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The European Activation File: EAF-2001 biological, clearance and transport libraries

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The European Activation File: EAF-2001 biological, clearance and transport libraries

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Abstract

The European Activation System (EASY) includes as the source of nuclear data the European Activation File (EAF). A new version of EAF, EAF-2001, has been developed, and this report gives details of the EAF biological, clearance and transport libraries. The sources of data and the methodology of approximate calculation are described, while the bulk of the report is devoted to a listing of the biological, clearance and transport coefficients of all the 1654 radionuclides contained in the libraries.

The properties listed are: specific activity, committed effective doses per unit uptake for ingestion and inhalation, the source of the biological data, the transport coefficient (A_2), the source of the A_2 value, the clearance level value and the source of the clearance level value.

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Introduction

Activation of materials will occur in D-T fusion power plants due to the interaction of the neutrons with the materials making up the device. Several parameters are used to assess the relevance of the activation to safety and waste disposal issues, the most important of which are activity, contact γ-dose rate, decay power and potential biological hazard. The latter covers the effect on humans of the ingestion or inhalation of radionuclides. When activated materials contain activity below a clearance index it may be possible to dispose of (or clear) the material with no special precautions.

Neutron-induced transmutation accompanying the irradiation of materials is calculated by an inventory code that uses libraries of decay data and cross sections to calculate the numbers of atoms of the various nuclides present after a particular exposure history. In order to calculate the potential biological hazards a further data library is required, containing, for each radionuclide, suitable coefficients to convert activity into dose following ingestion or inhalation.

The European Activation System (EASY) [1] uses nuclear data from the European Activation File (EAF) as input to the FISPACT inventory code. This report gives details of the libraries of biological hazard coefficients (EAF_HAZ-2001), the legal transport data (EAF_A2-2001) and the clearance values (EAF_CLEAR-2001) in the current release of EAF: EAF-2001.

The present work extends the previous work on biological hazard coefficients for use with EAF-3 [2]. The previous work used a methodology for the calculation of approximate coefficients for nuclides that had not been treated by the standard methods. This methodology is repeated here with emphasis on how the method is embedded in the SAFEPAQ-II [3] processing system.

The required coefficients are termed 'committed effective doses per unit uptake' and the symbols e^{ing} and e^{inh} are used to refer to the coefficients for ingestion and inhalation respectively. The coefficient e^{ing} is used to convert the activity (Bq) of an ingested radionuclide into the dose (Sv) received by the average person over a 50 year period and has the units $SvBq^{-1}$. A similar definition applies to the coefficient e^{inh} for inhalation. In FISPACT [4] the potential radiological hazards, H^{ing} and H^{inh} for a particular sample of irradiated material are calculated as follows:

$$H^{ing} = \sum_i A_i \, e_i^{ing} \tag{1a}$$

$$H^{inh} = \sum_i A_i \, e_i^{inh} \tag{1b}$$

where A_i is the activity of nuclide i (Bq) and H^{ing} and H^{inh} have units of Sv.

The regulation of transport of radioactive material is based upon guidelines set out by the IAEA [5]: the relevant quantity used in FISPACT calculations is the A_2 coefficient. Each radionuclide has an A_2 value; for safe transport of that material in a standard shipping flask the amount is regulated such that its activity is less than or equal to A_2. Rules are given in the guidelines for combinations of radionuclides and these are applied in the FISPACT output so that effective A_2 values for a mixture of nuclides can be calculated. Data are given for about 370 radionuclides, for the rest standard values are used that depend on the decay mode.

Materials in devices that have been activated through exposure to neutrons become waste following decommissioning, unless recycled. The fate of waste materials depends on the length of time since shutdown, the type of material and the amount of neutron flux. For materials with low activation, disposal with no special precautions is possible. The clearance of a radioactive material depends on the clearance index for that material being less than 1. A clearance index, based on draft IAEA guidelines [13], is calculated from the clearance level value for each radioactive nuclide, and the radioactive inventory. EAF_CLEAR-2001 contains the required clearance level values needed to make such calculations.

Dosimetric data

Many of the radionuclides for which biological hazard data are required are included in the handbooks published by the ICRP and these have been the primary source for the current library. The most recent guidance is contained in the ICRP 68 and 72 publications [6,15]. The National Radiological Protection Board (NRPB) also publishes data [7] for a range of nuclides using a similar computational method [8]. A few fusion specific nuclides not covered in existing ICRP or NRPB reports have been specially calculated with the NRPB methodology by Kendall [9]. Recently a further study of nuclides important for fusion applications was funded; data for these nuclides are available in a recent report [10]. Data in these references often allow for the radionuclide to be ingested or inhaled in various chemical forms and for some elements this can make a

substantial difference to the values of the coefficients. In all cases except nickel and cobalt (where the maximum impact chemical form is judged unreasonable for fusion applications) the maximum values of the coefficients are used in the current library.

Although many of the nuclides relevant to fusion applications are represented by data in the sources described above, there are also a large number of nuclides for which no data are available. For these nuclides, which are mostly of short half-life, an approximate method described in references 2 and 11 has been employed to generate the dosimetric data. The methodology is described in the following section.

