	1.25894
216	BA131(0)	11.60D	(2)	124	2.29947E-01	100.00000
			(2)	216	1.01035E-01	43.93842
			(2)	239	2.63710E-02	11.46830
			(2)	249	2.93763E-02	12.77528
			(2)	374	3.11351E-02	13.54014
			(2)	498	6.91242E-02	30.06096
			(2)	620	4.48688E-03	1.95127
			(2)	820	1.91347E-04	0.08321
			(2)	920	5.89182E-04	0.25623
			(2)	1030	8.03722E-04	0.34953
216	HF180M(0)	5.50H	(2)	216	8.91821E 04	100.00000
			(2)	332	5.89542E 04	66.10540
			(2)	443	3.05449E 04	34.25006
			(2)	501	6.10319E 03	6.84351
216	RU97(0)	2.80D	(2)	109	5.71398E 00	2.75311
			(2)	216	2.07547E 02	100.00000
			(2)	325	8.35812E 00	4.02711
220	GD159(0)	18.00H	(2)	220	6.68678E 01	5.14512
			(2)	300	8.64576E 00	0.66524
			(2)	364	1.29964E 03	100.00000
222	TA182(0)	115.00D	(2)	100	6.28425E 03	15.80900
			(2)	114	1.27153E 04	31.98734
			(2)	152	3.97511E 04	100.00000
			(2)	179	1.57662E 04	39.66239
			(2)	222	2.78169E 04	69.97763
			(2)	1122	7.98781E 03	20.09456
			(2)	1189	3.31338E 03	8.33531
			(2)	1222	6.82214E 03	17.16216
			(2)	1231	3.55305E 03	8.93824
228	NP239(0)	2.35D	(2)	106	2.00407E 04	100.00000
			(2)	228	5.65985E 03	28.24176
			(2)	278	4.80803E 03	23.99128
230	CD115(0)	55.00H	(2)	230	3.43475E 01	7.59244
			(2)	260	8.87808E 01	19.62482
			(2)	263	8.93926E 00	1.98706
			(2)	490	2.56122E 02	56.61526
			(2)	520	4.52390E 02	100.00000
230	HF175(0)	70.00D	(2)	114	1.96821E 02	1.19717
			(2)	230	2.07095E 03	12.59662
			(2)	343	1.64405E 04	100.00000
			(2)	430	1.84531E 02	1.12242
232	CE143(0)	33.00H	(2)	232	7.17336E 01	16.34431
			(2)	294	4.38890E 02	100.00000
			(2)	351	8.43545E 00	1.92199
			(2)	493	2.46183E 01	5.60922
			(2)	668	2.77979E 01	6.33368
			(2)	722	2.51065E 02	57.20459
235	MO101(0)	14.60M	(2)	130	1.63238E 01	3.17129
			(2)	183	1.91840E 00	0.37269
			(2)	192	5.14738E 02	100.00000
			(2)	235	2.98356E 00	0.57963
			(2)	307	2.49143E 02	48.40191
			(2)	545	7.98660E 00	1.55159
			(2)	960	3.76992E 01	7.32396
239	BA131(0)	11.60D	(2)	124	2.29947E-01	100.00000
			(2)	216	1.01035E-01	43.93842
			(2)	239	2.63710E-02	11.46830
			(2)	249	2.93763E-02	12.77528
			(2)	374	3.11351E-02	13.54014
			(2)	498	6.91242E-02	30.06096
			(2)	620	4.48688E-03	1.95127
			(2)	820	1.91347E-04	0.08321
			(2)	920	5.89182E-04	0.25623
			(2)	1030	8.03722E-04	0.34953
245	EU152(0)	12.50Y	(2)	121	2.31630E 07	100.00000
			(2)	245	4.94445E 06	21.34633
			(2)	344	6.45192E 06	27.85442
			(2)	412	1.86000E 05	0.80300
			(2)	782	7.45056E 05	3.21658
			(2)	872	2.82184E 05	1.21825
			(2)	969	9.89691E 05	4.27272
			(2)	1090	7.28610E 05	3.14558
			(2)	1200	2.56162E 05	1.10591
			(2)	1420	9.38137E 05	4.05016

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
246	CD111M(0)	6.70H	(2)	150	1.96560E 02	48.63663
			(2)	246	4.04140E 02	100.00000
246	PT199(0)	30.00M	(2)	197	4.88498E 01	10.43278
			(2)	246	2.32483E 02	49.65101
			(2)	319	4.18535E 02	89.38595
			(2)	475	3.16567E 02	67.60869
			(2)	540	4.68234E 02	100.00000
			(2)	720	9.29995E 00	1.98618
			(2)	790	8.37706E 00	1.78907
			(2)	960	1.56182E 00	0.33356
248	EU154(0)	16.00Y	(2)	123	2.04540E 06	100.00000
			(2)	248	2.42787E 05	11.86986
			(2)	593	2.99426E 04	1.46390
			(2)	694	2.98771E 03	0.14607
			(2)	706	2.92219E 03	0.14287
			(2)	725	1.19246E 05	5.82997
			(2)	759	3.79002E 04	1.85294
			(2)	875	5.96232E 04	2.91498
			(2)	998	5.36915E 04	2.62498
			(2)	1007	6.47141E 04	3.16388
			(2)	1277	1.23030E 05	6.01496
249	BA131(0)	11.60D	(2)	124	2.29947E-01	100.00000
			(2)	216	1.01035E-01	43.93842
			(2)	239	2.63710E-02	11.46830
			(2)	249	2.93763E-02	12.77528
			(2)	374	3.11351E-02	13.54014
			(2)	496	6.91242E-02	30.06096
			(2)	620	4.48688E-03	1.95127
			(2)	820	1.91347E-04	0.08321
			(2)	920	5.89182E-04	0.25623
			(2)	1030	8.03722E-04	0.34953
250	LU177(0)	6.80D	(2)	113	7.81073E 04	79.69428
			(2)	208	9.80097E 04	100.00000
			(2)	250	1.03810E 04	10.59188
			(2)	351	5.55707E 03	5.66997
251	YB175(0)	4.20D	(2)	114	1.26365E 04	100.00000
			(2)	138	7.57896E 02	5.99767
			(2)	145	1.96238E 03	15.52942
			(2)	251	7.27541E 02	5.75745
			(2)	283	9.83735E 03	77.84860
			(2)	396	9.38504E 03	74.26920
260	CD115(0)	55.00H	(2)	230	3.43475E 01	7.59244
			(2)	260	8.87808E 01	19.62482
			(2)	263	8.98926E 00	1.98706
			(2)	490	2.56122E 02	56.61526
			(2)	520	4.52390E 02	100.00000
260	SN113(0)	120.00D	(2)	260	3.99360E 00	5.46506
			(2)	392	7.30751E 01	100.00000
261	YB169(0)	32.00D	(2)	110	6.43926E 04	86.12576
			(2)	118	6.13367E 03	8.20384
			(2)	131	3.26619E 03	4.36856
			(2)	177	5.16576E 03	6.90926
			(2)	197	7.47658E 04	100.00000
			(2)	261	8.58129E 03	11.47757
			(2)	308	1.47907E 04	19.78265
263	CD115(0)	55.00H	(2)	230	3.43475E 01	7.59244
			(2)	260	8.87808E 01	19.62482
			(2)	263	8.98926E 00	1.98706
			(2)	490	2.56122E 02	56.61526
			(2)	520	4.52390E 02	100.00000
264	GE75(0)	1.33H	(2)	199	8.53721E 01	16.31461
			(2)	264	5.23286E 02	100.00000
			(2)	427	6.03936E 00	1.15412
			(2)	477	4.70934E 00	0.89996
			(2)	628	2.35856E 00	0.45072
265	GE77(0)	12.00H	(2)	210	1.19156E 02	55.67227
			(2)	215	1.25405E 02	58.59226
			(2)	265	2.14030E 02	100.00000
			(2)	368	3.91023E 01	18.26952
			(2)	416	5.16719E 01	24.14230
			(2)	563	1.73330E 01	8.09839
			(2)	632	1.10625E 01	5.16867
			(2)	709	8.42804E 00	3.93778
			(2)	920	3.95600E 00	1.84834
			(2)	1080	4.01964E 00	1.87807
			(2)	1370	2.69451E 00	1.25894
265	SE75(0)	120.00D	(2)	121	1.73259E 03	32.98496
			(2)	136	5.25267E 03	100.00000
			(2)	200	1.14444E 02	2.17878
			(2)	265	2.81918E 03	53.67130
			(2)	280	1.18606E 03	22.58004
			(2)	315	4.10366E 01	0.78125
			(2)	402	3.63161E 02	6.91383

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
277	ND147(0)	11.50D	(2)	121	4.55980E 01	31.73153
			(2)	277	6.26661E 01	43.60918
			(2)	321	8.23081E 01	57.27797
			(2)	412	3.79142E 00	2.63844
			(2)	441	3.00643E 01	20.92167
			(2)	533	1.43699E 02	100.00000
			(2)	600	4.21200E 00	2.93112
			(2)	688	6.05405E 00	4.21299
278	NP239(0)	2.35D	(2)	106	2.00407E 04	100.00000
			(2)	228	5.65985E 03	28.24176
			(2)	278	4.80803E 03	23.99128
279	DY165(0)	2.32H	(2)	94	1.41810E 06	100.00000
			(2)	279	5.74785E 04	4.05320
			(2)	355	7.86758E 04	5.54798
279	HG203(0)	46.50D	(2)	279	7.72160E 03	100.00000
279	PT197(0)	18.00H	(2)	191	5.04986E 01	100.00000
			(2)	279	1.82511E 01	36.14169
280	SE75(0)	120.00D	(2)	121	1.73259E 03	32.98496
			(2)	136	5.25267E 03	100.00000
			(2)	200	1.14444E 02	2.17878
			(2)	265	2.81918E 03	53.67130
			(2)	280	1.18606E 03	22.58004
			(2)	315	4.10366E 01	0.78125
			(2)	402	3.63161E 02	6.91383
281	OS193(0)	32.00H	(2)	139	4.87484E 03	87.39767
			(2)	281	2.39873E 02	4.29981
			(2)	321	1.13108E 02	2.02783
			(2)	388	1.75638E 02	3.14889
			(2)	460	5.57777E 03	100.00000
283	IR192(0)	74.00D	(2)	201	1.34086E 04	0.69381
			(2)	206	1.10781E 05	5.73224
			(2)	283	1.26975E 04	0.65702
			(2)	296	8.08255E 05	41.82224
			(2)	309	7.49606E 05	38.78755
			(2)	317	1.93260E 06	100.00000
			(2)	375	2.33856E 04	1.21006
			(2)	417	2.16076E 04	1.11806
			(2)	468	7.07080E 05	36.58709
			(2)	485	3.45643E 04	1.78849
			(2)	588	5.45862E 04	2.82450
			(2)	605	1.03810E 05	5.37151
			(2)	613	6.08828E 04	3.15032
			(2)	885	2.30118E 03	0.11907
283	YB175(0)	4.20D	(2)	114	1.26365E 04	100.00000
			(2)	138	7.57896E 02	5.99767
			(2)	145	1.96238E 03	15.52942
			(2)	251	7.27541E 02	5.75745
			(2)	283	9.83735E 03	77.84860
			(2)	396	9.38504E 03	74.26920
284	I131(0)	8.10D	(2)	234	4.97678E 01	9.49894
			(2)	364	5.23930E 02	100.00000
			(2)	637	2.47552E 01	4.72491
			(2)	722	6.29638E 00	1.20176
293	IR194(0)	19.00H	(2)	293	3.02112E 04	21.99200
			(2)	329	1.37374E 05	100.00000
			(2)	620	3.13470E 03	2.28188
			(2)	643	1.04762E 04	7.62605
			(2)	937	3.23500E 03	2.35490
			(2)	1150	2.51100E 03	1.82786
			(2)	1478	1.25058E 02	0.09103
			(3)	456	1.23462E 01	0.00899
294	CE143(0)	33.00H	(2)	232	7.17336E 01	16.34431
			(2)	294	4.38890E 02	100.00000
			(2)	351	8.43545E 00	1.92199
			(2)	493	2.46183E 01	5.60922
			(2)	668	2.77979E 01	6.33368
			(2)	722	2.51065E 02	57.20459
296	ER171(0)	7.50H	(2)	112	6.31319E 03	96.61030
			(2)	117	4.56019E 02	6.97843
			(2)	124	2.18131E 03	33.38046
			(2)	296	2.22640E 03	34.07046
			(2)	308	6.53470E 03	100.00000
296	IR192(0)	74.00D	(2)	201	1.34086E 04	0.69381
			(2)	206	1.10781E 05	5.73224
			(2)	283	1.26975E 04	0.65702
			(2)	296	8.08255E 05	41.82224
			(2)	309	7.49606E 05	38.78755
			(2)	317	1.93260E 06	100.00000
			(2)	375	2.33856E 04	1.21006
			(2)	417	2.16076E 04	1.11806
			(2)	468	7.07080E 05	36.58709
			(2)	485	3.45643E 04	1.78849
			(2)	588	5.45862E 04	2.82450
			(2)	605	1.03810E 05	5.37151
			(2)	613	6.08828E 04	3.15032
			(2)	885	2.30118E 03	0.11907

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
299	TB160(0)	73.00D	(2)	197	3.95956E 04	68.26448
			(2)	299	5.80032E 04	100.00000
			(2)	391	4.28947E 03	7.39523
			(2)	890	1.32106E 04	22.77557
			(2)	964	1.24858E 04	21.52598
			(2)	1180	4.49280E 03	7.74578
			(2)	1270	2.07360E 03	3.57498
300	GD159(0)	18.00H	(2)	220	6.68678E 01	5.14512
			(2)	300	8.64576E 00	0.66524
			(2)	364	1.29964E 03	100.00000
301	PA233(0)	27.00D	(2)	301	3.26051E 03	15.40928
			(2)	313	2.11594E 04	100.00000
			(2)	341	7.58419E 02	3.58432
			(2)	400	6.24000E 02	2.94905
307	MO101(0)	14.60M	(2)	130	1.63238E 01	3.17129
			(2)	183	1.91840E 00	0.37269
			(2)	192	5.14738E 02	100.00000
			(2)	235	2.98356E 00	0.57963
			(2)	307	2.49143E 02	48.40191
			(2)	545	7.98660E 00	1.55159
			(2)	960	3.76992E 01	7.32396
308	ER171(0)	7.50H	(2)	112	6.31319E 03	96.61030
			(2)	117	4.56019E 02	6.97843
			(2)	124	2.18131E 03	33.38046
			(2)	294	2.22640E 03	34.07046
			(2)	308	6.53470E 03	100.00000
308	YB169(0)	32.00D	(2)	110	6.43926E 04	86.12576
			(2)	118	6.13367E 03	8.20384
			(2)	131	3.26619E 03	4.36856
			(2)	177	5.16576E 03	6.90226
			(2)	197	7.47658E 04	100.00000
			(2)	261	8.58129E 03	11.47757
			(2)	308	1.47907E 04	19.78265
309	IR192(0)	74.00D	(2)	201	1.34086E 04	0.69381
			(2)	206	1.10781E 05	5.73224
			(2)	283	1.26975E 04	0.65702
			(2)	296	8.08255E 05	41.82224
			(2)	309	7.49606E 05	38.78755
			(2)	317	1.93260E 06	100.00000
			(2)	375	2.33856E 04	1.21006
			(2)	417	2.16076E 04	1.11806
			(2)	468	7.07080E 05	36.58709
			(2)	485	3.45643E 04	1.78849
			(2)	588	5.45862E 04	2.82450
			(2)	605	1.03810E 05	5.37151
			(2)	613	6.08828E 04	3.15032
			(2)	885	2.30118E 03	0.11907
313	PA233(0)	27.00D	(2)	301	3.26051E 03	15.40928
			(2)	313	2.11594E 04	100.00000
			(2)	341	7.58419E 02	3.58432
			(2)	400	6.24000E 02	2.94905
315	SE75(0)	120.00D	(2)	121	1.73259E 03	32.98496
			(2)	136	5.25267E 03	100.00000
			(2)	200	1.14444E 02	2.17878
			(2)	265	2.81918E 03	53.67130
			(2)	280	1.18606E 03	22.58004
			(2)	315	4.10366E 01	0.78125
			(2)	402	3.63161E 02	6.91383
317	IR192(0)	74.00D	(2)	201	1.34086E 04	0.69381
			(2)	206	1.10781E 05	5.73224
			(2)	283	1.26975E 04	0.65702
			(2)	296	8.08255E 05	41.82224
			(2)	309	7.49606E 05	38.78755
			(2)	317	1.93260E 06	100.00000
			(2)	375	2.33856E 04	1.21006
			(2)	417	2.16076E 04	1.11806
			(2)	468	7.07080E 05	36.58709
			(2)	485	3.45643E 04	1.78849
			(2)	588	5.45862E 04	2.82450
			(2)	605	1.03810E 05	5.37151
			(2)	613	6.08828E 04	3.15032
			(2)	885	2.30118E 03	0.11907
318	PT199(0)	30.00M	(2)	197	4.88498E 01	10.43278
			(2)	246	2.32483E 02	49.65101
			(2)	318	4.18535E 02	89.38595
			(2)	475	3.16567E 02	67.60869
			(2)	540	4.68234E 02	100.00000
			(2)	720	9.29995E 00	1.98618
			(2)	790	8.37706E 00	1.78907
			(2)	960	1.56182E 00	0.33356
321	ND147(0)	11.50D	(2)	121	4.55980E 01	31.73153
			(2)	277	6.26661E 01	43.60918
			(2)	321	8.23081E 01	57.27797
			(2)	412	3.79142E 00	2.63944
			(2)	441	3.00643E 01	20.92167
			(2)	533	1.43699E 02	100.00000
			(2)	600	4.21200E 00	2.93112
			(2)	688	6.05405E 00	4.21299