Methodology for the estimation of dosimetric data

Short-lived radionuclides

It is assumed that the value of e_i^{ing} for a radionuclide with a stable daughter can be represented as:

$$e_i^{ing} = C^{ing} N_i^{ing} E_i \tag{2}$$

where N_i^{ing} is the number of disintegrations within the body per unit activity intake of nuclide i by ingestion (Bq^{-1}), E_i is the total energy equivalent of emissions from nuclide i for each radioactive decay (MeV) and C^{ing} is a parameter which is approximately a constant for a particular element j ($SvMeV^{-1}$). A similar expression is used to represent e_i^{inh}. Note that the nuclide i is one of the isotopes of element j, and that all the biological factors in the definition of the coefficients are subsumed into the constant C. The value of E is given by the following formula:

$$E = 20E_\alpha + E_\beta + E_\gamma \tag{3}$$

where E_α is the average α-energy per decay (MeV), E_β is the average β-energy per decay (MeV) and E_γ is the average γ-energy per decay (MeV). The factor of 20 by which E_α is multiplied is the value of the quality factor for α particles recommended by the ICRP [12]. The values of N^{ing} and N^{inh} are calculated using the following equations:

$$N^{ing} = (1 - \exp(-\lambda t^{ing}))/\lambda \tag{4a}$$

$$N^{inh} = (1 - \exp(-\lambda t^{inh}))/\lambda \tag{4b}$$

where λ is the decay constant for the nuclide and the parameters t^{ing} and t^{inh} are the mean residence times of the nuclide within the body in the cases of ingestion and inhalation respectively.

Following reference 2 these are set to values of 3 days for t^{ing} and 7 days for t^{inh}. Equations 4 are strictly valid for nuclides that are short-lived compared to the assumed residency times; however, these equations are used for all radionuclides that are not long-lived α emitters.

Data for all radionuclides of an element j with half-life less than 1 year are used to calculate a set of parameters C^{ing} and C^{inh} and, although these values are not true 'constants' for the element, in most cases the values for most isotopes of an element are similar. In reference 2 and in the present library the maximum of the values is conservatively taken as representing the element and defined as C_j^{ing} and C_j^{inh}. Note that this conservative approach means that many of the estimated values will be overpredicted. For all radionuclides where data are required, C_j^{ing} and C_j^{inh} are used with the decay data for the nuclide to calculate approximate values of e_i^{ing} and e_i^{inh}.

For some radionuclides for which prediction of dosimetric data is necessary there are no data for any nuclides of that element to be found in the standard references. In these cases data for an element with similar metabolic behaviour are used. Thus data for sodium are used for lithium, data for carbon are used for nitrogen and oxygen and data for silicon are used for boron.

Radionuclides with a radioactive daughter require a modification to equation 1 so that the energy deposited by the daughter is also included. Ignoring the *ing* and *inh* superfixes and using 0 for the parent, 1 for the first daughter, 2 for the second daughter, etc., then the extended equation is:

$$e_0 = C_0 N_0 (E_0 + \lambda_1 N_1 (E_1 + \lambda_2 N_2 (E_2 + \ldots))) \qquad (5)$$

If it is assumed that the correct coefficient has already been calculated for daughter 1 (i.e. including the effects of daughter 2 etc.), then equation 5 can be written concisely as follows:

$$e_0 = C_0 N_0 (E_0 + \lambda_1 e_1 / C_1) \qquad (6)$$

Noble gases

No values of committed effective doses per unit uptake for the noble gases exist in the literature and it is thus necessary to use C_j^{ing} and C_j^{inh} values for an element that is expected to behave in a similar metabolic manner. Following reference 11, the element chosen is yttrium because, like the noble gases, it is very insoluble. For all noble gas radionuclides the method described above is used but with residency times increased from the standard values. The values used are t^{ing} = 7 days and t^{inh} = 500 days. These values were suggested by Smith [11].

Long-lived α emitters

For long-lived radionuclides decaying by α emission, equation 1 is modified to exclude the dependency on N since, for long half-life nuclides, this becomes a constant (the residence time). The modified form is shown in equation 7:

$$e_i^{ing} = K_j^{ing} E_i \tag{7}$$

where K_j^{ing} is a 'constant' corresponding to C_j^{ing} used previously. In calculating values of K_j, only long-lived α emitters of the same element are considered. For some radionuclides no other long-lived α emitters exist and in these cases values of K_j for another element with similar metabolic behaviour are used. Thus cerium and neodymium are assumed to behave in a similar manner to samarium and hafnium and osmium to behave in a similar manner to gadolinium.

Calculational method for dosimetric data

The processing system SAFEPAQ-II [3] used for the generation of the EAF cross section and decay data libraries is the natural place to include the calculational methodology of dosimetric data. A table in the Parameter database is defined during the building of the decay data library that contains values of the half-lives and energies required for the estimation of unknown coefficients. These data are used in the following steps to generate the estimates.

- Calculate all the elemental parameters C_j, in all cases using the maximum value from all the available data for each element.
- Calculate the reduced constants K_j.
- Considering each radionuclide in turn, check if data exists in the tables of known dosimetric data; if so use the data and mark the nuclide as 'done'.
- Considering each radionuclide in turn, check if the nuclide is marked as done; if not then check if the daughter nuclide is stable. If so, use the elemental parameters and equation 2 to evaluated approximate data and mark nuclide as done.
- Considering each radionuclide in turn, check if nuclide is marked as done; if not, then check if the daughter nuclide is marked as done. If so, use the elemental parameters to evaluated approximate data using equation 6 and mark nuclide as done. Continue to iterate this step until all nuclides are calculated.