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV		SPECIFIC ACTIVITY		RELATIVE ABUNDANCE
321	OS193(0)	32.00H	(2)	139	4.87484E	03		37.39767
			(2)	281	2.39933E	02		4.29931
			(2)	321	1.13108E	02		2.02783
			(2)	388	1.75638E	02		3.14889
			(2)	460	5.57777E	03		100.00000
323	TI51(0)	5.80M	(2)	323	1.96241E	02		100.00000
			(2)	605	1.05412E	00		0.53715
			(2)	928	1.85240E	01		9.43941
325	CR51(1)	27.80D	(2)	325	1.73016E	03		100.00000
325	RU97(0)	2.90D	(2)	109	5.71393E	00		2.75311
			(2)	216	2.07547E	02		100.00000
			(2)	325	8.35812E	00		4.02711
326	SN125M(0)	9.50M	(2)	326	1.24505E	02		100.00000
			(2)	640	1.33947E	-01		0.10758
			(2)	1070	7.25274E	-02		0.05825
			(2)	1394	2.94974E	-01		0.23692
329	IR194(0)	19.00H	(2)	293	3.02112E	04		21.99200
			(2)	329	1.37374E	05		100.00000
			(2)	620	3.13470E	03		2.28183
			(2)	643	1.04762E	04		7.62605
			(2)	937	3.23500E	03		2.35490
			(3)	1150	2.51100E	03		1.82786
			(2)	1478	1.25058E	02		0.09103
			(3)	456	1.23462E	01		0.00899
329	LA140(0)	40.20H	(2)	329	2.91762E	04		100.00000
			(2)	438	2.85314E	03		9.77900
			(2)	487	1.98768E	04		68.12650
			(3)	815	8.94344E	03		30.65315
			(2)	1600	8.55360E	03		29.31700
			(2)	2500	3.84912E	01		0.13193
			(3)	579	1.33650E	03		4.58078
			(3)	1479	8.74800E	01		0.29983
332	HF180M(0)	5.50H	(2)	216	8.91821E	04		100.00000
			(2)	332	5.89542E	04		66.10540
			(2)	443	3.05449E	04		34.25006
			(2)	501	6.10319E	03		6.84351
335	IN115M(0)	4.50H	(2)	335	1.28422E	03		100.00000
341	PA233(0)	27.00D	(2)	301	3.26051E	03		15.40928
			(2)	313	2.11594E	04		100.00000
			(2)	341	7.58419E	02		3.58432
			(2)	400	6.24000E	02		2.94905
343	HF175(0)	70.00D	(2)	114	1.96821E	02		1.19717
			(2)	230	2.07095E	03		12.59662
			(2)	343	1.64405E	04		100.00000
			(2)	430	1.84531E	02		1.12242
344	EU152M(0)	9.20H	(2)	122	1.21636E	06		100.00000
			(2)	344	1.28396E	05		10.55571
			(2)	837	1.43627E	05		11.80788
			(2)	961	1.24085E	05		10.20128
			(2)	983	1.12253E	04		0.92286
			(2)	1327	1.92255E	04		1.63812
			(2)	1410	1.36009E	04		1.11816
344	EU152(0)	12.50Y	(2)	121	2.31630E	07		100.00000
			(2)	245	4.94445E	06		21.34633
			(2)	344	6.45192E	06		27.85442
			(2)	412	1.86000E	05		0.80300
			(2)	782	7.45056E	05		3.21658
			(2)	872	2.82184E	05		1.21825
			(2)	969	9.89691E	05		4.27272
			(2)	1090	7.28610E	05		3.14558
			(2)	1200	2.56162E	05		1.10591
			(2)	1420	9.38137E	05		4.05016
346	HF181(1)	45.00D	(2)	133	3.33030E	04		100.00000
			(2)	136	4.59280E	03		13.79096
			(2)	137	1.39136E	03		4.17790
			(2)	346	3.46245E	03		10.39683
			(2)	482	1.25012E	04		37.53785
			(2)	616	2.01589E	03		6.05318
351	CE143(0)	33.00H	(2)	232	7.17336E	01		16.34431
			(2)	294	4.38890E	02		100.00000
			(2)	351	8.43545E	00		1.92199
			(2)	493	2.46183E	01		5.60922
			(2)	668	2.77979E	01		6.33368
			(2)	722	2.51065E	02		57.20459
351	LU177(0)	6.80D	(2)	113	7.81073E	04		79.69428
			(2)	208	9.80087E	04		100.00000
			(2)	250	1.03810E	04		10.59188
			(2)	351	5.55707E	03		5.66997

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
355	DY165(0)	2.32H	(2)	94	1.41810E 06	100.00000
			(2)	279	5.74785E 04	4.05320
			(2)	355	7.86759E 04	5.54798
364	GD159(0)	18.00H	(2)	220	6.68678E 01	5.14512
			(2)	300	8.64576E 00	0.66524
			(2)	364	1.29964E 03	100.00000
364	I131(0)	8.10D	(2)	284	4.97678E 01	9.49894
			(2)	364	5.23930E 02	100.00000
			(2)	637	2.47552E 01	4.72491
			(2)	722	6.29638E 00	1.20176
368	GE77(0)	12.00H	(2)	210	1.19156E 02	55.67227
			(2)	215	1.25405E 02	58.59226
			(2)	265	2.14030E 02	100.00000
			(2)	368	3.91023E 01	18.26952
			(2)	416	5.16719E 01	24.14230
			(2)	563	1.73330E 01	8.09839
			(2)	632	1.10625E 01	5.16867
			(2)	709	8.42804E 00	3.93778
			(2)	920	3.95600E 00	1.84834
			(2)	1080	4.01964E 00	1.87807
			(2)	1370	2.69451E 00	1.25894
368	NI65(1)	2.60H	(2)	368	9.81712E 00	100.00000
			(2)	1114	7.46283E 00	76.01847
			(2)	1482	8.40342E 00	85.59965
			(3)	460	8.47262E-01	8.63045
372	MO99(0)	66.00H	(2)	140	5.74725E 03	100.00000
			(2)	181	2.38885E 02	4.15650
			(2)	372	1.01591E 01	0.17677
			(2)	740	3.65522E 01	0.63600
			(2)	780	3.31487E 00	0.05768
374	BA131(0)	11.60D	(2)	124	2.29947E-01	100.00000
			(2)	216	1.01035E-01	43.93842
			(2)	239	2.63710E-02	11.46830
			(2)	249	2.93763E-02	12.77528
			(2)	374	3.11351E-02	13.54014
			(2)	498	6.91242E-02	30.06096
			(2)	620	4.48688E-03	1.95127
			(2)	820	1.91347E-04	0.08321
			(2)	920	5.89182E-04	0.25623
			(2)	1030	8.03722E-04	0.34953
375	IR192(0)	74.00D	(2)	201	1.34086E 04	0.62381
			(2)	206	1.10781E 05	5.73224
			(2)	283	1.26975E 04	0.65702
			(2)	296	8.08255E 05	41.82224
			(2)	309	7.49606E 05	38.78755
			(2)	317	1.93260E 06	100.00000
			(2)	375	2.33856E 04	1.21006
			(2)	417	2.16076E 04	1.11806
			(2)	468	7.07080E 05	36.58709
			(2)	485	3.45643E 04	1.78849
			(2)	588	5.45862E 04	2.82450
			(2)	605	1.03810E 05	5.37151
			(2)	613	6.08828E 04	3.15032
			(2)	885	2.30118E 03	0.11907
388	OS193(0)	32.00H	(2)	139	4.87484E 03	87.39767
			(2)	281	2.39833E 02	4.29981
			(2)	321	1.13108E 02	2.02783
			(2)	388	1.75638E 02	3.14889
			(2)	460	5.57777E 03	100.00000
388	SR87M(0)	2.80H	(2)	388	1.41261E 03	100.00000
391	TB160(0)	73.00D	(2)	197	3.95956E 04	68.26448
			(2)	299	5.80032E 04	100.00000
			(2)	391	4.28947E 03	7.39523
			(2)	880	1.32106E 04	22.77557
			(2)	964	1.24858E 04	21.52598
			(2)	1180	4.49280E 03	7.74578
			(2)	1270	2.07360E 03	3.57498
392	SN113(0)	120.00D	(2)	260	3.99360E 00	5.46506
			(2)	392	7.30751E 01	100.00000
396	YB175(0)	4.20D	(2)	114	1.26365E 04	100.00000
			(2)	138	7.57896E 02	5.99767
			(2)	145	1.96238E 03	15.52942
			(2)	251	7.27541E 02	5.75745
			(2)	283	9.83735E 03	77.84860
			(2)	396	9.38504E 03	74.26920
400	PA233(0)	27.00D	(2)	301	3.26051E 03	15.40928
			(2)	313	2.11594E 04	100.00000
			(2)	341	7.58419E 02	3.58432
			(2)	400	6.24000E 02	2.94905

ENERGY KEV	ISOTOPE	HALF LIFE	ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
402	SE75(0)	120.00D	(2) 121	1.73259E 03	32.98496
			(2) 136	5.25267E 03	100.00000
			(2) 200	1.14444E 02	2.17878
			(2) 265	2.81918E 03	53.67130
			(2) 280	1.18606E 03	22.58004
			(2) 315	4.10366E 01	0.78125
			(2) 402	3.63161E 02	6.91383
406	IN116M(0)	54.00M	(2) 137	1.07135E 05	36.63674
			(2) 406	2.92425E 05	100.00000
			(2) 1085	1.65658E 05	56.64970
			(2) 1274	1.88838E 05	64.57653
			(2) 1487	4.27715E 04	14.62646
			(2) 2090	3.00222E 04	10.26663
			(3) 465	4.42555E 03	1.51340
			(3) 1068	3.22920E 04	11.04283
412	AU198(0)	2.69D	(2) 412	4.14259E 05	100.00000
			(2) 675	2.08278E 03	0.50277
			(2) 1089	2.61211E 02	0.06305
412	EU152(0)	12.50Y	(2) 121	2.31630E 07	100.00000
			(2) 245	4.94445E 06	21.34633
			(2) 344	6.45192E 06	27.85442
			(2) 412	1.86000E 05	0.80300
			(2) 782	7.45056E 05	3.21658
			(2) 872	2.82184E 05	1.21825
			(2) 969	9.89691E 05	4.27272
			(2) 1090	7.28610E 05	3.14558
			(2) 1200	2.56162E 05	1.10591
			(2) 1420	9.38137E 05	4.05016
412	ND147(0)	11.50D	(2) 121	4.55980E 01	31.73153
			(2) 277	6.26661E 01	43.60918
			(2) 321	8.23081E 01	57.27797
			(2) 412	3.79142E 00	2.63844
			(2) 441	3.00643E 01	20.92167
			(2) 533	1.43699E 02	100.00000
			(2) 600	4.21200E 00	2.93112
			(2) 688	6.05405E 00	4.21299
416	GE77(0)	12.00H	(2) 210	1.19156E 02	55.67227
			(2) 215	1.25405E 02	53.59226
			(2) 265	2.14030E 02	100.00000
			(2) 368	3.91023E 01	18.26952
			(2) 416	5.16719E 01	24.14230
			(2) 563	1.73330E 01	8.09839
			(2) 632	1.10625E 01	5.16867
			(2) 709	8.42804E 00	3.93778
			(2) 920	3.95600E 00	1.84834
			(2) 1080	4.01964E 00	1.87807
			(2) 1370	2.69451E 00	1.25894
417	IR192(0)	74.00D	(2) 201	1.34086E 04	0.69381
			(2) 206	1.10781E 05	5.73224
			(2) 283	1.26975E 04	0.65702
			(2) 296	8.08255E 05	41.82224
			(2) 309	7.49606E 05	38.78755
			(2) 317	1.93260E 06	100.00000
			(2) 375	2.33856E 04	1.21006
			(2) 417	2.16076E 04	1.11806
			(2) 468	7.07080E 05	36.58709
			(2) 485	3.45643E 04	1.78849
			(2) 588	5.45862E 04	2.82450
			(2) 605	1.03810E 05	5.37151
			(2) 613	6.08828E 04	3.15032
			(2) 885	2.30118E 03	0.11907
427	GE75(0)	1.33H	(2) 199	8.53721E 01	16.31461
			(2) 264	5.23286E 02	100.00000
			(2) 427	6.03936E 00	1.15412
			(2) 477	4.70934E 00	0.89996
			(2) 628	2.35856E 00	0.45072
430	HF175(0)	70.00D	(2) 114	1.96821E 02	1.19717
			(2) 230	2.07095E 03	12.59662
			(2) 343	1.64405E 04	100.00000
			(2) 430	1.84531E 02	1.12242
438	LA140(0)	40.20H	(2) 329	2.91762E 04	100.00000
			(2) 438	2.85314E 03	9.77900
			(2) 487	1.98768E 04	68.12650
			(2) 815	8.94344E 03	30.65315
			(2) 1600	8.55360E 03	29.31700
			(2) 2500	3.84912E 01	0.13193
			(3) 578	1.33650E 03	4.58078
			(3) 1478	8.74800E 01	0.29983
438	ZN69M(0)	13.80H	(2) 438	2.14439E 02	100.00000
440	RU103(0)	40.00D	(2) 440	1.78200E 01	0.67452
			(2) 498	2.64190E 03	100.00000
			(2) 560	1.14307E 01	0.43267
			(2) 610	1.27449E 02	4.82414
441	ND147(0)	11.50D	(2) 121	4.55980E 01	31.73153
			(2) 277	6.26661E 01	43.60918
			(2) 321	8.23081E 01	57.27797
			(2) 412	3.79142E 00	2.63844
			(2) 441	3.00643E 01	20.92167
			(2) 533	1.43699E 02	100.00000
			(2) 600	4.21200E 00	2.93112
			(2) 688	6.05405E 00	4.21299

ENERGY KEV	ISOTOPE	HALF LIFE	ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
443	HF180M(0)	5.50H	(2) 216	3.91821E 04	100.00000
			(2) 332	5.89542E 04	66.10540
			(2) 443	3.05449E 04	34.25006
			(2) 501	6.10319E 03	6.84351
446	AG110M(1)	260.00D	(2) 446	6.23318E 02	12.66058
			(2) 619	5.38017E 02	10.92799
			(2) 657	4.92330E 03	100.00000
			(2) 677	5.66828E 02	11.51318
			(2) 705	8.02907E 02	16.30832
			(2) 764	1.01771E 03	20.67140
			(2) 815	2.27630E 02	4.62475
			(2) 885	2.58579E 03	52.52162
			(2) 937	8.02420E 02	16.29944
			(2) 1384	5.50040E 02	11.17220
			(2) 1504	2.62940E 02	5.34074
			(3) 482	2.97402E 01	0.60407
450	I128(0)	25.00M	(2) 450	5.76576E 03	100.00000
			(2) 540	4.35614E 02	7.55519
			(2) 750	3.12000E 01	0.54113
			(2) 990	3.33216E 01	0.57792
453	BR82(0)	35.90H	(2) 554	7.97940E 03	100.00000
			(2) 619	4.50934E 03	56.51224
			(2) 698	2.31876E 03	29.05933
			(2) 777	6.09794E 03	76.42106
			(2) 828	1.91605E 03	24.01252
			(2) 1044	1.53540E 03	19.24205
			(2) 1317	1.06528E 03	13.35039
			(2) 1475	5.94000E 02	7.44417
			(3) 453	5.77125E 01	0.72327
456	IR194(0)	19.00H	(2) 293	3.02112E 04	21.99200
			(2) 328	1.37334E 05	100.00000
			(2) 620	3.13470E 03	2.28183
			(2) 643	1.04762E 04	7.62605
			(2) 937	3.23500E 03	2.35490
			(2) 1150	2.51100E 03	1.82786
			(2) 1478	1.25058E 02	0.09103
			(3) 456	1.23462E 01	0.00899
460	NI65(1)	2.60H	(2) 368	9.81712E 00	100.00000
			(2) 1114	7.46283E 00	76.01347
			(2) 1482	8.40342E 00	85.59965
			(3) 460	8.47262E-01	8.63045
460	OS193(0)	32.00H	(2) 139	4.87484E 03	87.39767
			(2) 281	2.39833E 02	4.29981
			(2) 321	1.13108E 02	2.02783
			(2) 383	1.75638E 02	3.14889
			(2) 460	5.57777E 03	100.00000
465	IN116M(0)	54.00M	(2) 137	1.07135E 05	36.63674
			(2) 406	2.92425E 05	100.00000
			(2) 1085	1.65658E 05	56.64970
			(2) 1294	1.88938E 05	64.57653
			(2) 1487	4.27715E 04	14.62646
			(2) 2090	3.00222E 04	10.26663
			(3) 465	4.42555E 03	1.51340
			(3) 1068	3.22920E 04	11.04283
468	IR192(0)	74.00D	(2) 201	1.34086E 04	0.69381
			(2) 206	1.10781E 05	5.73224
			(2) 283	1.26975E 04	0.65702
			(2) 296	8.09255E 05	41.88224
			(2) 309	7.49606E 05	38.78755
			(2) 317	1.93260E 06	100.00000
			(2) 375	2.33856E 04	1.21006
			(2) 417	2.16076E 04	1.11806
			(2) 468	7.07080E 05	36.58709
			(2) 435	3.45643E 04	1.78849
			(2) 588	5.45862E 04	2.82450
			(2) 605	1.03810E 05	5.37151
			(2) 613	6.08828E 04	3.15032
			(2) 885	2.30118E 03	0.11907
475	CS134(0)	2.20Y	(2) 475	2.28150E 03	2.24719
			(2) 563	9.45851E 03	9.31628
			(2) 569	1.59827E 04	15.74232
			(2) 605	1.01527E 05	100.00000
			(2) 796	6.40736E 04	63.11010
			(2) 801	6.37528E 03	6.27941
			(2) 1038	5.50168E 02	0.54189
			(2) 1163	8.94301E 02	0.88085
			(2) 1368	1.29064E 03	1.27123
475	PT199(0)	30.00M	(2) 197	4.88498E 01	10.43278
			(2) 246	2.32433E 02	49.65101
			(2) 318	4.18535E 02	89.39595
			(2) 475	3.16567E 02	67.60869
			(2) 540	4.68234E 02	100.00000
			(2) 720	9.29995E 00	1.98618
			(2) 790	8.37706E 00	1.78907
			(2) 960	1.56182E 00	0.33356

ENERGY KEV	ISOTOPE	HALF LIFE	ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
477	GE75(0)	1.33H	(2) 199	8.53721E 01	16.31461
			(2) 264	5.23286E 02	100.00000
			(2) 427	6.03936E 00	1.15412
			(2) 477	4.70934E 00	0.89996
			(2) 628	2.35856E 00	0.45072
478	RE188(0)	17.00H	(2) 155	6.63768E 04	100.00000
			(2) 478	9.73728E 02	1.46697
			(2) 633	1.05084E 03	1.58314
480	CA47(0)	4.80D	(2) 480	8.29440E-03	28.22838
			(2) 830	3.86208E-03	13.14384
			(2) 1290	2.93832E-02	100.00000
480	W187(0)	24.00H	(2) 134	2.11791E 04	100.00000
			(2) 480	7.52026E 03	35.50785
			(2) 552	2.36650E 03	11.17371
			(2) 619	1.52181E 03	7.18542
			(2) 626	9.42705E 03	44.51101
			(2) 774	7.60750E 02	3.59198
			(2) 866	3.92049E 02	1.85111
482	AG110M(1)	260.00D	(2) 446	6.23318E 02	12.66058
			(2) 619	5.38017E 02	10.92799
			(2) 657	4.92330E 03	100.00000
			(2) 677	5.66828E 02	11.51318
			(2) 705	8.02907E 02	16.30832
			(2) 764	1.01771E 03	20.67140
			(2) 815	2.27690E 02	4.62475
			(2) 885	2.58579E 03	52.52162
			(2) 937	8.02420E 02	16.29844
			(2) 1384	5.50040E 02	11.17220
			(2) 1504	2.62940E 02	5.34074
			(3) 482	2.97402E 01	0.60407
482	HF181(1)	45.00D	(2) 133	3.33030E 04	100.00000
			(2) 136	4.59280E 03	13.79096
			(2) 137	1.39136E 03	4.17790
			(2) 346	3.46245E 03	10.39683
			(2) 482	1.25012E 04	37.53785
			(2) 616	2.01589E 03	6.05318
485	IR192(0)	74.00D	(2) 201	1.34086E 04	0.69381
			(2) 206	1.10781E 05	5.73224
			(2) 283	1.26975E 04	0.65702
			(2) 296	8.08255E 05	41.82224
			(2) 309	7.49606E 05	38.78755
			(2) 317	1.93260E 06	100.00000
			(2) 375	2.33956E 04	1.21006
			(2) 417	2.16076E 04	1.11806
			(2) 468	7.07080E 05	36.58709
			(2) 485	3.45643E 04	1.78849
			(2) 588	5.45862E 04	2.82450
			(2) 605	1.03810E 05	5.37151
			(2) 613	6.08828E 04	3.15032
			(2) 885	2.30118E 03	0.11907
487	LA140(0)	40.20H	(2) 329	2.91762E 04	100.00000
			(2) 439	2.85314E 03	9.77900
			(2) 487	1.98768E 04	68.12650
			(2) 815	8.94344E 03	30.65315
			(2) 1600	8.55360E 03	29.31700
			(2) 2500	3.84912E 01	0.13193
			(3) 578	1.33650E 03	4.58078
			(3) 1478	8.74800E 01	0.29983
490	CD115(0)	55.00H	(2) 230	3.43475E 01	7.59244
			(2) 260	8.87808E 01	19.62482
			(2) 263	8.98926E 00	1.98706
			(2) 490	2.56122E 02	56.61526
			(2) 520	4.52390E 02	100.00000
493	CE143(0)	33.00H	(2) 232	7.17336E 01	16.34431
			(2) 294	4.38890E 02	100.00000
			(2) 351	8.43545E 00	1.92199
			(2) 493	2.46183E 01	5.60922
			(2) 668	2.77979E 01	6.33368
			(2) 722	2.51065E 02	57.20459
498	BA131(0)	11.60D	(2) 124	2.29947E-01	100.00000
			(2) 216	1.01035E-01	43.93842
			(2) 239	2.63710E-02	11.46830
			(2) 249	2.93763E-02	12.77528
			(2) 374	3.11351E-02	13.54014
			(2) 498	6.91242E-02	30.06096
			(2) 620	4.48688E-03	1.95127
			(2) 820	1.91347E-04	0.08321
			(2) 920	5.89182E-04	0.25623
			(2) 1030	8.03722E-04	0.34953
498	RU103(0)	40.00D	(2) 440	1.78200E 01	0.67452
			(2) 498	2.64190E 03	100.00000
			(2) 560	1.14307E 01	0.43267
			(2) 610	1.27449E 02	4.82414
501	HF180M(0)	5.50H	(2) 216	8.91821E 04	100.00000
			(2) 332	5.89542E 04	66.10540
			(2) 443	3.05449E 04	34.25006
			(2) 501	6.10319E 03	6.84351
508	HO166(0)	27.30H	(2) 80	1.57992E 05	100.00000
			(2) 1360	6.44906E 02	0.40819
			(2) 1530	1.09477E 02	0.06929
			(2) 1610	5.17493E 01	0.03275
			(3) 508	1.43022E 01	0.00905
			(3) 588	8.75556E 00	0.00554

ENERGY KEV	ISOTOPE	HALF LIFE	ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
508	K42(0)	12.50H	(2) 1530	6.36552E 01	100.00000
			(3) 508	8.31600E 00	13.06413
511	CU64(1)	12.80H	(2) 511	1.07536E 04	100.00000
			(2) 1340	4.12080E 01	0.38320
511	ZN65(1)	245.00D	(2) 511	2.63741E 01	18.69501
			(2) 1114	1.41076E 02	100.00000
513	SR85(0)	65.00D	(2) 513	5.43215E 01	100.00000
520	CD115(0)	55.00H	(2) 230	3.43475E 01	7.59244
			(2) 260	8.87808E 01	19.62482
			(2) 263	8.98926E 00	1.98706
			(2) 490	2.56122E 02	56.61526
			(2) 520	4.52390E 02	100.00000
533	ND147(0)	11.50D	(2) 121	4.55980E 01	31.73153
			(2) 277	6.26661E 01	43.60918
			(2) 321	8.23081E 01	57.27797
			(2) 412	3.79142E 00	2.63844
			(2) 441	3.00643E 01	20.92167
			(2) 533	1.43699E 02	100.00000
			(2) 600	4.21200E 00	2.93112
			(2) 688	6.05405E 00	4.21299
540	I128(0)	25.00M	(2) 450	5.76576E 03	100.00000
			(2) 540	4.35614E 02	7.55519
			(2) 750	3.12000E 01	0.54113
			(2) 990	3.33216E 01	0.57792
540	PT199(0)	30.00M	(2) 197	4.88498E 01	10.43278
			(2) 246	2.32483E 02	49.65101
			(2) 318	4.18535E 02	89.38595
			(2) 475	3.16567E 02	67.60869
			(2) 540	4.68234E 02	100.00000
			(2) 720	9.29995E 00	1.98618
			(2) 790	8.37706E 00	1.78907
			(2) 960	1.56182E 00	0.33356
543	SM153(0)	47.00H	(2) 103	3.65013E 05	100.00000
			(2) 170	1.46160E 02	0.04004
			(2) 543	9.02070E 02	0.24713
			(2) 615	1.17450E 01	0.00322
545	MO101(0)	14.60M	(2) 130	1.63238E 01	3.17129
			(2) 183	1.91840E 00	0.37269
			(2) 192	5.14738E 02	100.00000
			(2) 235	2.98356E 00	0.57963
			(2) 307	2.49143E 02	48.40191
			(2) 545	7.98660E 00	1.55159
			(2) 960	3.76992E 01	7.32396
548	PR142(0)	19.20H	(2) 1570	4.51536E 02	100.00000
			(3) 548	6.73440E 01	14.91443
552	W187(0)	24.00H	(2) 134	2.11791E 04	100.00000
			(2) 480	7.52026E 03	35.50785
			(2) 552	2.36650E 03	11.17371
			(2) 619	1.52181E 03	7.18542
			(2) 626	9.42705E 03	44.51101
			(2) 774	7.60750E 02	3.59198
			(2) 866	3.92049E 02	1.85111
554	BR82(0)	35.90H	(2) 554	7.97940E 03	100.00000
			(2) 619	4.50934E 03	56.51224
			(2) 698	2.31876E 03	29.05933
			(2) 777	6.09794E 03	76.42106
			(2) 828	1.91605E 03	24.01252
			(2) 1044	1.53540E 03	19.24205
			(2) 1317	1.06528E 03	13.35039
			(2) 1475	5.94000E 02	7.44417
			(3) 453	5.77125E 01	0.72327
556	IN114M(0)	49.00D	(2) 192	9.52646E 03	100.00000
			(2) 556	3.73464E 02	3.92028
			(2) 722	2.63290E 02	2.76377
			(2) 1299	3.78360E 00	0.03972
560	RU103(0)	40.00D	(2) 440	1.78200E 01	0.67452
			(2) 498	2.64190E 03	100.00000
			(2) 560	1.14307E 01	0.43267
			(2) 610	1.27449E 02	4.82414
561	AS76(1)	26.50H	(2) 561	1.34829E 04	100.00000
			(2) 648	2.22218E 03	16.48143
			(2) 1210	1.10090E 03	8.16514
			(2) 1410	8.34720E 01	0.61910
			(2) 2060	9.28493E 01	0.68864
			(3) 1038	9.37728E 01	0.69549

ENERGY KEV	ISOTOPE	HALF LIFE	ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
563	CS134(0)	2.20Y	(2) 475	2.28150E 03	2.24719
			(2) 563	9.45851E 03	9.31628
			(2) 569	1.59827E 04	15.74232
			(2) 605	1.01527E 05	100.00000
			(2) 796	6.40736E 04	63.11010
			(2) 801	6.37528E 03	6.27941
			(2) 1038	5.50168E 02	0.54189
			(2) 1168	8.94301E 02	0.88085
			(2) 1368	1.29064E 03	1.27123
563	GE77(0)	12.00H	(2) 210	1.19156E 02	55.67227
			(2) 215	1.25405E 02	58.59226
			(2) 265	2.14030E 02	100.00000
			(2) 368	3.91023E 01	18.26952
			(2) 416	5.16719E 01	24.14230
			(2) 563	1.73330E 01	8.09839
			(2) 632	1.10625E 01	5.16967
			(2) 709	8.42804E 00	3.93778
			(2) 220	3.95600E 00	1.84834
			(2) 1030	4.01964E 00	1.87807
			(2) 1370	2.69451E 00	1.25894
564	SB122(0)	2.80D	(2) 564	1.15474E 04	100.00000
			(2) 686	4.38313E 02	3.79578
			(2) 1140	2.19240E 02	1.89862
			(2) 1260	4.57800E 02	3.96454
568	CL38(1)	37.50M	(2) 1520	1.34924E 02	100.00000
			(2) 2164	9.62829E 01	71.36063
			(3) 568	2.07576E 01	15.38462
			(3) 1142	1.22180E 02	90.55418
569	CS134(0)	2.20Y	(2) 475	2.28150E 03	2.24719
			(2) 563	9.45851E 03	9.31628
			(2) 569	1.59827E 04	15.74232
			(2) 605	1.01527E 05	100.00000
			(2) 796	6.40736E 04	63.11010
			(2) 801	6.37528E 03	6.27941
			(2) 1038	5.50168E 02	0.54189
			(2) 1168	8.94301E 02	0.88085
			(2) 1368	1.29064E 03	1.27123
573	GA72(1)	14.20H	(2) 601	8.69219E 02	14.40509
			(2) 630	2.66830E 03	44.22030
			(2) 834	6.03411E 03	100.00000
			(2) 894	6.53842E 02	10.83576
			(2) 1050	3.24360E 02	5.37544
			(2) 1595	3.71829E 02	6.16212
			(2) 1959	1.36782E 02	2.26681
			(2) 2203	6.17595E 02	10.23507
			(2) 2491	1.58529E 02	2.62722
			(2) 2508	2.97087E 02	4.92345
			(3) 573	5.76497E 01	0.95540
			(3) 957	1.01930E 02	1.68924
			(3) 1181	8.11010E 02	13.44043
			(3) 1469	3.56044E 02	5.90051
			(3) 1486	6.82006E 02	11.30252
578	LA140(0)	40.20H	(2) 329	2.91762E 04	100.00000
			(2) 488	2.85314E 03	9.77900
			(2) 487	1.98768E 04	68.12650
			(2) 815	8.94344E 03	30.65315
			(2) 1600	8.55360E 03	29.31700
			(2) 2500	3.84912E 01	0.13193
			(3) 578	1.33650E 03	4.58078
			(3) 1478	8.74800E 01	0.29983
588	HO166(0)	27.30H	(2) 80	1.57992E 05	100.00000
			(2) 1360	6.44906E 02	0.40819
			(2) 1530	1.09477E 02	0.06929
			(2) 1610	5.17493E 01	0.03275
			(3) 508	1.43022E 01	0.00905
			(3) 588	8.75556E 00	0.00554
588	IR192(0)	74.00D	(2) 201	1.34086E 04	0.69381
			(2) 206	1.10781E 05	5.73224
			(2) 283	1.26975E 04	0.65702
			(2) 296	8.08255E 05	41.82224
			(2) 309	7.49606E 05	38.78755
			(2) 317	1.93260E 06	100.00000
			(2) 375	2.33856E 04	1.21006
			(2) 417	2.16076E 04	1.11806
			(2) 468	7.07080E 05	36.58709
			(2) 485	3.45643E 04	1.78849
			(2) 586	5.45862E 04	2.82450
			(2) 605	1.03810E 05	5.37151
			(2) 613	6.08828E 04	3.15032
			(2) 885	2.30118E 03	0.11907
593	EU154(0)	16.00Y	(2) 123	2.04540E 06	100.00000
			(2) 248	2.42787E 05	11.86986
			(2) 593	2.99426E 04	1.46390
			(2) 624	2.98771E 03	0.14607
			(2) 706	2.92219E 03	0.14287
			(2) 723	1.19246E 05	5.82997
			(2) 759	3.79002E 04	1.85294
			(2) 875	5.96232E 04	2.91498
			(2) 998	5.36915E 04	2.62498
			(2) 1007	6.47141E 04	3.16388
			(2) 1277	1.23030E 05	6.01496
598	ZR97(0)	17.00H	(2) 665	6.83405E 00	100.00000
			(2) 747	5.81960E 00	85.15591
			(2) 1350	1.17600E-01	1.72079
			(2) 1620	4.60992E-02	0.67455
			(2) 2200	1.41120E-02	0.20650
			(3) 528	8.40840E-03	0.12304
			(3) 1178	1.83456E-02	0.26844

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
600	ND147(0)	11.50D	(2)	121	4.55980E 01	31.73153
			(2)	277	6.26661E 01	43.60918
			(2)	321	8.23081E 01	57.27797
			(2)	412	3.79142E 00	2.63844
			(2)	441	3.00643E 01	20.92167
			(2)	533	1.43699E 02	100.00000
			(2)	600	4.21200E 00	2.93112
			(2)	698	6.05405E 00	4.21299
601	GA72(1)	14.20H	(2)	601	8.69219E 02	14.40509
			(2)	630	2.66830E 03	44.22030
			(2)	834	6.03411E 03	100.00000
			(2)	894	6.53842E 02	10.83576
			(2)	1050	3.24360E 02	5.37544
			(2)	1595	3.71829E 02	6.16212
			(2)	1959	1.36782E 02	2.26681
			(2)	2203	6.17595E 02	10.23507
			(2)	2491	1.58529E 02	2.62722
			(2)	2508	2.97087E 02	4.92345
			(3)	573	5.76497E 01	0.95540
			(3)	937	1.01930E 02	1.68924
			(3)	1181	8.11010E 02	13.44043
			(3)	1469	3.56044E 02	5.90051
			(3)	1486	6.82006E 02	11.30252
603	SB124(0)	60.00D	(2)	603	3.92323E 03	100.00000
			(2)	646	3.66145E 02	9.33275
			(2)	714	5.31381E 02	13.54447
			(2)	723	1.82456E 03	46.50650
			(2)	970	1.00641E 02	2.56525
			(2)	1322	1.29127E 02	3.29135
			(2)	1694	5.15137E 02	13.13043
			(2)	2090	2.85596E 01	0.72796
			(3)	672	1.39587E 02	3.55797
			(3)	1068	3.07188E 01	0.78300
605	CS134(0)	2.20Y	(2)	475	2.28150E 03	2.24719
			(2)	563	9.45851E 03	9.31628
			(2)	569	1.59827E 04	15.74232
			(2)	605	1.01527E 05	100.00000
			(2)	796	6.40736E 04	63.11010
			(2)	801	6.37528E 03	6.27941
			(2)	1038	5.50168E 02	0.54189
			(2)	1163	8.94301E 02	0.88085
			(2)	1368	1.29064E 03	1.27123
605	IR192(0)	74.00D	(2)	201	1.34086E 04	0.69381
			(2)	206	1.10781E 05	5.73224
			(2)	283	1.26975E 04	0.65702
			(2)	296	8.08255E 05	41.82224
			(2)	309	7.49606E 05	38.78755
			(2)	317	1.93260E 06	100.00000
			(2)	375	2.33856E 04	1.21006
			(2)	417	2.16076E 04	1.11806
			(2)	468	7.07080E 05	36.58709
			(2)	485	3.45643E 04	1.78849
			(2)	588	5.45862E 04	2.82450
			(2)	605	1.03810E 05	5.37151
			(2)	613	6.08828E 04	3.15032
			(2)	885	2.30118E 03	0.11907
605	TI51(0)	5.80M	(2)	323	1.96241E 02	100.00000
			(2)	605	1.05412E 00	0.53715
			(2)	928	1.85240E 01	9.43941
610	RU103(0)	40.00D	(2)	440	1.78200E 01	0.67452
			(2)	498	2.64190E 03	100.00000
			(2)	560	1.14307E 01	0.43267
			(2)	610	1.27449E 02	4.82414
613	IR192(0)	74.00D	(2)	201	1.34086E 04	0.69381
			(2)	206	1.10781E 05	5.73224
			(2)	283	1.26975E 04	0.65702
			(2)	296	8.08255E 05	41.82224
			(2)	309	7.49606E 05	38.78755
			(2)	317	1.93260E 06	100.00000
			(2)	375	2.33856E 04	1.21006
			(2)	417	2.16076E 04	1.11806
			(2)	468	7.07080E 05	36.58709
			(2)	485	3.45643E 04	1.78849
			(2)	588	5.45862E 04	2.82450
			(2)	605	1.03810E 05	5.37151
			(2)	613	6.08828E 04	3.15032
			(2)	885	2.30118E 03	0.11907
615	SM153(0)	47.00H	(2)	103	3.65013E 05	100.00000
			(2)	170	1.46160E 02	0.04004
			(2)	543	9.02070E 02	0.24713
			(2)	615	1.17450E 01	0.00322
616	HF181(1)	45.00D	(2)	133	3.33030E 04	100.00000
			(2)	136	4.59280E 03	13.79096
			(2)	137	1.39136E 03	4.17790
			(2)	346	3.46245E 03	10.39683
			(2)	482	1.25012E 04	37.53785
			(2)	616	2.01589E 03	6.05318