The values of e_i^{inh}, e_i^{ing} and the source of the data are added to the database table and it is then possible to print out a listing of the data that forms the EAF_HAZ-2001 library. The various data sources used in the library are listed in Table 1.

Table 1. References of data sources for EAF_HAZ-2001.

Data source	Reference
ICRP72	15
R245	7
KENDALL	9
NRPB-M	10
Calculated	Current approximate methodology

Transport data

Calculational method for transport data

The IAEA regulations [5] give generic values of the A_2 coefficients that should be used for radionuclides not given individually. These values are shown in Table 2.

Table 2. Generic values of A_2 coefficients.

Nuclide decay mode	A_2 (TBq)
Only β or γ emitting decay	0.02
α decays included	$2.0\ 10^{-5}$

The SAFEPAQ-II processing system is used to compile the EAF_A2-2001 library using values of decay modes contained in the Parameter database. Each radionuclide is considered in turn; if an entry is available in the IAEA regulations then this is used, otherwise the decay mode of the nuclide is checked and the correct generic value chosen from Table 2. The A_2 values are added to the database table and it is then possible to generate a listing of the data that forms the EAF_A2-2001 library. In the listing that follows an entry in the 'A_2 source' column of 'A2 value' means that the IAEA regulations give individual data; 'BETA' and 'ALPHA' entries indicate that generic values are used.

Clearance data

The safe handing of radioactive waste is recognised as vital to ensure protection of human health and the environment. IAEA publish regulations on these issues, and reference 13 gives information on suggested clearance level values for a set of important radionuclides.

Methodology for the calculation of clearance data

The clearance index (I_c) for a material containing a single radionuclide n is calculated by equation 8, where A_n is the activity due to the nuclide and L_n is the clearance level for the nuclide. If $I_c \leq 1$ then it is possible to clear the material.

$$I_c = \frac{A_n}{L_n} \tag{8}$$

Most materials contain a mixture of radionuclides, and in this case the clearance index is calculated by equation 9. Again, clearance is possible if $I_c \leq 1$.

$$I_c = \sum_i \frac{A_i}{L_i} \tag{9}$$

In equations 8 and 9, activities and clearance levels have units of Bq kg^{-1}.

Reference 13 gives clearance values for a number of nuclides and a general formula that can be used to calculate the level for any other nuclide. The formula is given in equation 10,

$$L_i = \min\left\{\frac{1000}{E_{\gamma,i} + 0.1 \times E_{\beta,i}}, \frac{D}{e_i^{inh}}, \frac{D}{e_i^{ing} \times 10^2}\right\} \tag{10}$$

where: $D = 20$ mSv y^{-1}, i.e. the dose limit for radiation workers [14], and for the ith nuclide, the other quantities are: $E_{\gamma,i}$ - effective photon emission energy (MeV); $E_{\beta,i}$ - effective beta decay emission energy (MeV); e_i^{inh} - committed effective dose equivalent from inhalation (Sv Bq^{-1}) and e_i^{ing} - committed effective dose equivalent from ingestion (Sv Bq^{-1}). Note that these quantities are available in the EAF_DEC-2001 and EAF_HAZ-2001 libraries.

Equation 10 was used to calculate L_i values for all nuclides not given explicitly in reference 13.

Contents of libraries

The contents of EAF_HAZ-2001, EAF_A2-2001 and EAF_CLEAR-2001 are listed below. Column 1 shows the ID of the nuclide as used in FISPACT, column 2 is the nuclide name, column 3 is the specific activity of the nuclide (not part of any library, but a quantity of relevance to hazards), columns 4 and 5 are the committed effective doses per unit uptake for ingestion and inhalation respectively, column 6 is the source of the biological data, column 7 is the A_2 value, column 8 is the source of the A_2 value, column 9 is the clearance value and column 10 is the source of the clearance value.