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
619	AG110M(1)	260.00D	(2)	446	6.23318E 02	12.66058
			(2)	619	5.38017E 02	10.92799
			(2)	657	4.92330E 03	100.00000
			(2)	677	5.66828E 02	11.51318
			(2)	705	8.02907E 02	16.30832
			(2)	764	1.01771E 03	20.67140
			(2)	815	2.27690E 02	4.62475
			(2)	885	2.58579E 03	52.52162
			(2)	937	8.02420E 02	16.29844
			(2)	1384	5.50040E 02	11.17220
			(2)	1504	2.62940E 02	5.34074
			(3)	482	2.97402E 01	0.60407
619	BR82(0)	35.90H	(2)	554	7.97940E 03	100.00000
			(2)	619	4.50934E 03	56.51224
			(2)	698	2.31876E 03	29.05933
			(2)	777	6.09794E 03	76.42106
			(2)	828	1.91605E 03	24.01252
			(2)	1044	1.53540E 03	19.24205
			(2)	1317	1.06528E 03	13.35039
			(2)	1475	5.94000E 02	7.44417
			(3)	453	5.77125E 01	0.72327
619	W187(0)	24.00H	(2)	134	2.11791E 04	100.00000
			(2)	480	7.52026E 03	35.50785
			(2)	552	2.36650E 03	11.17371
			(2)	619	1.52181E 03	7.18542
			(2)	626	9.42705E 03	44.51101
			(2)	774	7.60750E 02	3.59198
			(2)	866	3.92049E 02	1.85111
620	BA131(0)	11.60D	(2)	124	2.29947E-01	100.00000
			(2)	216	1.01035E-01	43.93842
			(2)	239	2.63710E-02	11.46830
			(2)	249	2.93763E-02	12.77528
			(2)	374	3.11351E-02	13.54014
			(2)	498	6.91242E-02	30.06096
			(2)	620	4.48688E-03	1.95127
			(2)	820	1.91347E-04	0.08321
			(2)	920	5.89182E-04	0.25623
			(2)	1030	8.03722E-04	0.34953
620	BR80(0)	18.00M	(2)	620	3.40560E 03	100.00000
620	IR194(0)	19.00H	(2)	293	3.02112E 04	21.99200
			(2)	329	1.37374E 05	100.00000
			(2)	620	3.13470E 03	2.28188
			(2)	643	1.04762E 04	7.62605
			(2)	937	3.23500E 03	2.35490
			(2)	1150	2.51100E 03	1.82786
			(2)	1478	1.25058E 02	0.09103
			(3)	456	1.23462E 01	0.00899
626	W187(0)	24.00H	(2)	134	2.11791E 04	100.00000
			(2)	480	7.52026E 03	35.50785
			(2)	552	2.36650E 03	11.17371
			(2)	619	1.52181E 03	7.18542
			(2)	626	9.42705E 03	44.51101
			(2)	774	7.60750E 02	3.59198
			(2)	866	3.92049E 02	1.85111
628	GE75(0)	1.33H	(2)	199	8.53721E 01	16.31461
			(2)	264	5.23286E 02	100.00000
			(2)	427	6.03936E 00	1.15412
			(2)	477	4.70934E 00	0.89996
			(2)	628	2.35856E 00	0.45072
630	GA72(1)	14.20H	(2)	601	8.69219E 02	14.40509
			(2)	630	2.66830E 03	44.22030
			(2)	834	6.03411E 03	100.00000
			(2)	894	6.53842E 02	10.83576
			(2)	1050	3.24360E 02	5.37544
			(2)	1595	3.71829E 02	6.16212
			(2)	1959	1.36782E 02	2.26681
			(2)	2203	6.17595E 02	10.23507
			(2)	2491	1.58529E 02	2.62722
			(2)	2508	2.97087E 02	4.92345
			(3)	573	5.76497E 01	0.95540
			(3)	937	1.01930E 02	1.68924
			(3)	1181	8.11010E 02	13.44043
			(3)	1469	3.56044E 02	5.90051
			(3)	1486	6.82006E 02	11.30252
631	RE186(0)	3.80D	(2)	123	8.52687E 03	9.69609
			(2)	137	8.79413E 04	100.00000
			(2)	631	7.38173E 01	0.08394
			(2)	768	3.37534E 01	0.03838
632	GE77(0)	12.00H	(2)	210	1.19156E 02	55.67227
			(2)	215	1.25405E 02	58.59226
			(2)	265	2.14030E 02	100.00000
			(2)	368	3.91023E 01	18.26952
			(2)	416	5.16719E 01	24.14230
			(2)	563	1.73330E 01	8.09839
			(2)	632	1.10625E 01	5.16867
			(2)	709	8.42804E 00	3.93778
			(2)	920	3.95600E 00	1.84834
			(2)	1080	4.01964E 00	1.87807
			(2)	1370	2.69451E 00	1.25894

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
633	BE139(0)	17.00H	(2)	155	6.63768E 04	100.00000
			(2)	478	9.73728E 02	1.46697
			(2)	633	1.05084E 03	1.58314
637	I131(0)	8.10D	(2)	284	4.97678E 01	9.49894
			(2)	364	5.23930E 02	100.00000
			(2)	637	2.47552E 01	4.72491
			(2)	722	6.29638E 00	1.20176
640	SN125M(0)	9.50M	(2)	326	1.24505E 02	100.00000
			(2)	640	1.33947E-01	0.10758
			(2)	1070	7.25274E-02	0.05825
			(2)	1394	2.94974E-01	0.23692
643	I131M(0)	19.00H	(2)	293	3.02112E 04	21.99200
			(2)	329	1.37374E 05	100.00000
			(2)	620	3.13470E 03	2.28188
			(2)	643	1.04762E 04	7.62605
			(2)	937	3.23500E 03	2.35490
			(2)	1150	2.51100E 03	1.82786
			(2)	1478	1.25058E 02	0.09103
			(3)	456	1.23462E 01	0.00899
646	SB124(0)	60.00D	(2)	603	3.92323E 03	100.00000
			(2)	646	3.66145E 02	9.33275
			(2)	714	5.31381E 02	13.54447
			(2)	723	1.82456E 03	46.50650
			(2)	970	1.00641E 02	2.56525
			(2)	1322	1.29127E 02	3.29135
			(2)	1694	5.15137E 02	13.13043
			(2)	2090	2.85596E 01	0.72796
			(3)	672	1.39587E 02	3.55797
			(3)	1068	3.07188E 01	0.78300
648	AG76(1)	26.30H	(2)	561	1.34829E 04	100.00000
			(2)	648	2.22218E 03	16.48143
			(2)	1210	1.10090E 03	8.16514
			(2)	1410	8.34720E 01	0.61910
			(2)	2060	9.28493E 01	0.68864
			(3)	1038	9.37728E 01	0.69549
657	AG110M(1)	260.00D	(2)	446	6.23318E 02	12.66058
			(2)	619	5.38017E 02	10.92799
			(2)	657	4.92330E 03	100.00000
			(2)	677	5.66828E 02	11.51318
			(2)	705	8.02907E 02	16.30832
			(2)	764	1.01771E 03	20.67140
			(2)	815	2.27690E 02	4.62475
			(2)	885	2.58579E 03	52.52162
			(2)	937	8.02420E 02	16.29844
			(2)	1384	5.50040E 02	11.17220
			(2)	1504	2.62940E 02	5.34074
			(3)	482	2.97402E 01	0.60407
665	ZR97(0)	17.00H	(2)	665	6.83405E 00	100.00000
			(2)	747	5.81960E 00	85.15591
			(2)	1350	1.17600E-01	1.72079
			(2)	1620	4.60992E-02	0.67455
			(2)	2200	1.41120E-02	0.20650
			(3)	598	8.40840E-03	0.12304
			(3)	1178	1.83456E-02	0.26844
668	CE143(0)	33.00H	(2)	232	7.17336E 01	16.34431
			(2)	294	4.38890E 02	100.00000
			(2)	351	8.43545E 00	1.92199
			(2)	493	2.46183E 01	5.60922
			(2)	668	2.77979E 01	6.33368
			(2)	722	2.51065E 02	57.20459
672	SB124(0)	60.00D	(2)	603	3.92323E 03	100.00000
			(2)	646	3.66145E 02	9.33275
			(2)	714	5.31381E 02	13.54447
			(2)	723	1.82456E 03	46.50650
			(2)	970	1.00641E 02	2.56525
			(2)	1322	1.29127E 02	3.29135
			(2)	1694	5.15137E 02	13.13043
			(2)	2090	2.85596E 01	0.72796
			(3)	672	1.39587E 02	3.55797
			(3)	1068	3.07188E 01	0.78300
675	AU198(0)	2.69D	(2)	412	4.14259E 05	100.00000
			(2)	675	2.03278E 03	0.50277
			(2)	1089	2.61211E 02	0.06305
677	AG110M(1)	260.00D	(2)	446	6.23318E 02	12.66058
			(2)	619	5.38017E 02	10.92799
			(2)	657	4.92330E 03	100.00000
			(2)	677	5.66828E 02	11.51318
			(2)	705	8.02907E 02	16.30832
			(2)	764	1.01771E 03	20.67140
			(2)	815	2.27690E 02	4.62475
			(2)	885	2.58579E 03	52.52162
			(2)	937	8.02420E 02	16.29844
			(2)	1334	5.50040E 02	11.17220
			(2)	1504	2.62940E 02	5.34074
			(3)	482	2.97402E 01	0.60407
686	SB122(0)	2.80D	(2)	564	1.15474E 04	100.00000
			(2)	686	4.38313E 02	3.79578
			(2)	1140	2.19240E 02	1.89562
			(2)	1260	4.57800E 02	3.96454

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
688	ND147(0)	11.50D	(2)	121	4.55980E 01	31.73153
			(2)	277	6.26661E 01	43.60918
			(2)	321	8.23081E 01	57.27797
			(2)	412	3.79142E 00	2.63844
			(2)	441	3.00643E 01	20.92167
			(2)	533	1.43699E 02	100.00000
			(2)	600	4.21200E 00	2.93112
			(2)	688	6.05405E 00	4.21299
694	EU154(0)	16.00Y	(2)	123	2.04540E 06	100.00000
			(2)	248	2.42787E 05	11.86986
			(2)	593	2.99426E 04	1.46390
			(2)	694	2.98771E 03	0.14607
			(2)	706	2.92219E 03	0.14287
			(2)	725	1.19246E 05	5.82997
			(2)	759	3.79002E 04	1.85294
			(2)	875	5.96232E 04	2.91498
			(2)	998	5.36915E 04	2.62498
			(2)	1007	6.47141E 04	3.16388
			(2)	1277	1.23030E 05	6.01496
698	BR82(0)	35.90H	(2)	554	7.97940E 03	100.00000
			(2)	619	4.50934E 03	56.51224
			(2)	698	2.31876E 03	29.05933
			(2)	777	6.09794E 03	76.42106
			(2)	828	1.91605E 03	24.01252
			(2)	1044	1.53540E 03	19.24205
			(2)	1317	1.06528E 03	13.35039
			(2)	1475	5.94000E 02	7.44417
			(3)	453	5.77125E 01	0.72327
705	AG110M(1)	260.00D	(2)	446	6.23318E 02	12.66058
			(2)	619	5.38017E 02	10.92799
			(2)	657	4.92330E 03	100.00000
			(2)	677	5.66828E 02	11.51318
			(2)	705	8.02907E 02	16.30832
			(2)	764	1.01771E 03	20.67140
			(2)	815	2.27690E 02	4.62475
			(2)	885	2.58579E 03	52.52162
			(2)	937	8.02420E 02	16.29344
			(2)	1384	5.50040E 02	11.17220
			(2)	1504	2.62940E 02	5.34074
			(3)	482	2.97402E 01	0.60407
706	EU154(0)	16.00Y	(2)	123	2.04540E 06	100.00000
			(2)	248	2.42787E 05	11.86986
			(2)	593	2.99426E 04	1.46390
			(2)	694	2.98771E 03	0.14607
			(2)	706	2.92219E 03	0.14287
			(2)	725	1.19246E 05	5.82997
			(2)	759	3.79002E 04	1.85294
			(2)	875	5.96232E 04	2.91498
			(2)	998	5.36915E 04	2.62498
			(2)	1007	6.47141E 04	3.16388
			(2)	1277	1.23030E 05	6.01496
709	GE77(0)	12.00H	(2)	210	1.19156E 02	55.67227
			(2)	215	1.25405E 02	58.59226
			(2)	265	2.14070E 02	100.00000
			(2)	368	3.91023E 01	18.26952
			(2)	416	5.16719E 01	24.14230
			(2)	563	1.73330E 01	8.09839
			(2)	632	1.10625E 01	5.16867
			(2)	709	8.42804E 00	3.93778
			(2)	920	3.95600E 00	1.84834
			(2)	1080	4.01964E 00	1.87807
			(2)	1370	2.69451E 00	1.25894
714	SB124(0)	60.00D	(2)	603	3.92323E 03	100.00000
			(2)	645	3.66145E 02	9.33275
			(2)	714	5.31381E 02	13.54447
			(2)	723	1.82456E 03	46.50650
			(2)	970	1.00641E 02	2.56525
			(2)	1322	1.29127E 02	3.29135
			(2)	1694	5.15137E 02	13.13043
			(2)	2090	2.85596E 01	0.72796
			(3)	672	1.39587E 02	3.55797
			(3)	1068	3.07188E 01	0.78300
720	PT199(0)	30.00M	(2)	197	4.88498E 01	10.43278
			(2)	246	2.32483E 02	49.65101
			(2)	318	4.18535E 02	89.38595
			(2)	475	3.16567E 02	67.60869
			(2)	540	4.68234E 02	100.00000
			(2)	720	9.29995E 00	1.98618
			(2)	790	8.37706E 00	1.78907
			(2)	960	1.56182E 00	0.33356
722	CE143(0)	33.00H	(2)	232	7.17336E 01	16.34431
			(2)	294	4.38890E 02	100.00000
			(2)	351	8.43545E 00	1.92199
			(2)	493	2.46183E 01	5.60922
			(2)	668	2.77979E 01	6.33368
			(2)	722	2.51065E 02	57.20459
722	IN114M(0)	49.00D	(2)	192	9.52646E 03	100.00000
			(2)	556	3.73464E 02	3.92028
			(2)	722	2.63290E 02	2.76377
			(2)	1299	3.78360E 00	0.03972
722	I131(0)	8.10D	(2)	284	4.97678E 01	9.49894
			(2)	364	5.23930E 02	100.00000
			(2)	637	2.47552E 01	4.72491
			(2)	722	6.29638E 00	1.20176

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
722	ZR95(0)	65.00D	(2)	722	2.67239E 01	100.00000
			(2)	754	2.54348E 01	95.17611
723	SB124(0)	60.00D	(2)	603	3.92323E 03	100.00000
			(2)	646	3.66145E 02	9.33275
			(2)	714	5.31381E 02	13.54447
			(2)	723	1.82456E 03	46.50650
			(2)	970	1.00641E 02	2.56525
			(2)	1322	1.29127E 02	3.29135
			(2)	1694	5.15137E 02	13.13043
			(2)	2090	2.85596E 01	0.72796
			(3)	672	1.39587E 02	3.55797
			(3)	1068	3.07188E 01	0.78300
725	EU154(0)	16.00Y	(2)	123	2.04540E 06	100.00000
			(2)	248	2.42787E 05	11.86986
			(2)	593	2.99426E 04	1.46390
			(2)	694	2.98771E 03	0.14607
			(2)	706	2.92219E 03	0.14287
			(2)	725	1.19246E 05	5.82997
			(2)	759	3.79002E 04	1.85294
			(2)	875	5.96232E 04	2.91498
			(2)	998	5.36915E 04	2.62498
			(2)	1007	6.47141E 04	3.16388
			(2)	1277	1.23030E 05	6.01496
726	RU105(0)	4.50H	(2)	130	1.18560E 03	100.00000
			(2)	726	4.73274E 02	39.91849
740	MO99(0)	66.00H	(2)	140	5.74725E 03	100.00000
			(2)	181	2.38885E 02	4.15650
			(2)	372	1.01591E 01	0.17677
			(2)	740	3.65522E 01	0.63600
			(2)	780	3.31487E 00	0.05768
747	ZR97(0)	17.00H	(2)	665	6.83405E 00	100.00000
			(2)	747	5.81960E 00	85.15591
			(2)	1350	1.17600E-01	1.72079
			(2)	1620	4.60992E-02	0.67455
			(2)	2200	1.41120E-02	0.20650
			(3)	598	8.40840E-03	0.12304
			(3)	1178	1.83456E-02	0.26844
750	I128(0)	25.00M	(2)	450	5.76576E 03	100.00000
			(2)	540	4.35614E 02	7.55519
			(2)	750	3.12000E 01	0.54113
			(2)	990	3.33216E 01	0.57792
754	ZR95(0)	65.00D	(2)	722	2.67239E 01	100.00000
			(2)	754	2.54348E 01	95.17611
758	AL28(0)	2.30M	(2)	1780	9.47520E 02	100.00000
			(3)	758	3.72240E 02	39.28571
759	EU154(0)	16.00Y	(2)	123	2.04540E 06	100.00000
			(2)	248	2.42787E 05	11.86986
			(2)	593	2.99426E 04	1.46390
			(2)	694	2.98771E 03	0.14607
			(2)	706	2.92219E 03	0.14287
			(2)	725	1.19246E 05	5.82997
			(2)	759	3.79002E 04	1.85294
			(2)	875	5.96232E 04	2.91498
			(2)	998	5.36915E 04	2.62498
			(2)	1007	6.47141E 04	3.16388
			(2)	1277	1.23030E 05	6.01496
764	AG110M(1)	260.00D	(2)	446	6.23318E 02	12.66058
			(2)	619	5.38017E 02	10.92799
			(2)	657	4.92330E 03	100.00000
			(2)	7	5.66828E 02	11.51318
			(2)	705	8.02907E 02	16.30832
			(2)	764	1.01771E 03	20.67140
			(2)	815	2.27690E 02	4.62475
			(2)	885	2.58579E 03	52.52162
			(2)	937	8.02420E 02	16.29844
			(2)	1384	5.50040E 02	11.17220
			(2)	1504	2.62940E 02	5.34074
			(3)	482	2.97402E 01	0.60407
765	NB95(0)	35.00D	(2)	765	5.10016E 01	100.00000
768	RE186(0)	3.80D	(2)	123	8.52687E 03	9.69609
			(2)	137	8.79413E 04	100.00000
			(2)	631	7.38173E 01	0.08394
			(2)	768	3.37534E 01	0.03838
774	W187(0)	24.00H	(2)	134	2.11791E 04	100.00000
			(2)	480	7.52026E 03	35.50785
			(2)	552	2.36650E 03	11.17371
			(2)	619	1.52181E 03	7.18542
			(2)	626	9.42705E 03	44.51101
			(2)	774	7.60750E 02	3.59198
			(2)	866	3.92049E 02	1.85111