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
3	H-3	3.5569E+17	4.2000E-11	2.6000E-10	ICRP72	40.00000	A2 VALUE	3.00000E+06	TECDOC-855
6	He-6	8.5821E+25	3.3234E-14	4.6113E-14	Calculated	0.02000	BETA	6.18142E+03	Calculated
7	Li-5	2.7758E+47	2.0888E-41	1.2654E-41	Calculated	0.02000	BETA	1.00000E+30	Calculated
10	Li-8	6.2090E+25	1.0196E-13	6.1768E-14	Calculated	0.00002	ALPHA	1.53035E+03	Calculated
11	Li-9	2.5935E+26	2.0942E-15	1.2687E-15	Calculated	0.02000	BETA	1.66800E+03	Calculated
12	Be-6	1.3869E+46	6.3405E-40	5.4770E-40	Calculated	0.02000	BETA	1.00000E+30	Calculated
13	Be-7	1.2932E+19	2.8000E-11	5.5000E-11	ICRP72	20.00000	A2 VALUE	2.02858E+04	Calculated
14	Be-8	7.4490E+41	4.1474E-31	3.5826E-31	Calculated	0.00002	ALPHA	4.82226E+28	Calculated
16	Be-10	8.2559E+11	1.1000E-09	3.5000E-08	ICRP72	0.50000	A2 VALUE	3.96493E+04	Calculated
17	Be-11	2.7424E+24	3.0235E-13	2.6117E-13	Calculated	0.00002	ALPHA	5.30923E+02	Calculated
18	B-8	6.7555E+25	4.0287E-14	1.9892E-14	Calculated	0.02000	BETA	1.51844E+08	Calculated
19	B-9	5.7890E+43	4.1856E-32	2.0666E-32	Calculated	0.02000	BETA	4.77827E+29	Calculated
22	B-12	1.7200E+27	3.7726E-15	1.8627E-15	Calculated	0.00002	ALPHA	1.38618E+03	Calculated
23	B-13	1.8503E+27	3.3793E-15	1.6685E-15	Calculated	0.02000	BETA	1.06230E+03	Calculated
24	C-9	3.6538E+26	2.2692E-14	1.7019E-14	Calculated	0.02000	BETA	1.65317E+02	Calculated
25	C-10	2.1637E+24	5.2207E-13	3.9155E-13	Calculated	0.02000	BETA	1.18427E+03	Calculated
26	C-11	3.0994E+22	2.4000E-11	1.8000E-11	ICRP72	0.50000	A2 VALUE	9.45180E+02	Calculated
29	C-14	1.6485E+14	5.8000E-10	5.8000E-09	ICRP72	2.00000	A2 VALUE	3.00000E+05	TECDOC-855
30	C-15	1.1355E+25	2.2170E-13	1.6628E-13	Calculated	0.02000	BETA	2.55923E+02	Calculated
31	N-12	3.1574E+27	1.3351E-15	1.0013E-15	Calculated	0.02000	BETA	5.42005E+02	Calculated
32	N-13	5.3680E+22	1.2623E-11	9.4676E-12	Calculated	0.50000	A2 VALUE	9.34832E+02	Calculated
35	N-16	3.6576E+24	7.2753E-13	5.4564E-13	Calculated	0.00002	ALPHA	2.04522E+02	Calculated
36	N-17	5.8854E+24	1.1518E-12	8.6385E-13	Calculated	0.02000	BETA	4.66660E+03	Calculated
37	N-18	3.6781E+25	8.0407E-14	6.0305E-14	Calculated	0.02000	BETA	1.98954E+02	Calculated
38	O-14	4.2207E+23	4.0410E-12	3.0307E-12	Calculated	0.02000	BETA	2.94412E+02	Calculated
39	O-15	2.2761E+23	2.9984E-12	2.2488E-12	Calculated	0.02000	BETA	9.13843E+02	Calculated
43	O-19	8.1626E+23	1.0207E-12	7.6551E-13	Calculated	0.02000	BETA	8.50680E+02	Calculated
44	O-20	1.5377E+24	1.2034E-12	9.0256E-13	Calculated	0.02000	BETA	8.65876E+02	Calculated
45	F-17	3.8070E+23	6.8728E-13	8.2754E-13	Calculated	0.02000	BETA	9.14160E+02	Calculated
46	F-18	3.5231E+21	4.9000E-11	5.9000E-11	ICRP72	0.50000	A2 VALUE	9.88714E+02	Calculated
48	F-20	1.8922E+24	2.7479E-13	3.3087E-13	Calculated	0.02000	BETA	5.28707E+02	Calculated
49	F-21	4.6012E+24	7.3023E-14	8.7926E-14	Calculated	0.02000	BETA	1.68350E+03	Calculated
50	F-22	4.4743E+24	2.0833E-13	2.5085E-13	Calculated	0.02000	BETA	1.67056E+02	Calculated
51	F-23	8.1372E+24	1.6460E-13	1.9819E-13	Calculated	0.02000	BETA	3.42466E+02	Calculated
52	Ne-18	1.3865E+25	1.6846E-13	2.3374E-13	Calculated	0.02000	BETA	7.95925E+02	Calculated
53	Ne-19	1.2757E+24	8.9727E-13	1.2450E-12	Calculated	0.02000	BETA	8.94190E+02	Calculated
57	Ne-23	4.8799E+23	2.0141E-12	2.7945E-12	Calculated	0.02000	BETA	2.76397E+03	Calculated
58	Ne-24	8.5785E+22	3.1155E-11	4.4444E-11	Calculated	0.02000	BETA	1.60720E+03	Calculated