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
777	BA82(0)	35.90H	(2)	554	7.97940E 03	100.00000
			(2)	619	4.50934E 03	56.51224
			(2)	698	2.31876E 03	29.05933
			(2)	777	6.09794E 03	76.42106
			(2)	828	1.91605E 03	24.01252
			(2)	1044	1.53540E 03	19.24205
			(2)	1317	1.06528E 03	13.35039
			(2)	1475	5.94000E 02	7.44417
			(3)	453	5.77125E 01	0.72327
780	MO99(0)	66.00H	(2)	140	5.74725E 03	100.00000
			(2)	181	2.38885E 02	4.15650
			(2)	372	1.01591E 01	0.17677
			(2)	740	3.65522E 01	0.63600
			(2)	780	3.31487E 00	0.05768
782	EU152(0)	12.50Y	(2)	121	2.31630E 07	100.00000
			(2)	245	4.94445E 06	21.34633
			(2)	344	6.45192E 06	27.85442
			(2)	412	1.86000E 05	0.80300
			(2)	782	7.45056E 05	3.21658
			(2)	872	2.82184E 05	1.21825
			(2)	969	9.89691E 05	4.27272
			(2)	1090	7.28610E 05	3.14558
			(2)	1200	2.56162E 05	1.10591
			(2)	1420	9.38137E 05	4.05016
784	MN56(1)	2.60H	(2)	845	6.73388E 04	100.00000
			(2)	1806	7.33960E 03	10.89952
			(2)	2131	2.87468E 03	4.26899
			(2)	2651	2.54607E 02	0.37810
			(2)	2976	4.98261E 01	0.07399
			(3)	784	3.17871E 03	4.72047
			(3)	1109	3.43576E 03	5.10219
			(3)	1629	7.07683E 02	1.05093
			(3)	1954	1.80843E 02	0.26856
790	PT199(0)	30.00M	(2)	197	4.88498E 01	10.43278
			(2)	246	2.32483E 02	49.65101
			(2)	318	4.19535E 02	89.38595
			(2)	475	3.16567E 02	67.60869
			(2)	540	4.68234E 02	100.00000
			(2)	720	9.29995E 00	1.98618
			(2)	790	8.37706E 00	1.78907
			(2)	960	1.56182E 00	0.33356
796	CS134(0)	2.20Y	(2)	475	2.28150E 03	2.24719
			(2)	563	9.45851E 03	9.31628
			(2)	569	1.59827E 04	15.74232
			(2)	605	1.01527E 05	100.00000
			(2)	796	6.40736E 04	63.11010
			(2)	801	6.37528E 03	6.27941
			(2)	1038	5.50168E 02	0.54189
			(2)	1168	8.94301E 02	0.88085
			(2)	1368	1.29064E 03	1.27123
801	CS134(0)	2.20Y	(2)	475	2.28150E 03	2.24719
			(2)	563	9.45851E 03	9.31628
			(2)	569	1.59827E 04	15.74232
			(2)	605	1.01527E 05	100.00000
			(2)	796	6.40736E 04	63.11010
			(2)	801	6.37528E 03	6.27941
			(2)	1038	5.50168E 02	0.54189
			(2)	1168	8.94301E 02	0.88085
			(2)	1368	1.29064E 03	1.27123
815	AG110M(1)	260.00D	(2)	446	6.23318E 02	12.66058
			(2)	619	5.38017E 02	10.92799
			(2)	657	4.92330E 03	100.00000
			(2)	677	5.66828E 02	11.51318
			(2)	705	8.02907E 02	16.30832
			(2)	764	1.01771E 03	20.67140
			(2)	815	2.27690E 02	4.62475
			(2)	885	2.58579E 03	52.52162
			(2)	937	8.02420E 02	16.29844
			(2)	1384	5.50040E 02	11.17220
			(2)	1504	2.62940E 02	5.34074
			(3)	482	2.97402E 01	0.60407
815	LA140(0)	40.20H	(2)	329	2.91762E 04	100.00000
			(2)	438	2.85314E 03	9.77900
			(2)	487	1.98768E 04	68.12650
			(2)	815	8.94344E 03	30.65315
			(2)	1600	8.55360E 03	29.31700
			(2)	2500	3.84912E 01	0.13193
			(3)	578	1.33650E 03	4.58078
			(3)	1478	8.74800E 01	0.29983
820	BA131(0)	11.60D	(2)	124	2.29947E-01	100.00000
			(2)	216	1.01035E-01	43.93842
			(2)	239	2.63710E-02	11.46830
			(2)	249	2.93763E-02	12.77528
			(2)	374	3.11351E-02	13.54014
			(2)	498	6.91242E-02	30.06096
			(2)	620	4.48688E-03	1.95127
			(2)	820	1.91347E-04	0.08321
			(2)	920	5.89182E-04	0.25623
			(2)	1030	8.03722E-04	0.34953

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
828	BR82(0)	35.90H	(2)	554	7.97940E 03	100.00000
			(2)	619	4.50934E 03	56.51224
			(2)	698	2.31876E 03	29.05933
			(2)	777	6.09794E 03	76.42106
			(2)	828	1.91605E 03	24.01252
			(2)	1044	1.53540E 03	19.24205
			(2)	1317	1.06528E 03	13.35039
			(2)	1475	5.94000E 02	7.44417
			(3)	453	5.77125E 01	0.72327
828	RB88(0)	17.80M	(2)	908	2.12267E 01	100.00000
			(2)	1390	1.20960E 00	5.69848
			(2)	1850	1.34461E 01	63.34544
			(2)	2110	4.77259E-01	2.24839
			(2)	2680	8.26485E-01	3.89361
			(2)	3010	9.31651E-02	0.43891
			(2)	3240	8.37187E-02	0.39440
			(2)	4870	3.81398E-02	0.17968
			(3)	828	6.72307E 00	31.67272
			(3)	1088	5.38756E-01	2.53811
			(3)	1653	2.33393E 00	11.01893
			(3)	1988	3.44794E-01	1.62434
			(3)	2218	3.79037E-01	1.78566
			(3)	3848	5.21914E-01	2.45876
830	CA47(0)	4.80D	(2)	480	8.29440E-03	28.22338
			(2)	830	3.86208E-03	13.14384
			(2)	1290	2.93832E-02	100.00000
830	CU66(0)	5.10M	(2)	830	5.63220E 00	2.84134
			(2)	1040	1.98223E 02	100.00000
834	GA72(1)	14.20H	(2)	601	8.69219E 02	14.40509
			(2)	630	2.66830E 03	44.22030
			(2)	834	6.03411E 03	100.00000
			(2)	894	6.53842E 02	10.83576
			(2)	1050	3.24360E 02	5.37544
			(2)	1595	3.71829E 02	6.16212
			(2)	1959	1.36782E 02	2.26681
			(2)	2203	6.17595E 02	10.23507
			(2)	2491	1.58529E 02	2.62722
			(2)	2508	2.97087E 02	4.92345
			(3)	573	5.76497E 01	0.95540
			(3)	937	1.01930E 02	1.68924
			(3)	1181	8.11010E 02	13.44043
			(3)	1469	3.56044E 02	5.90051
			(3)	1486	6.82006E 02	11.30252
837	EU152M(0)	9.20H	(2)	122	1.21636E 06	100.00000
			(2)	344	1.28396E 05	10.55571
			(2)	837	1.43627E 05	11.80788
			(2)	961	1.24085E 05	10.20128
			(2)	983	1.12253E 04	0.92286
			(2)	1327	1.99255E 04	1.63812
			(2)	1410	1.36009E 04	1.11816
843	MG27(0)	9.50M	(2)	172	4.72282E 00	9.14390
			(2)	843	5.16499E 01	100.00000
			(2)	1015	1.70807E 01	33.07019
845	MN56(1)	2.60H	(2)	845	6.73398E 04	100.00000
			(2)	1806	7.33960E 03	10.89952
			(2)	2131	2.87468E 03	4.26899
			(2)	2651	2.54607E 02	0.37810
			(2)	2976	4.98261E 01	0.07399
			(3)	784	3.17871E 03	4.72047
			(3)	1109	3.43576E 03	5.10219
			(3)	1629	7.07683E 02	1.05093
			(3)	1954	1.80843E 02	0.26856
866	W187(0)	24.00H	(2)	134	2.11791E 04	100.00000
			(2)	480	7.52026E 03	35.50785
			(2)	552	2.36650E 03	11.17371
			(2)	619	1.52181E 03	7.18542
			(2)	626	9.42705E 03	44.51101
			(2)	774	7.60750E 02	3.59198
			(2)	866	3.92049E 02	1.85111
872	EU152(0)	12.50Y	(2)	121	2.31630E 07	100.00000
			(2)	245	4.94445E 06	21.34633
			(2)	344	6.45192E 06	27.85442
			(2)	412	1.86000E 05	0.80300
			(2)	782	7.45056E 05	3.21658
			(2)	872	2.82184E 05	1.21825
			(2)	969	9.89691E 05	4.27272
			(2)	1090	7.28610E 05	3.14558
			(2)	1200	2.56162E 05	1.10591
			(2)	1420	9.38137E 05	4.05016
874	NB94M(0)	6.60M	(2)	874	3.24459E 00	100.00000
875	EU154(0)	16.00Y	(2)	123	2.04540E 06	100.00000
			(2)	248	2.42787E 05	11.86986
			(2)	593	2.99426E 04	1.46390
			(2)	694	2.98771E 03	0.14607
			(2)	706	2.92219E 03	0.14287
			(2)	725	1.19246E 05	5.82997
			(2)	759	3.79002E 04	1.85294
			(2)	875	5.96232E 04	2.91498
			(2)	998	5.36915E 04	2.62498
			(2)	1007	6.47141E 04	3.16388
			(2)	1277	1.23030E 05	6.01496

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
880	TB160(0)	73.00D	(2)	197	3.95256E 04	68.26448
			(2)	299	5.80032E 04	100.00000
			(2)	391	4.28947E 03	7.39523
			(2)	880	1.32106E 04	22.77557
			(2)	964	1.24858E 04	21.52598
			(2)	1130	4.49280E 03	7.74578
			(2)	1270	2.07360E 03	3.57498
885	AG110M(1)	260.00D	(2)	446	6.23318E 02	12.66058
			(2)	619	5.38017E 02	10.92799
			(2)	657	4.92330E 03	100.00000
			(2)	677	5.66828E 02	11.51318
			(2)	705	8.02907E 02	16.30932
			(2)	764	1.01771E 03	20.67140
			(2)	815	2.27690E 02	4.62475
			(2)	885	2.58579E 03	52.52162
			(2)	937	8.02420E 02	16.29844
			(2)	1384	5.50040E 02	11.17220
			(2)	1504	2.62940E 02	5.34074
			(3)	482	2.97402E 01	0.60407
885	IR192(0)	74.00D	(2)	201	1.34086E 04	0.69381
			(2)	206	1.10781E 05	5.73224
			(2)	233	1.26975E 04	0.65702
			(2)	296	8.08255E 05	41.82224
			(2)	309	7.49606E 05	38.78755
			(2)	317	1.93260E 06	100.00000
			(2)	375	2.33956E 04	1.21006
			(2)	417	2.16076E 04	1.11806
			(2)	468	7.07080E 05	36.58709
			(2)	485	3.45643E 04	1.78849
			(2)	588	5.45862E 04	2.82450
			(2)	605	1.03810E 05	5.37151
			(2)	613	6.08828E 04	3.15032
			(2)	885	2.30118E 03	0.11907
885	SC46(0)	84.00D	(2)	885	1.49040E 05	100.00000
			(2)	1119	1.13022E 05	75.83333
894	GA72(1)	14.20H	(2)	601	8.69219E 02	14.40509
			(2)	630	2.66830E 03	44.22030
			(2)	834	6.03411E 03	100.00000
			(2)	894	6.53842E 02	10.83576
			(2)	1050	3.24360E 02	5.37544
			(2)	1595	3.71829E 02	6.16212
			(2)	1959	1.36782E 02	2.26681
			(2)	2203	6.17595E 02	10.23507
			(2)	2491	1.58529E 02	2.62722
			(2)	2508	2.97087E 02	4.92345
			(3)	573	5.76497E 01	0.95540
			(3)	937	1.01930E 02	1.68924
			(3)	1181	8.11010E 02	13.44043
			(3)	1469	3.56044E 02	5.90051
			(3)	1486	6.82006E 02	11.30252
908	RB88(0)	17.80M	(2)	908	2.12267E 01	100.00000
			(2)	1390	1.20960E 00	5.69848
			(2)	1850	1.34461E 01	63.34544
			(2)	2110	4.77259E-01	2.24839
			(2)	2680	8.26485E-01	3.89361
			(2)	3010	9.31651E-02	0.43891
			(2)	3240	8.37187E-02	0.39440
			(2)	4870	3.81398E-02	0.17968
			(3)	823	6.72307E 00	31.67272
			(3)	1098	5.38756E-01	2.53811
			(3)	1658	2.33893E 00	11.01883
			(3)	1988	3.44794E-01	1.62434
			(3)	2218	3.79037E-01	1.78566
			(3)	3848	5.21914E-01	2.45876
920	BA131(0)	11.60D	(2)	124	2.29947E-01	100.00000
			(2)	216	1.01035E-01	43.93842
			(2)	239	2.63710E-02	11.46830
			(2)	249	2.93763E-02	12.77528
			(2)	374	3.11351E-02	13.54014
			(2)	498	6.91242E-02	30.06096
			(2)	620	4.48688E-03	1.95127
			(2)	820	1.91347E-04	0.08321
			(2)	920	5.89182E-04	0.25623
			(2)	1030	8.03722E-04	0.34953
920	SE77(0)	12.00H	(2)	210	1.19156E 02	55.67227
			(2)	215	1.25405E 02	58.59226
			(2)	265	2.14030E 02	100.00000
			(2)	368	3.91023E 01	18.26952
			(2)	416	5.16719E 01	24.14230
			(2)	563	1.73330E 01	8.09839
			(2)	632	1.10625E 01	5.16867
			(2)	709	8.42804E 00	3.93778
			(2)	920	3.95600E 00	1.84834
			(2)	1080	4.01964E 00	1.87807
			(2)	1370	2.69451E 00	1.25894
928	TI51(0)	5.80M	(2)	323	1.96241E 02	100.00000
			(2)	605	1.05412E 00	0.53715
			(2)	928	1.85240E 01	9.43941
937	AG110M(1)	260.00D	(2)	446	6.23318E 02	12.66058
			(2)	619	5.38017E 02	10.92799
			(2)	657	4.92330E 03	100.00000
			(2)	677	5.66828E 02	11.51318
			(2)	705	8.02907E 02	16.30932
			(2)	764	1.01771E 03	20.67140
			(2)	815	2.27690E 02	4.62475
			(2)	885	2.58579E 03	52.52162
			(2)	937	8.02420E 02	16.29844
			(2)	1384	5.50040E 02	11.17220
			(2)	1504	2.62940E 02	5.34074
			(3)	482	2.97402E 01	0.60407

ENERGY KEV	ISOTOPE	HALF LIFE	ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
937	GA72(1)	14.20H	(2) 601	8.69219E 02	14.40509
			(2) 630	2.66830E 03	44.22030
			(2) 834	6.03411E 03	100.00000
			(2) 894	6.53842E 02	10.83576
			(2) 1050	3.24360E 02	5.37544
			(2) 1595	3.71829E 02	6.16212
			(2) 1959	1.36792E 02	2.26681
			(2) 2203	6.17595E 02	10.23507
			(2) 2491	1.58529E 02	2.62722
			(2) 2508	2.97087E 02	4.92345
			(3) 573	5.76497E 01	0.95540
			(3) 937	1.01930E 02	1.68924
			(3) 1181	8.11010E 02	13.44043
			(3) 1469	3.56044E 02	5.90051
			(3) 1486	6.82006E 02	11.30252
937	IR194(0)	19.00H	(2) 293	3.02112E 04	21.99200
			(2) 329	1.37374E 05	100.00000
			(2) 620	3.13470E 03	2.28188
			(2) 643	1.04762E 04	7.62605
			(2) 937	3.23500E 03	2.35490
			(2) 1150	2.51100E 03	1.82786
			(2) 1478	1.25058E 02	0.09103
			(3) 456	1.23462E 01	0.00899
950	YB177(0)	1.90H	(2) 118	5.66496E 01	6.75861
			(2) 140	3.77136E 01	4.49944
			(2) 147	8.38184E 02	100.00000
			(2) 950	3.50208E 00	0.41782
			(2) 1090	1.52099E 01	1.81462
			(2) 1120	1.98634E 00	0.23698
			(2) 1240	1.16683E 01	1.39210
960	MO101(0)	14.60M	(2) 130	1.63238E 01	3.17129
			(2) 183	1.91840E 00	0.37269
			(2) 192	5.14738E 02	100.00000
			(2) 235	2.98356E 00	0.57963
			(2) 307	2.49143E 02	48.40191
			(2) 545	7.98660E 00	1.55159
			(2) 960	3.76992E 01	7.32396
960	PT199(0)	30.00M	(2) 197	4.88498E 01	10.43278
			(2) 246	2.32483E 02	49.65101
			(2) 318	4.18535E 02	89.38595
			(2) 475	3.16567E 02	67.60869
			(2) 540	4.68234E 02	100.00000
			(2) 720	9.29995E 00	1.98618
			(2) 790	8.37706E 00	1.78907
			(2) 960	1.56182E 00	0.33356
961	EU152M(0)	9.20H	(2) 122	1.21636E 06	100.00000
			(2) 344	1.28396E 05	10.55571
			(2) 837	1.43627E 05	11.80788
			(2) 961	1.24085E 05	10.20128
			(2) 983	1.12253E 04	0.92286
			(2) 1327	1.99255E 04	1.63812
			(2) 1410	1.36009E 04	1.11816
964	TB160(0)	73.00D	(2) 197	3.95956E 04	68.26448
			(2) 299	5.80032E 04	100.00000
			(2) 391	4.29947E 03	7.39523
			(2) 830	1.32106E 04	22.77557
			(2) 964	1.24858E 04	21.52598
			(2) 1180	4.49280E 03	7.74578
			(2) 1270	2.07360E 03	3.57498
969	EU152(0)	12.50Y	(2) 121	2.31630E 07	100.00000
			(2) 245	4.94445E 06	21.34633
			(2) 344	6.45192E 06	27.85442
			(2) 412	1.86000E 05	0.80300
			(2) 782	7.45056E 05	3.21658
			(2) 872	2.82184E 05	1.21825
			(2) 969	9.89691E 05	4.27272
			(2) 1090	7.28610E 05	3.14558
			(2) 1200	2.56162E 05	1.10591
			(2) 1420	9.38137E 05	4.05016
970	SB124(0)	60.00D	(2) 603	3.92323E 03	100.00000
			(2) 646	3.66145E 02	9.33275
			(2) 714	5.31381E 02	13.54447
			(2) 723	1.82456E 03	46.50650
			(2) 970	1.00641E 02	2.56525
			(2) 1322	1.29127E 02	3.29135
			(2) 1694	5.15137E 02	13.13043
			(2) 2090	2.85596E 01	0.72796
			(3) 672	1.39587E 02	3.55797
			(3) 1068	3.07188E 01	0.78300
983	EU152M(0)	9.20H	(2) 122	1.21636E 06	100.00000
			(2) 344	1.28396E 05	10.55571
			(2) 837	1.43627E 05	11.80788
			(2) 961	1.24085E 05	10.20128
			(2) 983	1.12253E 04	0.92286
			(2) 1327	1.99255E 04	1.63812
			(2) 1410	1.36009E 04	1.11816