59	Ne-25	2.7738E+25	9.0967E-14	1.2622E-13	Calculated	0.02000	BETA	1.48368E+03	Calculated
60	Na-20	4.6779E+25	5.6135E-15	3.4006E-15	Calculated	0.02000	BETA	3.53732E+02	Calculated
61	Na-21	8.8392E+23	8.5147E-14	5.1581E-14	Calculated	0.02000	BETA	8.71688E+02	Calculated
62	Na-22	2.3104E+17	3.2000E-09	1.3000E-09	ICRP72	0.50000	A2 VALUE	3.00000E+02	TECDOC-855
64	Na-24	3.2295E+20	4.3000E-10	2.7000E-10	ICRP72	0.20000	A2 VALUE	3.00000E+02	TECDOC-855
65	Na-24m	8.6134E+26	1.7771E-16	1.1121E-16	Calculated	0.02000	BETA	2.12145E+03	Calculated
66	Na-25	2.8026E+23	2.0396E-13	1.2355E-13	Calculated	0.02000	BETA	1.70489E+03	Calculated
67	Na-26	1.4870E+25	1.0532E-14	6.3804E-15	Calculated	0.02000	BETA	3.97894E+02	Calculated
68	Na-27	5.0867E+25	3.4300E-15	2.0779E-15	Calculated	0.02000	BETA	6.89655E+02	Calculated
69	Na-28	4.8881E+26	4.6820E-16	2.8818E-16	Calculated	0.02000	BETA	5.71429E+02	Calculated
70	Mg-22	4.9194E+24	2.4501E-13	1.2155E-13	Calculated	0.02000	BETA	5.37953E+02	Calculated
71	Mg-23	1.6041E+24	5.5331E-13	2.7514E-13	Calculated	0.02000	BETA	8.39067E+02	Calculated
75	Mg-27	2.7259E+22	1.8465E-11	9.1820E-12	Calculated	0.02000	BETA	1.03632E+03	Calculated
76	Mg-28	1.9825E+20	2.2000E-09	1.2000E-09	ICRP72	0.20000	A2 VALUE	7.14416E+02	Calculated
77	Mg-29	1.1077E+25	1.8075E-13	8.9879E-14	Calculated	0.02000	BETA	4.71698E+02	Calculated
78	Al-24	8.4185E+24	5.3811E-13	3.8436E-13	Calculated	0.02000	BETA	1.03103E+02	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
79	Al-24m	1.3379E+26	3.4371E-14	2.4551E-14	Calculated	0.02000	BETA	1.71821E+03	Calculated
80	Al-25	2.3254E+24	4.0524E-13	2.8946E-13	Calculated	0.02000	BETA	8.47056E+02	Calculated
81	Al-26	7.0694E+11	3.5000E-09	2.0000E-08	ICRP72	0.40000	A2 VALUE	3.67282E+02	Calculated
82	Al-26m	2.5316E+24	3.5380E-13	2.5272E-13	Calculated	0.02000	BETA	8.55063E+02	Calculated
84	Al-28	1.1094E+23	9.2062E-12	6.5759E-12	Calculated	0.02000	BETA	5.24491E+02	Calculated
85	Al-29	3.6594E+22	2.1000E-11	1.5000E-11	NRPB-M	0.02000	BETA	6.76501E+02	Calculated
86	Al-30	3.8142E+24	4.8010E-13	3.4293E-13	Calculated	0.02000	BETA	2.67278E+02	Calculated
87	Al-31	2.1050E+25	9.3902E-14	6.7073E-14	Calculated	0.02000	BETA	2.83957E+02	Calculated
88	Al-32	3.9544E+26	4.5878E-15	3.2774E-15	Calculated	0.02000	BETA	1.21511E+03	Calculated
89	Si-26	7.2667E+24	1.8093E-13	8.9334E-14	Calculated	0.02000	BETA	7.04771E+02	Calculated
90	Si-27	3.7093E+24	3.2548E-13	1.6070E-13	Calculated	0.02000	BETA	8.34697E+02	Calculated
94	Si-31	1.4287E+21	1.6000E-10	7.9000E-11	ICRP72	0.50000	A2 VALUE	1.62478E+04	Calculated
95	Si-32	1.2536E+15	5.6000E-10	1.1000E-07	ICRP72	0.20000	A2 VALUE	1.54619E+05	Calculated
96	Si-33	2.0482E+24	7.5739E-13	3.7466E-13	Calculated	0.02000	BETA	4.00000E+02	Calculated
97	Si-34	4.4350E+24	3.8811E-13	1.9163E-13	Calculated	0.02000	BETA	6.02410E+02	Calculated
98	P-28	5.5169E+25	5.1280E-14	1.2738E-13	Calculated	0.02000	BETA	1.97006E+02	Calculated
99	P-29	3.4790E+24	3.5685E-13	8.8640E-13	Calculated	0.02000	BETA	3.88035E+02	Calculated
100	P-30	9.2902E+22	7.6119E-12	1.8908E-11	Calculated	0.02000	BETA	8.57898E+02	Calculated
102	P-32	1.0589E+19	2.4000E-09	3.4000E-09	ICRP72	0.30000	A2 VALUE	3.00000E+05	TECDOC-855
103	P-33	5.7688E+18	2.4000E-10	1.5000E-09	ICRP72	0.90000	A2 VALUE	1.30594E+05	Calculated
104	P-34	9.9086E+23	6.7448E-13	1.6754E-12	Calculated	0.02000	BETA	1.73631E+03	Calculated
105	P-35	2.5234E+23	2.5807E-12	6.4138E-12	Calculated	0.02000	BETA	5.93507E+02	Calculated
106	P-36	2.0718E+24	9.4343E-13	2.3434E-12	Calculated	0.02000	BETA	1.54583E+02	Calculated