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
990	I128(0)	25.00M	(2)	450	5.76576E 03	100.00000
			(2)	540	4.35614E 02	7.55519
			(2)	750	3.12000E 01	0.54113
			(2)	990	3.33216E 01	0.57792
998	EU154(0)	16.00Y	(2)	123	2.04540E 06	100.00000
			(2)	248	2.42787E 05	11.86986
			(2)	593	2.99426E 04	1.46390
			(2)	694	2.98771E 03	0.14607
			(2)	706	2.92219E 03	0.14287
			(2)	725	1.19246E 05	5.82997
			(2)	759	3.79002E 04	1.85294
			(2)	875	5.96232E 04	2.91498
			(2)	998	5.36915E 04	2.62498
			(2)	1007	6.47141E 04	3.16388
			(2)	1277	1.23030E 05	6.01496
1007	EU154(0)	16.00Y	(2)	123	2.04540E 06	100.00000
			(2)	248	2.42787E 05	11.86986
			(2)	593	2.99426E 04	1.46390
			(2)	694	2.98771E 03	0.14607
			(2)	706	2.92219E 03	0.14287
			(2)	725	1.19246E 05	5.82997
			(2)	759	3.79002E 04	1.85294
			(2)	875	5.96232E 04	2.91498
			(2)	998	5.36915E 04	2.62498
			(2)	1007	6.47141E 04	3.16388
			(2)	1277	1.23030E 05	6.01496
1015	MG27(0)	9.50M	(2)	172	4.72282E 00	9.14390
			(2)	843	5.16499E 01	100.00000
			(2)	1015	1.70807E 01	33.07019
1030	BA131(0)	11.60D	(2)	124	2.29947E-01	100.00000
			(2)	216	1.01035E-01	43.93842
			(2)	239	2.63710E-02	11.46830
			(2)	249	2.93763E-02	12.77528
			(2)	374	3.11351E-02	13.54014
			(2)	498	6.91242E-02	30.06096
			(2)	620	4.48688E-03	1.95127
			(2)	820	1.91347E-04	0.08321
			(2)	920	5.89182E-04	0.25623
			(2)	1030	8.03722E-04	0.34953
1038	AS76(1)	26.50H	(2)	561	1.34829E 04	100.00000
			(2)	649	2.22218E 03	16.48143
			(2)	1210	1.10090E 03	8.16514
			(2)	1410	8.34720E 01	0.61910
			(2)	2060	9.28493E 01	0.68864
			(3)	1038	9.37728E 01	0.69549
1038	CS134(0)	2.20Y	(2)	475	2.28150E 03	2.24719
			(2)	563	9.45851E 03	9.31628
			(2)	569	1.59827E 04	15.74232
			(2)	605	1.01527E 05	100.00000
			(2)	796	6.40736E 04	63.11010
			(2)	801	6.37528E 03	6.27941
			(2)	1038	5.50168E 02	0.54189
			(2)	1168	8.94301E 02	0.88085
			(2)	1368	1.29064E 03	1.27123
1040	CU66(0)	5.10M	(2)	830	5.63220E 00	2.84134
			(2)	1040	1.98223E 02	100.00000
1044	BR82(0)	35.90H	(2)	554	7.97940E 03	100.00000
			(2)	619	4.50934E 03	56.51224
			(2)	698	2.31876E 03	29.05933
			(2)	777	6.09794E 03	76.42106
			(2)	828	1.91605E 03	24.01252
			(2)	1044	1.53540E 03	19.24205
			(2)	1317	1.06528E 03	13.35039
			(2)	1475	5.94000E 02	7.44417
			(3)	453	5.77125E 01	0.72327
1050	GA72(1)	14.20H	(2)	601	8.69219E 02	14.40509
			(2)	630	2.66830E 03	44.22030
			(2)	834	6.03411E 03	100.00000
			(2)	894	6.53842E 02	10.83576
			(2)	1050	3.24360E 02	5.37544
			(2)	1595	3.71829E 02	6.16212
			(2)	1959	1.36782E 02	2.26681
			(2)	2203	6.17595E 02	10.23507
			(2)	2491	1.58529E 02	2.62722
			(2)	2508	2.97087E 02	4.92345
			(3)	573	5.76497E 01	0.95540
			(3)	937	1.01930E 02	1.68924
			(3)	1181	8.11010E 02	13.44043
			(3)	1469	3.56044E 02	5.90051
			(3)	1486	6.82006E 02	11.30252
1068	IN116M(0)	54.00M	(2)	137	1.07135E 05	36.63674
			(2)	406	2.92425E 05	100.00000
			(2)	1085	1.65658E 05	56.64970
			(2)	1274	1.88838E 05	64.57653
			(2)	1487	4.27715E 04	14.62646
			(2)	2090	3.00222E 04	10.26663
			(3)	465	4.42555E 03	1.51340
			(3)	1068	3.22920E 04	11.04283

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
1068	SB124(0)	60.00D	(2)	603	3.92323E 03	100.00000
			(2)	646	3.66145E 02	9.33275
			(2)	714	5.31381E 02	13.54447
			(2)	723	1.82456E 03	46.50650
			(2)	970	1.00641E 02	2.56525
			(2)	1322	1.29127E 02	3.29135
			(2)	1694	5.15137E 02	13.13043
			(2)	2090	2.85596E 01	0.72796
			(3)	672	1.39587E 02	3.55797
			(3)	1068	3.07189E 01	0.78300
1070	SN125M(0)	9.50M	(2)	326	1.24505E 02	100.00000
			(2)	640	1.33947E-01	0.10758
			(2)	1070	7.25274E-02	0.05825
			(2)	1394	2.94974E-01	0.23692
1079	RB86(1)	18.00D	(2)	1079	8.43136E 01	100.00000
1080	GE77(0)	12.00H	(2)	210	1.19156E 02	55.67227
			(2)	215	1.25405E 02	58.59226
			(2)	265	2.14030E 02	100.00000
			(2)	368	3.91023E 01	18.26952
			(2)	416	5.16719E 01	24.14230
			(2)	563	1.73330E 01	8.09939
			(2)	652	1.10625E 01	5.16867
			(2)	709	8.42804E 00	3.93778
			(2)	920	3.95600E 00	1.84834
			(2)	1080	4.01964E 00	1.87807
			(2)	1370	2.69451E 00	1.25894
1085	IN116M(0)	54.00M	(2)	137	1.07135E 05	36.63674
			(2)	406	2.92425E 05	100.00000
			(2)	1035	1.65658E 05	56.64970
			(2)	1274	1.88838E 05	64.57653
			(2)	1487	4.27715E 04	14.62646
			(2)	2090	3.00222E 04	10.26663
			(3)	465	4.42555E 03	1.51340
			(3)	1068	3.22920E 04	11.04283
1088	RB88(0)	17.80M	(2)	908	2.12267E 01	100.00000
			(2)	1390	1.20960E 00	5.69848
			(2)	1850	1.34461E 01	63.34544
			(2)	2110	4.77259E-01	2.24839
			(2)	2680	8.26485E-01	3.89361
			(2)	3010	9.31651E-02	0.43891
			(2)	3240	8.37187E-02	0.39440
			(2)	4870	3.81398E-02	0.17968
			(3)	898	6.72307E 00	31.67272
			(3)	1088	5.38756E-01	2.53811
			(3)	1659	2.33893E 00	11.01883
			(3)	1988	3.44794E-01	1.62434
			(3)	2219	3.79037E-01	1.78566
			(3)	3848	5.21914E-01	2.45876
1089	AU198(0)	2.69D	(2)	412	4.14259E 05	100.00000
			(2)	675	2.08278E 03	0.50277
			(2)	1089	2.61211E 02	0.06305
1090	EU152(0)	12.50Y	(2)	121	2.31630E 07	100.00000
			(2)	245	4.94445E 06	21.34433
			(2)	344	6.45192E 06	27.85442
			(2)	412	1.86000E 05	0.80300
			(2)	792	7.45056E 05	3.21658
			(2)	872	2.82184E 05	1.21825
			(2)	969	9.89691E 05	4.27272
			(2)	1090	7.28610E 05	3.14558
			(2)	1200	2.56162E 05	1.10591
			(2)	1420	9.38137E 05	4.05016
1090	YB177(0)	1.90H	(2)	118	5.66496E 01	6.75861
			(2)	140	3.77136E 01	4.49944
			(2)	147	8.38184E 02	100.00000
			(2)	950	3.50208E 00	0.41782
			(2)	1090	1.52099E 01	1.81462
			(2)	1120	1.98634E 00	0.23698
			(2)	1240	1.16683E 01	1.39210
1098	FE59(0)	45.00D	(2)	145	1.90740E 00	25.37672
			(2)	191	4.09568E 00	54.49029
			(2)	1098	7.51634E 00	100.00000
			(2)	1289	4.65355E 00	61.91240
1109	MN56(1)	2.60H	(2)	845	6.73388E 04	100.00000
			(2)	1806	7.33960E 03	10.89952
			(2)	2131	2.87468E 03	4.26899
			(2)	2651	2.54607E 02	0.37810
			(2)	2976	4.98261E 01	0.07399
			(3)	794	3.17971E 03	4.72047
			(3)	1109	3.43576E 03	5.10219
			(3)	1629	7.07683E 02	1.05093
			(3)	1954	1.90843E 02	0.26956
1114	NI65(1)	2.60H	(2)	368	9.81712E 00	100.00000
			(2)	1114	7.46283E 00	76.01847
			(2)	1482	8.40342E 00	85.59365
			(3)	460	8.47262E-01	8.63045
1114	ZN65(1)	245.00D	(2)	511	2.63741E 01	18.69501
			(2)	1114	1.41076E 02	100.00000

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
1119	SC46(0)	84.00D	(2)	885	1.49040E 05	100.00000
			(2)	1119	1.13022E 05	75.83333
1120	YB177(0)	1.90H	(2)	118	5.66496E 01	6.75861
			(2)	140	3.77136E 01	4.49944
			(2)	147	8.38184E 02	100.00000
			(2)	950	3.50208E 00	0.41782
			(2)	1090	1.52099E 01	1.81462
			(2)	1120	1.98634E 00	0.23698
			(2)	1240	1.16683E 01	1.39210
1122	TA182(0)	115.00D	(2)	100	6.28425E 03	15.80900
			(2)	114	1.27153E 04	31.98734
			(2)	152	3.97511E 04	100.00000
			(2)	179	1.57662E 04	39.66239
			(2)	222	2.78169E 04	69.97763
			(2)	1122	7.98781E 03	20.09456
			(2)	1189	3.31338E 03	8.33531
			(2)	1222	6.82214E 03	17.16216
			(2)	1231	3.55305E 03	8.93824
1140	SB122(0)	2.80D	(2)	564	1.15474E 04	100.00000
			(2)	686	4.38313E 02	3.79578
			(2)	1140	2.19240E 02	1.89862
			(2)	1260	4.57800E 02	3.96454
1142	CL38(1)	37.50M	(2)	1590	1.34924E 02	100.00000
			(2)	2164	9.62829E 01	71.36063
			(3)	568	2.07576E 01	15.38462
			(3)	1142	1.22180E 02	90.55418
1150	IR194(0)	19.00H	(2)	293	3.02112E 04	21.99200
			(2)	329	1.37374E 05	100.00000
			(2)	620	3.13470E 03	2.28188
			(2)	643	1.04762E 04	7.62605
			(2)	937	3.23500E 03	2.35490
			(2)	1150	2.51100E 03	1.82786
			(2)	1478	1.25058E 02	0.09103
			(3)	456	1.23462E 01	0.00899
1168	CS134(0)	2.20Y	(2)	475	2.28150E 03	2.24719
			(2)	563	9.45851E 03	2.31628
			(2)	569	1.59827E 04	15.74232
			(2)	605	1.01527E 05	100.00000
			(2)	796	6.40736E 04	63.11010
			(2)	801	6.37528E 03	6.27941
			(2)	1038	5.50168E 02	0.54189
			(2)	1168	8.94301E 02	0.88085
			(2)	1368	1.29064E 03	1.27123
1172	CO60(0)	5.25Y	(2)	1172	1.30758E 05	100.00000
			(2)	1332	1.12998E 05	86.41765
1178	ZR97(0)	17.00H	(2)	665	6.83405E 00	100.00000
			(2)	747	5.81960E 00	85.15591
			(2)	1350	1.17600E-01	1.72079
			(2)	1620	4.60992E-02	0.67455
			(2)	2200	1.41120E-02	0.20650
			(3)	598	8.40840E-03	0.12304
			(3)	1178	1.83456E-02	0.26844
1180	TB160(0)	73.00D	(2)	197	3.95956E 04	68.26448
			(2)	299	5.80032E 04	100.00000
			(2)	391	4.28947E 03	7.39523
			(2)	880	1.32106E 04	22.77557
			(2)	964	1.24858E 04	21.52598
			(2)	1180	4.49280E 03	7.74578
			(2)	1270	2.07360E 03	3.57498
1181	GA72(1)	14.20H	(2)	601	8.69219E 02	14.40509
			(2)	630	2.66830E 03	44.22030
			(2)	834	6.03411E 03	100.00000
			(2)	894	6.53842E 02	10.83576
			(2)	1050	3.24360E 02	5.37544
			(2)	1595	3.71829E 02	6.16212
			(2)	1959	1.36782E 02	2.26681
			(2)	2203	6.17595E 02	10.23507
			(2)	2491	1.58529E 02	2.62722
			(2)	2508	2.97087E 02	4.92345
			(3)	573	5.76497E 01	0.95540
			(3)	937	1.01930E 02	1.68924
			(3)	1181	8.11010E 02	13.44043
			(3)	1469	3.56044E 02	5.90051
			(3)	1486	6.82006E 02	11.30252
1189	TA182(0)	115.00D	(2)	100	6.28425E 03	15.80900
			(2)	114	1.27153E 04	31.98734
			(2)	152	3.97511E 04	100.00000
			(2)	179	1.57662E 04	39.66239
			(2)	222	2.78169E 04	69.97763
			(2)	1122	7.98781E 03	20.09456
			(2)	1189	3.31338E 03	8.33531
			(2)	1222	6.82214E 03	17.16216
			(2)	1231	3.55305E 03	8.93824