107	S-30	1.1818E+25	6.4337E-13	6.9116E-13	Calculated	0.02000	BETA	5.50540E+02	Calculated
108	S-31	5.2388E+24	6.9309E-13	7.4458E-13	Calculated	0.02000	BETA	8.07944E+02	Calculated
112	S-35	1.5790E+18	7.7000E-10	1.9000E-09	ICRP72	2.00000	A2 VALUE	3.00000E+06	TECDOC-855
114	S-37	3.7710E+22	1.5000E-11	1.3000E-11	NRPB-M	0.02000	BETA	3.31539E+02	Calculated
115	S-38	1.0756E+21	6.0000E-10	3.6000E-10	NRPB-M	0.02000	BETA	5.71755E+02	Calculated
116	S-39	9.3130E+23	5.5966E-12	6.7075E-12	Calculated	0.02000	BETA	4.98256E+02	Calculated
117	S-40	1.1602E+24	7.1538E-12	7.6853E-12	Calculated	0.02000	BETA	5.44366E+02	Calculated
118	Cl-32	4.3793E+25	4.3125E-14	1.6172E-14	Calculated	0.02000	BETA	2.13174E+02	Calculated
119	Cl-33	5.0409E+24	1.4007E-13	5.2526E-14	Calculated	0.02000	BETA	7.96052E+02	Calculated
120	Cl-34	8.0515E+24	8.3573E-14	3.1340E-14	Calculated	0.02000	BETA	8.10651E+02	Calculated
121	Cl-34m	6.3793E+21	9.7000E-11	7.4000E-11	NRPB-M	0.02000	BETA	4.94254E+02	Calculated
123	Cl-36	1.2177E+12	9.3000E-10	7.3000E-09	ICRP72	0.50000	A2 VALUE	3.00000E+05	TECDOC-855
125	Cl-38	4.9257E+21	1.2000E-10	4.5000E-11	ICRP72	0.20000	A2 VALUE	6.07523E+02	Calculated
126	Cl-38m	1.5376E+25	4.7000E-14	1.7625E-14	Calculated	0.02000	BETA	1.48955E+03	Calculated
127	Cl-39	3.2110E+21	8.5000E-11	4.6000E-11	ICRP72	0.02000	BETA	6.52614E+02	Calculated
128	Cl-40	1.2893E+23	8.0984E-12	3.0369E-12	Calculated	0.02000	BETA	2.38265E+02	Calculated
129	Cl-41	2.9966E+23	3.1255E-12	1.1721E-12	Calculated	0.02000	BETA	4.89721E+02	Calculated
130	Cl-42	1.4625E+24	8.0795E-13	3.0415E-13	Calculated	0.02000	BETA	2.72730E+02	Calculated
131	Ar-34	1.4538E+25	1.4342E-13	1.9900E-13	Calculated	0.02000	BETA	7.49681E+02	Calculated
132	Ar-35	6.7238E+24	1.5444E-13	2.1428E-13	Calculated	0.02000	BETA	7.83668E+02	Calculated
134	Ar-37	3.7298E+18	2.7526E-11	2.9534E-10	Calculated	40.00000	A2 VALUE	1.78868E+06	Calculated
136	Ar-39	1.2620E+15	2.4057E-09	2.3801E-07	Calculated	20.00000	A2 VALUE	4.57344E+04	Calculated
138	Ar-41	1.5496E+21	3.0171E-10	4.1862E-10	Calculated	0.60000	A2 VALUE	7.51411E+02	Calculated
139	Ar-42	9.5519E+15	8.9875E-09	9.8628E-07	Calculated	0.20000	A2 VALUE	4.29522E+04	Calculated
140	Ar-43	3.0172E+22	2.6362E-11	3.9577E-11	Calculated	0.02000	BETA	5.95593E+02	Calculated
141	Ar-44	1.3335E+22	1.2160E-10	1.6873E-10	Calculated	0.02000	BETA	5.24659E+02	Calculated
142	Ar-45	4.3215E+23	4.5785E-12	6.7623E-12	Calculated	0.02000	BETA	3.14465E+02	Calculated
143	Ar-46	1.0810E+24	1.9575E-12	2.7161E-12	Calculated	0.02000	BETA	4.69484E+02	Calculated
144	K-36	3.3921E+25	5.0936E-14	1.2128E-14	Calculated	0.00002	ALPHA	1.71527E+02	Calculated
145	K-37	9.2086E+24	6.9291E-14	1.6509E-14	Calculated	0.02000	BETA	7.65287E+02	Calculated
146	K-38	2.4077E+22	3.3146E-11	7.8918E-12	Calculated	0.02000	BETA	3.02057E+02	Calculated
147	K-38m	1.1898E+25	5.1057E-14	1.2157E-14	Calculated	0.02000	BETA	7.92480E+02	Calculated
149	K-40	2.5858E+08	6.2000E-09	2.1000E-09	ICRP72	0.60000	A2 VALUE	4.77616E+03	Calculated
151	K-42	2.2338E+20	4.3000E-10	1.2000E-10	ICRP72	0.20000	A2 VALUE	2.28261E+03	Calculated
152	K-43	1.2158E+20	2.5000E-10	1.4000E-10	ICRP72	0.50000	A2 VALUE	1.00289E+03	Calculated
153	K-44	7.1511E+21	8.4000E-11	2.0000E-11	ICRP72	0.02000	BETA	3.94496E+02	Calculated
154	K-45	8.9271E+21	5.4000E-11	1.5000E-11	ICRP72	0.02000	BETA	5.10438E+02	Calculated
155	K-46	9.5599E+22	8.1528E-12	1.9411E-12	Calculated	0.02000	BETA	3.22352E+02	Calculated