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
1200	EU152(0)	12.50Y	(2)	121	2.31630E 07	100.00000
			(2)	245	4.94445E 06	21.34633
			(2)	344	6.45192E 06	27.85442
			(2)	412	1.86000E 05	0.80300
			(2)	782	7.45056E 05	3.21658
			(2)	872	2.82184E 05	1.21825
			(2)	969	9.89691E 05	4.27272
			(2)	1090	7.28610E 05	3.14558
			(2)	1200	2.56162E 05	1.10591
			(2)	1420	9.38137E 05	4.05016
1210	AS76(1)	26.50H	(2)	561	1.34829E 04	100.00000
			(2)	648	2.22218E 03	16.48143
			(2)	1210	1.10090E 03	8.16514
			(2)	1410	8.34720E 01	0.61910
			(2)	2060	9.28493E 01	0.68864
			(3)	1038	9.37728E 01	0.69549
1222	TA182(0)	115.00D	(2)	100	6.28425E 03	15.80900
			(2)	114	1.27153E 04	31.98734
			(2)	152	3.97511E 04	100.00000
			(2)	179	1.57662E 04	39.66239
			(2)	222	2.78169E 04	69.97763
			(2)	1122	7.98781E 03	20.09456
			(2)	1189	3.31338E 03	8.33531
			(2)	1222	6.82214E 03	17.16216
			(2)	1231	3.55305E 03	8.93824
1231	TA182(0)	115.00D	(2)	100	6.28425E 03	15.80900
			(2)	114	1.27153E 04	31.98734
			(2)	152	3.97511E 04	100.00000
			(2)	179	1.57662E 04	39.66239
			(2)	222	2.78169E 04	69.97763
			(2)	1122	7.98781E 03	20.09456
			(2)	1189	3.31338E 03	8.33531
			(2)	1222	6.82214E 03	17.16216
			(2)	1231	3.55305E 03	8.93824
1240	YB177(0)	1.90H	(2)	118	5.66496E 01	6.75861
			(2)	140	3.77136E 01	4.49944
			(2)	147	8.38184E 02	100.00000
			(2)	950	3.50208E 00	0.41782
			(2)	1090	1.52099E 01	1.81462
			(2)	1120	1.98634E 00	0.23698
			(2)	1240	1.16683E 01	1.39210
1260	SB122(0)	2.80D	(2)	564	1.15474E 04	100.00000
			(2)	686	4.38213E 02	3.79578
			(2)	1140	2.19240E 02	1.89862
			(2)	1260	4.57800E 02	3.96454
1260	SI31(0)	2.60H	(2)	1260	1.64808E-02	100.00000
1270	TB160(0)	73.00D	(2)	197	3.95956E 04	68.26448
			(2)	299	5.80032E 04	100.00000
			(2)	391	4.28947E 03	7.39523
			(2)	880	1.32106E 04	22.77557
			(2)	964	1.24858E 04	21.52598
			(2)	1180	4.49280E 03	7.74578
			(2)	1270	2.07360E 03	3.57498
1274	IN116M(0)	54.00M	(2)	137	1.07135E 05	36.63674
			(2)	406	2.92425E 05	100.00000
			(2)	1085	1.65658E 05	56.64970
			(2)	1274	1.88838E 05	64.57653
			(2)	1487	4.27715E 04	14.62646
			(2)	2090	3.00222E 04	10.26663
			(3)	465	4.42555E 03	1.51340
			(3)	1068	3.22920E 04	11.04293
1277	EU154(0)	16.00Y	(2)	123	2.04540E 06	100.00000
			(2)	248	2.42787E 05	11.86986
			(2)	593	2.99426E 04	1.46390
			(2)	694	2.98771E 03	0.14607
			(2)	706	2.92219E 03	0.14287
			(2)	725	1.19246E 05	5.82997
			(2)	759	3.79002E 04	1.85294
			(2)	875	5.96232E 04	2.91498
			(2)	998	5.36915E 04	2.62498
			(2)	1007	6.47141E 04	3.16388
			(2)	1277	1.23030E 05	6.01496
1289	FE59(0)	45.00D	(2)	145	1.90740E 00	25.37672
			(2)	191	4.09568E 00	54.49029
			(2)	1098	7.51634E 00	100.00000
			(2)	1289	4.65355E 00	61.91240
1290	A41(0)	1.80H	(2)	1290	2.52110E 03	100.00000
1290	CA47(0)	4.80D	(2)	480	8.29440E-03	28.22838
			(2)	830	3.86208E-03	13.14384
			(2)	1290	2.93832E-02	100.00000

ENERGY KEV	ISOTOPE	HALF LIFE	ENERGIES KEV		SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
1299	IN114M(0)	49.00D	(2)	192	9.52646E 03	100.00000
			(2)	556	3.73464E 02	3.92028
			(2)	722	2.63290E 02	2.76377
			(2)	1299	3.78360E 00	0.03972
1317	BR82(0)	35.90H	(2)	554	7.97940E 03	100.00000
			(2)	619	4.50934E 03	56.51224
			(2)	698	2.31876E 03	29.05933
			(2)	777	6.09794E 03	76.42106
			(2)	828	1.91605E 03	24.01252
			(2)	1044	1.53540E 03	19.24205
			(2)	1317	1.06528E 03	13.35039
			(2)	1475	5.94000E 02	7.44417
			(3)	453	5.77125E 01	0.72327
1322	SB124(0)	60.00D	(2)	603	3.92323E 03	100.00000
			(2)	646	3.66145E 02	9.33275
			(2)	714	5.31381E 02	13.54447
			(2)	723	1.82456E 03	46.50650
			(2)	970	1.00641E 02	2.56525
			(2)	1322	1.29127E 02	3.29135
			(2)	1694	5.15137E 02	13.13043
			(2)	2090	2.85596E 01	0.72796
			(3)	672	1.39587E 02	3.55797
			(3)	1068	3.07188E 01	0.78300
1327	EU152M(0)	9.20H	(2)	122	1.21636E 06	100.00000
			(2)	344	1.28396E 05	10.55571
			(2)	837	1.43627E 05	11.80788
			(2)	961	1.24085E 05	10.20128
			(2)	993	1.12253E 04	0.92286
			(2)	1327	1.99255E 04	1.63812
			(2)	1410	1.36009E 04	1.11816
1332	CO60(0)	5.25Y	(2)	1172	1.30758E 05	100.00000
			(2)	1332	1.12998E 05	86.41765
1340	CU64(1)	12.80H	(2)	511	1.07536E 04	100.00000
			(2)	1340	4.12080E 01	0.38320
1350	ZR97(0)	17.00H	(2)	665	6.83405E 00	100.00000
			(2)	747	5.81960E 00	85.15591
			(2)	1350	1.17600E-01	1.72079
			(2)	1620	4.60992E-02	0.67455
			(2)	2200	1.41120E-02	0.20650
			(3)	593	8.40840E-03	0.12304
			(3)	1178	1.83456E-02	0.26844
1360	HO166(0)	27.30H	(2)	80	1.57992E 05	100.00000
			(2)	1360	6.44906E 02	0.40819
			(2)	1530	1.09477E 02	0.06929
			(2)	1610	5.17493E 01	0.03275
			(3)	508	1.43022E 01	0.00905
			(3)	588	8.75556E 00	0.00554
1368	CS134(0)	2.20Y	(2)	475	2.28150E 03	2.24719
			(2)	563	9.45851E 03	9.31628
			(2)	569	1.59827E 04	15.74232
			(2)	605	1.01527E 05	100.00000
			(2)	796	6.40736E 04	63.11010
			(2)	801	6.37528E 03	6.27941
			(2)	1038	5.50168E 02	0.54189
			(2)	1168	8.94301E 02	0.88085
			(2)	1368	1.29064E 03	1.27123
1368	NA24(1)	15.00H	(2)	1368	3.32898E 03	93.45261
			(2)	2754	1.16508E 03	32.70651
			(3)	1732	3.56221E 03	100.00000
1370	GE77(0)	12.00H	(2)	210	1.19156E 02	55.67227
			(2)	215	1.25405E 02	58.59226
			(2)	265	2.14030E 02	100.00000
			(2)	368	3.91023E 01	18.26952
			(2)	416	5.16719E 01	24.14230
			(2)	563	1.73330E 01	8.09839
			(2)	632	1.10625E 01	5.16867
			(2)	709	8.42804E 00	3.93778
			(2)	920	3.95600E 00	1.84834
			(2)	1080	4.01964E 00	1.87807
			(2)	1370	2.69451E 00	1.25894
1384	AG110M(1)	260.00D	(2)	446	6.23318E 02	12.66058
			(2)	619	5.38017E 02	10.92799
			(2)	657	4.92330E 03	100.00000
			(2)	677	5.66828E 02	11.51318
			(2)	705	8.02907E 02	16.30832
			(2)	764	1.01771E 03	20.67140
			(2)	815	2.27690E 02	4.62475
			(2)	885	2.58579E 03	52.52162
			(2)	937	8.02420E 02	16.29844
			(2)	1384	5.50040E 02	11.17220
			(2)	1504	2.62940E 02	5.34074
			(3)	482	2.97402E 01	0.60407

ENERGY KEV	ISOTOPE	HALF LIFE	ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
1390	RB88(0)	17.80M	(2) 908	2.12267E 01	100.00000
			(2) 1390	1.20960E 00	5.69848
			(2) 1850	1.34461E 01	63.34544
			(2) 2110	4.77259E-01	2.24839
			(2) 2680	8.26485E-01	3.89361
			(2) 3010	9.31651E-02	0.43891
			(2) 3240	8.37197E-02	0.39440
			(2) 4870	3.81398E-02	0.17968
			(3) 828	6.72307E 00	31.67272
			(3) 1088	5.38756E-01	2.53811
			(3) 1658	2.33893E 00	11.01883
			(3) 1988	3.44794E-01	1.62434
			(3) 2218	3.79037E-01	1.78566
			(3) 3848	5.21914E-01	2.45876
1394	SN125M(0)	9.50M	(2) 326	1.24505E 02	100.00000
			(2) 640	1.33947E-01	0.10758
			(2) 1070	7.25274E-02	0.05825
			(2) 1394	2.94974E-01	0.23692
1410	AS76(1)	26.50H	(2) 561	1.34829E 04	100.00000
			(2) 648	2.22218E 03	16.48143
			(2) 1210	1.10090E 03	8.16514
			(2) 1410	8.34720E 01	0.61910
			(2) 2060	9.23493E 01	0.68864
			(3) 1038	9.37728E 01	0.69549
1410	BA139(1)	1.42H	(2) 166	1.60279E 03	100.00000
			(2) 1410	7.50120E 01	4.68010
1410	EU152M(0)	9.20H	(2) 122	1.21636E 06	100.00000
			(2) 344	1.28396E 05	10.55571
			(2) 837	1.43627E 05	11.80788
			(2) 961	1.24085E 05	10.20128
			(2) 983	1.12253E 04	0.92286
			(2) 1327	1.99255E 04	1.63812
			(2) 1410	1.36009E 04	1.11816
1420	EU152(0)	12.50Y	(2) 121	2.31630E 07	100.00000
			(2) 245	4.94445E 06	21.34633
			(2) 344	6.45192E 06	27.85442
			(2) 412	1.86000E 05	0.80300
			(2) 782	7.45056E 05	3.21658
			(2) 872	2.92184E 05	1.21825
			(2) 969	9.89691E 05	4.27272
			(2) 1090	7.28610E 05	3.14558
			(2) 1200	2.56162E 05	1.10591
			(2) 1420	9.38137E 05	4.05016
1440	V52(0)	3.75M	(2) 1440	1.44690E 04	100.00000
1469	GA72(1)	14.20H	(2) 601	8.69219E 02	14.40509
			(2) 630	2.66830E 03	44.22030
			(2) 834	6.03411E 03	100.00000
			(2) 894	6.53842E 02	10.83576
			(2) 1050	3.24360E 02	5.37544
			(2) 1525	3.71829E 02	6.16212
			(2) 1959	1.36782E 02	2.26681
			(2) 2203	6.17595E 02	10.23507
			(2) 2491	1.58529E 02	2.62722
			(2) 2508	2.97087E 02	4.92345
			(3) 573	5.76497E 01	0.95540
			(3) 937	1.01930E 02	1.68924
			(3) 1181	8.11010E 02	13.44043
			(3) 1469	3.56044E 02	5.90051
			(3) 1486	6.82006E 02	11.30252
1475	BR82(0)	35.90H	(2) 554	7.97940E 03	100.00000
			(2) 619	4.50934E 03	56.51224
			(2) 698	2.31876E 03	29.05933
			(2) 777	6.09794E 03	76.42106
			(2) 828	1.91605E 03	24.01252
			(2) 1044	1.53540E 03	19.24205
			(2) 1317	1.06528E 03	13.35039
			(2) 1475	5.94000E 02	7.44417
			(3) 453	5.77125E 01	0.72327
1478	IR194(0)	19.00H	(2) 293	3.02112E 04	21.99200
			(2) 329	1.37374E 05	100.00000
			(2) 620	3.13470E 03	2.28188
			(2) 643	1.04762E 04	7.62605
			(2) 937	3.23500E 03	2.35490
			(2) 1150	2.51100E 03	1.82786
			(2) 1478	1.25058E 02	0.09103
			(3) 456	1.23462E 01	0.00899
1478	LA140(0)	40.20H	(2) 329	2.91762E 04	100.00000
			(2) 433	2.85314E 03	9.77900
			(2) 487	1.98768E 04	68.12650
			(2) 815	8.94344E 03	30.65315
			(2) 1600	8.55360E 03	29.31700
			(2) 2500	3.84912E 01	0.13193
			(3) 578	1.33650E 03	4.58078
			(3) 1478	8.74800E 01	0.29983

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
1482	NI65(1)	2.60H	(2)	368	9.81712E 00	100.00000
			(2)	1114	7.46283E 00	76.01847
			(2)	1482	8.40342E 00	85.59965
			(3)	460	8.47262E-01	8.63045
1486	GA72(1)	14.20H	(2)	601	8.69219E 02	14.40509
			(2)	630	2.66830E 03	44.22030
			(2)	834	6.03411E 03	100.00000
			(2)	894	6.53842E 02	10.83576
			(2)	1050	3.24360E 02	5.37544
			(2)	1595	3.71829E 02	6.16212
			(2)	1959	1.36782E 02	2.26681
			(2)	2203	6.17595E 02	10.23507
			(2)	2491	1.58529E 02	2.62722
			(2)	2508	2.97087E 02	4.92345
			(3)	573	5.76497E 01	0.95540
			(3)	937	1.01930E 02	1.68924
			(3)	1181	8.11010E 02	13.44043
			(3)	1469	3.56044E 02	5.90051
			(3)	1486	6.82006E 02	11.30252
1487	IN116M(0)	54.00M	(2)	137	1.07135E 05	36.63674
			(2)	406	2.92425E 05	100.00000
			(2)	1085	1.65658E 05	56.64970
			(2)	1294	1.88938E 05	64.57653
			(2)	1487	4.27715E 04	14.62646
			(2)	2090	3.00222E 04	10.26663
			(3)	465	4.42555E 03	1.51340
			(3)	1068	3.22920E 04	11.04283
1504	AG110M(1)	260.00D	(2)	446	6.23318E 02	12.66058
			(2)	619	5.38017E 02	10.92799
			(2)	657	4.92330E 03	100.00000
			(2)	677	5.66828E 02	11.51318
			(2)	705	8.02907E 02	16.30832
			(2)	764	1.01771E 03	20.67140
			(2)	815	2.27690E 02	4.62475
			(2)	885	2.58579E 03	52.52162
			(2)	937	8.02420E 02	16.29844
			(2)	1384	5.50040E 02	11.17220
			(2)	1504	2.62940E 02	5.34074
			(3)	432	2.97402E 01	0.60407
1530	HO166(0)	27.30H	(2)	80	1.57992E 05	100.00000
			(2)	1360	6.44906E 02	0.40819
			(2)	1530	1.09477E 02	0.06929
			(2)	1610	5.17493E 01	0.03275
			(3)	508	1.43022E 01	0.00905
			(3)	588	8.75556E 00	0.00554
1530	K42(0)	12.50H	(2)	1530	6.36552E 01	100.00000
			(3)	508	8.31600E 00	13.06413
1570	PR142(0)	19.20H	(2)	1570	4.51536E 02	100.00000
			(3)	548	6.73440E 01	14.91443
1590	CL38(1)	37.50M	(2)	1590	1.34924E 02	100.00000
			(2)	2164	9.62829E 01	71.36063
			(3)	568	2.07576E 01	15.38462
			(3)	1142	1.22180E 02	90.55418
1595	GA72(1)	14.20H	(2)	601	8.69219E 02	14.40509
			(2)	630	2.66830E 03	44.22030
			(2)	834	6.03411E 03	100.00000
			(2)	894	6.53842E 02	10.83576
			(2)	1050	3.24360E 02	5.37544
			(2)	1595	3.71829E 02	6.16212
			(2)	1959	1.36782E 02	2.26681
			(2)	2203	6.17595E 02	10.23507
			(2)	2491	1.58529E 02	2.62722
			(2)	2508	2.97087E 02	4.92345
			(3)	573	5.76497E 01	0.95540
			(3)	937	1.01930E 02	1.68924
			(3)	1181	8.11010E 02	13.44043
			(3)	1469	3.56044E 02	5.90051
			(3)	1486	6.82006E 02	11.30252
1600	LA140(0)	40.20H	(2)	329	2.91762E 04	100.00000
			(2)	438	2.85314E 03	9.77900
			(2)	487	1.98768E 04	68.12650
			(2)	815	8.94344E 03	30.65315
			(2)	1600	8.55360E 03	29.31700
			(2)	2500	3.84912E 01	0.13193
			(3)	578	1.33650E 03	4.58078
			(3)	1478	8.74800E 01	0.29983
1610	HO166(0)	27.30H	(2)	80	1.57992E 05	100.00000
			(2)	1360	6.44906E 02	0.40819
			(2)	1530	1.09477E 02	0.06929
			(2)	1610	5.17493E 01	0.03275
			(3)	508	1.43022E 01	0.00905
			(3)	588	8.75556E 00	0.00554
1620	ZR97(0)	17.00H	(2)	665	6.83405E 00	100.00000
			(2)	747	5.81960E 00	85.15591
			(2)	1350	1.17600E-01	1.72079
			(2)	1620	4.60992E-02	0.67455
			(2)	2200	1.41120E-02	0.20650
			(3)	598	8.40840E-03	0.12304
			(3)	1178	1.83456E-02	0.26844