156	K-47	5.0792E+23	1.3142E-12	3.1062E-13	Calculated	0.02000	BETA	3.56125E+02	Calculated
157	K-48	1.2798E+24	1.0183E-12	2.4246E-13	Calculated	0.02000	BETA	1.51860E+02	Calculated
158	Ca-38	2.4981E+25	1.8565E-13	4.1817E-13	Calculated	0.02000	BETA	6.19963E+02	Calculated
159	Ca-39	1.2461E+25	1.5853E-13	3.5709E-13	Calculated	0.02000	BETA	7.82957E+02	Calculated
161	Ca-41	3.1351E+12	1.9000E-10	1.8000E-10	ICRP72	40.00000	A2 VALUE	1.38614E+06	Calculated
165	Ca-45	6.6052E+17	7.1000E-10	3.7000E-09	ICRP72	0.90000	A2 VALUE	3.00000E+06	TECDOC-855
167	Ca-47	2.2674E+19	1.6000E-09	2.1000E-09	ICRP72	0.50000	A2 VALUE	9.13349E+02	Calculated
169	Ca-49	1.6297E+22	1.3097E-10	2.9499E-10	Calculated	0.02000	BETA	3.07305E+02	Calculated
170	Sc-40	5.7276E+25	5.5774E-14	2.7207E-14	Calculated	0.00002	ALPHA	1.34228E+02	Calculated
171	Sc-41	1.7087E+25	6.1670E-14	3.0083E-14	Calculated	0.02000	BETA	7.83595E+02	Calculated
172	Sc-42	1.4600E+25	6.9761E-14	3.4030E-14	Calculated	0.02000	BETA	7.86244E+02	Calculated
173	Sc-42m	1.6147E+23	9.7592E-12	4.7606E-12	Calculated	0.02000	BETA	2.30976E+02	Calculated
174	Sc-43	6.9352E+20	1.9000E-10	1.1000E-10	ICRP72	0.02000	BETA	9.75610E+02	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
175	Sc-44	6.7168E+20	3.5000E-10	1.8000E-10	ICRP72	0.50000	A2 VALUE	4.55368E+02	Calculated
176	Sc-44m	4.5012E+19	2.4000E-09	1.4000E-09	ICRP72	0.02000	BETA	3.58997E+03	Calculated
178	Sc-45m	2.9383E+25	8.4469E-17	4.1204E-17	Calculated	0.02000	BETA	6.80272E+05	Calculated
179	Sc-46	1.2547E+18	1.5000E-09	6.8000E-09	ICRP72	0.50000	A2 VALUE	4.94862E+02	Calculated
180	Sc-46m	4.8574E+23	8.0867E-14	5.5122E-14	Calculated	0.02000	BETA	1.12551E+04	Calculated
181	Sc-47	3.0752E+19	5.4000E-10	7.3000E-10	ICRP72	0.90000	A2 VALUE	8.01368E+03	Calculated
182	Sc-48	5.5371E+19	1.7000E-09	1.1000E-09	ICRP72	0.30000	A2 VALUE	2.96599E+02	Calculated
183	Sc-49	2.4847E+21	8.2000E-11	4.0000E-11	ICRP72	0.02000	BETA	1.17195E+04	Calculated
184	Sc-50	8.1526E+22	1.4346E-11	6.9979E-12	Calculated	0.02000	BETA	2.97574E+02	Calculated
185	Sc-50m	2.3876E+25	5.1472E-14	2.5108E-14	Calculated	0.02000	BETA	3.72478E+03	Calculated
186	Ti-42	4.9975E+25	5.2280E-14	3.8338E-14	Calculated	0.02000	BETA	6.06061E+02	Calculated
187	Ti-43	1.9826E+25	7.2211E-14	5.4051E-14	Calculated	0.02000	BETA	7.72320E+02	Calculated
188	Ti-44	6.3729E+15	5.8000E-09	1.2000E-07	ICRP72	0.20000	A2 VALUE	7.19124E+03	Calculated
189	Ti-45	8.3736E+20	1.5000E-10	9.3000E-11	ICRP72	0.02000	BETA	1.09989E+03	Calculated
195	Ti-51	2.3544E+22	1.5000E-11	1.1000E-11	NRPB-M	0.02000	BETA	2.21509E+03	Calculated
196	Ti-52	7.8780E+22	1.2091E-11	8.2325E-12	Calculated	0.02000	BETA	4.91400E+03	Calculated
197	Ti-53	2.4108E+23	6.2010E-12	4.5474E-12	Calculated	0.02000	BETA	4.73709E+02	Calculated
198	V-44	1.0547E+26	9.4682E-15	6.8866E-15	Calculated	0.00002	ALPHA	2.14272E+02	Calculated
199	V-45	1.7223E+25	5.6937E-14	4.0831E-14	Calculated	0.02000	BETA	7.64526E+02	Calculated
200	V-46	2.1502E+25	4.0171E-14	2.9218E-14	Calculated	0.02000	BETA	7.67796E+02	Calculated
201	V-47	4.5449E+21	6.3000E-11	2.9000E-11	ICRP72	0.02000	BETA	9.29982E+02	Calculated
202	V-48	6.3073E+18	2.0000E-09	2.4000E-09	ICRP72	0.30000	A2 VALUE	3.41196E+02	Calculated
203	V-49	2.9909E+17	1.8000E-11	3.4000E-11	ICRP72	40.00000	A2 VALUE	7.66129E+05	Calculated
204	V-50	1.7781E+00	4.8588E-09	8.2460E-09	Calculated	0.02000	BETA	9.18697E+02	Calculated
206	V-52	3.5763E+22	1.4000E-11	9.2000E-12	NRPB-M	0.02000	BETA	6.43172E+02	Calculated