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
1629	MN56(1)	2.60H	(2)	845	6.73388E 04	100.00000
			(2)	1806	7.33960E 03	10.89952
			(2)	2131	2.87468E 03	4.26899
			(2)	2651	2.54607E 02	0.37810
			(2)	2976	4.98261E 01	0.07399
			(3)	784	3.17871E 03	4.72047
			(3)	1109	3.43576E 03	5.10219
			(3)	1629	7.07683E 02	1.05093
			(3)	1954	1.80843E 02	0.26856
1658	RB88(0)	17.80M	(2)	908	2.12267E 01	100.00000
			(2)	1390	1.20960E 00	5.69848
			(2)	1850	1.34461E 01	63.34544
			(2)	2110	4.77259E-01	2.24839
			(2)	2680	8.26485E-01	3.89361
			(2)	3010	9.31651E-02	0.43891
			(2)	3240	8.37187E-02	0.39440
			(2)	4870	3.81398E-02	0.17968
			(3)	828	6.72307E 00	31.67272
			(3)	1088	5.38756E-01	2.53811
			(3)	1658	2.33893E 00	11.01883
			(3)	1988	3.44794E-01	1.62434
			(3)	2213	3.79037E-01	1.78566
			(3)	3848	5.21914E-01	2.45876
1694	SB124(0)	60.00D	(2)	603	3.92323E 03	100.00000
			(2)	646	3.66145E 02	9.33275
			(2)	714	5.31381E 02	13.54447
			(2)	723	1.82456E 03	46.50650
			(2)	970	1.00641E 02	2.56525
			(2)	1322	1.29127E 02	3.29135
			(2)	1694	5.15137E 02	13.13043
			(2)	2090	2.85596E 01	0.72796
			(3)	672	1.39587E 02	3.55797
			(3)	1068	3.07188E 01	0.78300
1732	NA24(1)	15.00H	(2)	1369	3.32898E 03	93.45261
			(2)	2754	1.16508E 03	32.70651
			(3)	1732	3.56221E 03	100.00000
1780	AL28(0)	2.30M	(2)	1780	9.47520E 02	100.00000
			(3)	753	3.72240E 02	39.28571
1806	MN56(1)	2.60H	(2)	845	6.73388E 04	100.00000
			(2)	1806	7.33960E 03	10.89952
			(2)	2131	2.87468E 03	4.26899
			(2)	2651	2.54607E 02	0.37810
			(2)	2976	4.98261E 01	0.07399
			(3)	784	3.17871E 03	4.72047
			(3)	1109	3.43576E 03	5.10219
			(3)	1629	7.07683E 02	1.05093
			(3)	1954	1.80843E 02	0.26856
1850	RB88(0)	17.80M	(2)	908	2.12267E 01	100.00000
			(2)	1390	1.20960E 00	5.69848
			(2)	1850	1.34461E 01	63.34544
			(2)	2110	4.77259E-01	2.24839
			(2)	2680	8.26485E-01	3.89361
			(2)	3010	9.31651E-02	0.43891
			(2)	3240	8.37187E-02	0.39440
			(2)	4870	3.81398E-02	0.17968
			(3)	828	6.72307E 00	31.67272
			(3)	1088	5.38756E-01	2.53811
			(3)	1658	2.33893E 00	11.01883
			(3)	1988	3.44794E-01	1.62434
			(3)	2218	3.79037E-01	1.78566
			(3)	3848	5.21914E-01	2.45876
1954	MN56(1)	2.60H	(2)	845	6.73388E 04	100.00000
			(2)	1806	7.33960E 03	10.89952
			(2)	2131	2.87468E 03	4.26899
			(2)	2651	2.54607E 02	0.37810
			(2)	2976	4.98261E 01	0.07399
			(3)	784	3.17871E 03	4.72047
			(3)	1109	3.43576E 03	5.10219
			(3)	1629	7.07683E 02	1.05093
			(3)	1954	1.80843E 02	0.26856
1959	GA72(1)	14.20H	(2)	601	8.69219E 02	14.40509
			(2)	630	2.66830E 03	44.22030
			(2)	834	6.03411E 03	100.00000
			(2)	894	6.53842E 02	10.83576
			(2)	1050	3.24360E 02	5.37544
			(2)	1595	3.71829E 02	6.16212
			(2)	1959	1.36782E 02	2.26681
			(2)	2203	6.17595E 02	10.23507
			(2)	2491	1.58529E 02	2.62722
			(2)	2508	2.97087E 02	4.92345
			(3)	573	5.76497E 01	0.95540
			(3)	937	1.01930E 02	1.68924
			(3)	1181	8.11010E 02	13.44043
			(3)	1469	3.56044E 02	5.90051
			(3)	1486	6.82006E 02	11.30252
1988	RB88(0)	17.80M	(2)	908	2.12267E 01	100.00000
			(2)	1390	1.20960E 00	5.69848
			(2)	1850	1.34461E 01	63.34544
			(2)	2110	4.77259E-01	2.24839
			(2)	2680	8.26485E-01	3.89361
			(2)	3010	9.31651E-02	0.43891
			(2)	3240	8.37187E-02	0.39440
			(2)	4870	3.81398E-02	0.17968
			(3)	828	6.72307E 00	31.67272
			(3)	1088	5.38756E-01	2.53811
			(3)	1658	2.33893E 00	11.01883
			(3)	1988	3.44794E-01	1.62434
			(3)	2218	3.79037E-01	1.78566
			(3)	3848	5.21914E-01	2.45876

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
2060	AS76(1)	26.50H	(2)	561	1.34829E 04	100.00000
			(2)	648	2.22218E 03	16.48143
			(2)	1210	1.10090E 03	8.16514
			(2)	1410	8.34720E 01	0.61910
			(2)	2060	9.28493E 01	0.68864
			(3)	1038	9.37728E 01	0.69549
2078	CA49(0)	8.80M	(2)	3100	2.45106E 00	24.87805
			(2)	4050	1.79712E-01	1.82406
			(2)	4680	7.64640E-03	0.07761
			(3)	2078	9.85230E 00	100.00000
			(3)	3028	1.41336E 00	14.34548
			(3)	3659	9.26640E-02	0.94053
2078	S37(0)	5.04M	(2)	3100	3.71790E-02	24.87805
			(3)	2078	1.49445E-01	100.00000
2090	IN116M(0)	54.00M	(2)	137	1.07135E 05	36.63674
			(2)	406	2.92425E 05	100.00000
			(2)	1085	1.65658E 05	56.64970
			(2)	1274	1.88838E 05	64.57653
			(2)	1487	4.27715E 04	14.62646
			(2)	2090	3.00222E 04	10.26663
			(3)	465	4.42555E 03	1.51340
			(3)	1068	3.22920E 04	11.04283
2090	SB124(0)	60.00D	(2)	603	3.92323E 03	100.00000
			(2)	646	3.66145E 02	9.33275
			(2)	714	5.31381E 02	13.54447
			(2)	723	1.82456E 03	46.50650
			(2)	970	1.00641E 02	2.56525
			(2)	1322	1.29127E 02	3.29135
			(2)	1694	5.15137E 02	13.13043
			(2)	2090	2.85596E 01	0.72796
			(3)	672	1.39537E 02	3.55797
			(3)	1068	3.07188E 01	0.78300
2110	RB88(0)	17.80M	(2)	908	2.12267E 01	100.00000
			(2)	1390	1.20960E 00	5.69848
			(2)	1850	1.34461E 01	63.34544
			(2)	2110	4.77259E-01	2.24839
			(2)	2680	8.26485E-01	3.89361
			(2)	3010	9.31651E-02	0.43891
			(2)	3240	8.37187E-02	0.39440
			(2)	4870	3.81398E-02	0.17968
			(3)	828	6.72307E 00	31.67272
			(3)	1088	5.38756E-01	2.53811
			(3)	1658	2.33893E 00	11.01883
			(3)	1988	3.44794E-01	1.62434
			(3)	2218	3.79037E-01	1.78566
			(3)	3848	5.21914E-01	2.45876
2131	MN56(1)	2.60H	(2)	845	6.73388E 04	100.00000
			(2)	1806	7.33960E 03	10.89952
			(2)	2131	2.87468E 03	4.26899
			(2)	2651	2.54607E 02	0.37810
			(2)	2976	4.98261E 01	0.07399
			(3)	784	3.17871E 03	4.72047
			(3)	1109	3.43576E 03	5.10219
			(3)	1629	7.07683E 02	1.05093
			(3)	1954	1.80843E 02	0.26856
2164	CL38(1)	37.50M	(2)	1590	1.34924E 02	100.00000
			(2)	2164	9.62829E 01	71.36063
			(3)	568	2.07576E 01	15.38462
			(3)	1142	1.22180E 02	90.55418
2200	ZR97(0)	17.00H	(2)	665	6.83405E 00	100.00000
			(2)	747	5.81960E 00	85.15591
			(2)	1350	1.17600E-01	1.72079
			(2)	1620	4.60992E-02	0.67455
			(2)	2200	1.41120E-02	0.20650
			(3)	598	8.40840E-03	0.12304
			(3)	1178	1.83456E-02	0.26844
2203	GA72(1)	14.20H	(2)	601	8.69219E 02	14.40509
			(2)	630	2.66830E 03	44.22030
			(2)	834	6.03411E 03	100.00000
			(2)	894	6.53842E 02	10.83576
			(2)	1050	3.24360E 02	5.37544
			(2)	1595	3.71829E 02	6.16212
			(2)	1959	1.36782E 02	2.26681
			(2)	2203	6.17595E 02	10.23507
			(2)	2491	1.58529E 02	2.62722
			(2)	2508	2.97087E 02	4.92345
			(3)	573	5.76497E 01	0.95540
			(3)	937	1.01930E 02	1.68924
			(3)	1181	8.11010E 02	13.44043
			(3)	1469	3.56044E 02	5.90051
			(3)	1486	6.82006E 02	11.30252
2218	RB88(0)	17.80M	(2)	908	2.12267E 01	100.00000
			(2)	1390	1.20960E 00	5.69848
			(2)	1850	1.34461E 01	63.34544
			(2)	2110	4.77259E-01	2.24839
			(2)	2680	8.26485E-01	3.89361
			(2)	3010	9.31651E-02	0.43891
			(2)	3240	8.37187E-02	0.39440
			(2)	4870	3.81398E-02	0.17968
			(3)	828	6.72307E 00	31.67272
			(3)	1088	5.38756E-01	2.53811
			(3)	1658	2.33893E 00	11.01883
			(3)	1988	3.44794E-01	1.62434
			(3)	2218	3.79037E-01	1.78566
			(3)	3848	5.21914E-01	2.45876

ENERGY KEV	ISOTOPE	HALF LIFE		ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
2491	CA72(1)	14.20H	(2)	601	8.692219E 02	14.40509
			(2)	630	2.668830E 03	44.22030
			(2)	834	6.034111E 03	100.00000
			(2)	894	6.538842E 02	10.83576
			(2)	1050	3.243660E 02	5.37544
			(2)	1595	3.718292E 02	6.16212
			(2)	1959	1.367822E 02	2.26691
			(2)	2203	6.175955E 02	10.23507
			(2)	2491	1.585292E 02	2.62722
			(2)	2508	2.970877E 02	4.92345
			(3)	573	5.764975E 01	0.95540
			(3)	937	1.019302E 02	1.68924
			(3)	1181	8.110102E 02	13.44043
			(3)	1469	3.560446E 02	5.90051
			(3)	1486	6.820066E 02	11.30252
2500	LA140(0)	40.20H	(2)	329	2.917622E 04	100.00000
			(2)	438	2.853146E 03	9.77900
			(2)	487	1.987688E 04	68.12650
			(2)	815	8.943446E 03	30.65315
			(2)	1600	8.553606E 03	29.31700
			(2)	2500	3.849126E 01	0.13193
			(3)	578	1.336506E 03	4.58078
			(3)	1478	8.748006E 01	0.29983
2508	CA72(1)	14.20H	(2)	601	8.692219E 02	14.40509
			(2)	630	2.668830E 03	44.22030
			(2)	834	6.034111E 03	100.00000
			(2)	894	6.538842E 02	10.83576
			(2)	1050	3.243660E 02	5.37544
			(2)	1595	3.718292E 02	6.16212
			(2)	1959	1.367822E 02	2.26691
			(2)	2203	6.175955E 02	10.23507
			(2)	2491	1.585292E 02	2.62722
			(2)	2508	2.970877E 02	4.92345
			(3)	573	5.764975E 01	0.95540
			(3)	937	1.019302E 02	1.68924
			(3)	1181	8.110102E 02	13.44043
			(3)	1469	3.560446E 02	5.90051
			(3)	1486	6.820066E 02	11.30252
2651	MN56(1)	2.60H	(2)	845	6.733988E 04	100.00000
			(2)	1806	7.339602E 03	10.89952
			(2)	2131	2.874682E 03	4.26899
			(2)	2651	2.546072E 02	0.37810
			(2)	2976	4.982612E 01	0.07399
			(3)	734	3.178712E 03	4.72047
			(3)	1109	3.435762E 03	5.10219
			(3)	1629	7.076832E 02	1.05093
			(3)	1954	1.808432E 02	0.26856
2680	RB88(0)	17.80M	(2)	903	2.122672E 01	100.00000
			(2)	1390	1.209602E 00	5.69848
			(2)	1850	1.344612E 01	63.34544
			(2)	2110	4.772592E-01	2.24839
			(2)	2630	8.264852E-01	3.89361
			(2)	3010	9.316512E-02	0.43891
			(2)	3240	8.371872E-02	0.39440
			(2)	4870	3.813982E-02	0.17968
			(3)	823	6.723072E 00	31.67272
			(3)	1088	5.387562E-01	2.53811
			(3)	1658	2.338932E 00	11.01883
			(3)	1988	3.447942E-01	1.62434
			(3)	2218	3.790372E-01	1.78566
			(3)	3848	5.219142E-01	2.45876
2754	NA24(1)	15.00H	(2)	1368	3.328982E 03	93.45261
			(2)	2754	1.165082E 03	32.70651
			(3)	1732	3.562212E 03	100.00000
2976	MN56(1)	2.60H	(2)	845	6.733988E 04	100.00000
			(2)	1806	7.339602E 03	10.89952
			(2)	2131	2.874682E 03	4.26899
			(2)	2651	2.546072E 02	0.37810
			(2)	2976	4.982612E 01	0.07399
			(3)	734	3.178712E 03	4.72047
			(3)	1109	3.435762E 03	5.10219
			(3)	1629	7.076832E 02	1.05093
			(3)	1954	1.808432E 02	0.26856
3010	RB88(0)	17.80M	(2)	903	2.122672E 01	100.00000
			(2)	1390	1.209602E 00	5.69848
			(2)	1850	1.344612E 01	63.34544
			(2)	2110	4.772592E-01	2.24839
			(2)	2630	8.264852E-01	3.89361
			(2)	3010	9.316512E-02	0.43891
			(2)	3240	8.371872E-02	0.39440
			(2)	4870	3.813982E-02	0.17968
			(3)	823	6.723072E 00	31.67272
			(3)	1088	5.387562E-01	2.53811
			(3)	1658	2.338932E 00	11.01883
			(3)	1988	3.447942E-01	1.62434
			(3)	2218	3.790372E-01	1.78566
			(3)	3848	5.219142E-01	2.45876
3028	CA49(0)	8.80M	(2)	3100	2.451062E 00	24.87805
			(2)	4050	1.797122E-01	1.82406
			(2)	4630	7.646402E-03	0.07761
			(3)	2078	9.852302E 00	100.00000
			(3)	3028	1.413362E 00	14.34548
			(3)	3658	9.266402E-02	0.94053

ENERGY KEV	ISOTOPE	HALF LIFE	ENERGIES KEV	SPECIFIC ACTIVITY	RELATIVE ABUNDANCE
3100	CA49(0)	8.80M	(2) 3100	2.45106E 00	24.87805
			(2) 4050	1.79712E-01	1.82406
			(2) 4680	7.64640E-03	0.07761
			(3) 2078	9.85230E 00	100.00000
			(3) 3028	1.41336E 00	14.34548
			(3) 3658	9.26640E-02	0.94053
3100	S37(0)	5.04M	(2) 3100	3.71790E-02	24.87805
			(3) 2078	1.49445E-01	100.00000
3240	RB88(0)	17.80M	(2) 908	2.12267E 01	100.00000
			(2) 1390	1.20960E 00	5.69848
			(2) 1850	1.34461E 01	63.34544
			(2) 2110	4.77259E-01	2.24839
			(2) 2680	8.26485E-01	3.89361
			(2) 3010	9.31651E-02	0.43891
			(2) 3240	8.37187E-02	0.39440
			(2) 4870	3.81398E-02	0.17968
			(3) 828	6.72307E 00	31.67272
			(3) 1088	5.38756E-01	2.53811
			(3) 1658	2.33893E 00	11.01883
			(3) 1988	3.44794E-01	1.62434
			(3) 2218	3.79037E-01	1.78566
			(3) 3848	5.21914E-01	2.45876
3658	CA49(0)	8.80M	(2) 3100	2.45106E 00	24.87805
			(2) 4050	1.79712E-01	1.82406
			(2) 4680	7.64640E-03	0.07761
			(3) 2078	9.85230E 00	100.00000
			(3) 3028	1.41336E 00	14.34548
			(3) 3658	9.26640E-02	0.94053
3848	RB88(0)	17.80M	(2) 908	2.12267E 01	100.00000
			(2) 1390	1.20960E 00	5.69848
			(2) 1850	1.34461E 01	63.34544
			(2) 2110	4.77259E-01	2.24839
			(2) 2680	8.26485E-01	3.89361
			(2) 3010	9.31651E-02	0.43891
			(2) 3240	8.37187E-02	0.39440
			(2) 4870	3.81398E-02	0.17968
			(3) 828	6.72307E 00	31.67272
			(3) 1088	5.38756E-01	2.53811
			(3) 1658	2.33893E 00	11.01883
			(3) 1988	3.44794E-01	1.62434
			(3) 2218	3.79037E-01	1.78566
			(3) 3848	5.21914E-01	2.45876
4050	CA49(0)	8.80M	(2) 3100	2.45106E 00	24.87805
			(2) 4050	1.79712E-01	1.82406
			(2) 4680	7.64640E-03	0.07761
			(3) 2078	9.85230E 00	100.00000
			(3) 3028	1.41336E 00	14.34548
			(3) 3658	9.26640E-02	0.94053
4680	CA49(0)	8.80M	(2) 3100	2.45106E 00	24.87805
			(2) 4050	1.79712E-01	1.82406
			(2) 4680	7.64640E-03	0.07761
			(3) 2078	9.85230E 00	100.00000
			(3) 3028	1.41336E 00	14.34548
			(3) 3658	9.26640E-02	0.94053
4870	RB88(0)	17.80M	(2) 908	2.12267E 01	100.00000
			(2) 1390	1.20960E 00	5.69848
			(2) 1850	1.34461E 01	63.34544
			(2) 2110	4.77259E-01	2.24839
			(2) 2680	8.26485E-01	3.89361
			(2) 3010	9.31651E-02	0.43891
			(2) 3240	8.37187E-02	0.39440
			(2) 4870	3.81398E-02	0.17968
			(3) 828	6.72307E 00	31.67272
			(3) 1088	5.38756E-01	2.53811
			(3) 1658	2.33893E 00	11.01883
			(3) 1988	3.44794E-01	1.62434
			(3) 2218	3.79037E-01	1.78566
			(3) 3848	5.21914E-01	2.45876

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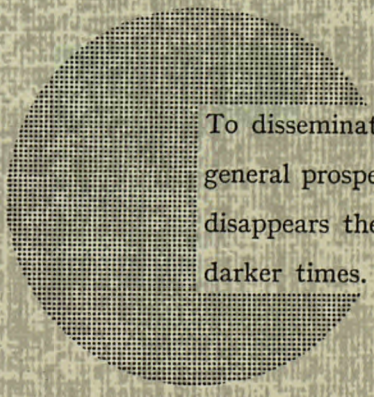

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Alfred Nobel

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