207	V-53	8.1113E+22	4.9329E-12	3.5879E-12	Calculated	0.02000	BETA	8.75579E+02	Calculated
208	V-54	1.5538E+23	6.7362E-12	4.8995E-12	Calculated	0.02000	BETA	2.36223E+02	Calculated
209	Cr-46	3.4926E+25	1.2395E-14	5.4322E-15	Calculated	0.02000	BETA	7.51202E+02	Calculated
210	Cr-47	1.7497E+25	1.6250E-14	6.4849E-15	Calculated	0.02000	BETA	7.54148E+02	Calculated
211	Cr-48	1.1214E+20	2.0000E-10	2.2000E-10	ICRP72	0.02000	BETA	2.31043E+03	Calculated
212	Cr-49	3.3919E+21	6.1000E-11	3.5000E-11	ICRP72	0.02000	BETA	9.03433E+02	Calculated
214	Cr-51	3.4229E+18	3.8000E-11	3.7000E-11	ICRP72	30.00000	A2 VALUE	3.00000E+04	TECDOC-855
218	Cr-55	3.5771E+22	1.4021E-12	6.1449E-13	Calculated	0.02000	BETA	8.78011E+03	Calculated
219	Cr-56	2.0960E+22	6.8838E-12	3.0168E-12	Calculated	0.02000	BETA	6.51466E+03	Calculated
220	Cr-57	3.4742E+23	4.4573E-13	1.9534E-13	Calculated	0.02000	BETA	1.56250E+03	Calculated
221	Cr-58	1.0291E+24	2.7764E-13	1.2168E-13	Calculated	0.02000	BETA	7.21501E+02	Calculated
222	Mn-48	5.8004E+25	1.4111E-14	7.2715E-15	Calculated	0.02000	BETA	2.16708E+02	Calculated
223	Mn-49	2.2203E+25	3.3692E-14	1.8632E-14	Calculated	0.02000	BETA	7.38552E+02	Calculated
224	Mn-50	2.9527E+25	1.2451E-14	5.9766E-15	Calculated	0.02000	BETA	7.50587E+02	Calculated
225	Mn-50m	7.9582E+22	7.2126E-12	3.4620E-12	Calculated	0.02000	BETA	2.02184E+02	Calculated
226	Mn-51	2.9557E+21	9.3000E-11	4.1000E-11	ICRP72	0.02000	BETA	9.16389E+02	Calculated
227	Mn-52	1.6634E+19	1.8000E-09	1.4000E-09	ICRP72	0.30000	A2 VALUE	2.87901E+02	Calculated
228	Mn-52m	6.3474E+21	6.9000E-11	2.9000E-11	ICRP72	0.02000	BETA	3.90852E+02	Calculated
229	Mn-53	6.7894E+10	3.0000E-11	5.4000E-11	ICRP72	0.02000	BETA	5.48753E+05	Calculated
230	Mn-54	2.8680E+17	7.1000E-10	1.5000E-09	ICRP72	1.00000	A2 VALUE	3.00000E+02	TECDOC-855
232	Mn-56	8.0373E+20	2.5000E-10	1.2000E-10	ICRP72	0.20000	A2 VALUE	5.60840E+02	Calculated
233	Mn-57	7.5892E+22	1.2080E-12	5.7984E-13	Calculated	0.02000	BETA	5.40783E+03	Calculated
234	Mn-58	1.1050E+23	2.8469E-12	1.3665E-12	Calculated	0.02000	BETA	3.91645E+02	Calculated
235	Mn-58m	2.6683E+24	8.4913E-14	4.0758E-14	Calculated	0.02000	BETA	2.48196E+03	Calculated
236	Mn-59	1.5396E+24	8.5554E-14	4.2840E-14	Calculated	0.02000	BETA	1.27551E+03	Calculated
237	Mn-60	3.8903E+24	1.0329E-13	4.9580E-14	Calculated	0.02000	BETA	3.37610E+02	Calculated
239	Fe-50	5.5698E+25	1.0451E-14	1.0264E-14	Calculated	0.02000	BETA	3.82292E+02	Calculated
240	Fe-51	2.6425E+25	1.8166E-14	1.7228E-14	Calculated	0.02000	BETA	7.33676E+02	Calculated
241	Fe-52	2.6973E+20	1.4000E-09	6.3000E-10	ICRP72	0.20000	A2 VALUE	1.30497E+03	Calculated
242	Fe-52m	1.7468E+23	2.5650E-12	2.3505E-12	Calculated	0.02000	BETA	2.61097E+02	Calculated
243	Fe-53	1.5441E+22	9.1782E-12	9.0141E-12	Calculated	0.02000	BETA	7.72232E+02	Calculated
244	Fe-53m	5.0930E+22	6.4681E-12	6.3524E-12	Calculated	0.02000	BETA	3.29524E+02	Calculated
246	Fe-55	8.8028E+16	3.3000E-10	7.7000E-10	ICRP72	40.00000	A2 VALUE	3.00000E+05	TECDOC-855
250	Fe-59	1.8421E+18	1.8000E-09	4.0000E-09	ICRP72	0.80000	A2 VALUE	3.00000E+03	TECDOC-855
251	Fe-60	1.4713E+11	1.1000E-07	2.8000E-07	ICRP72	0.20000	A2 VALUE	1.14067E+05	Calculated
252	Fe-61	1.9092E+22	8.4427E-12	8.1816E-12	Calculated	0.02000	BETA	6.68235E+02	Calculated
253	Fe-62	9.9110E+22	2.4356E-12	2.3920E-12	Calculated	0.02000	BETA	1.69348E+03	Calculated
254	Fe-63	1.0872E+24	2.3221E-13	2.2806E-13	Calculated	0.02000	BETA	1.86355E+03	Calculated
255	Fe-64	3.2641E+24	1.0151E-13	9.9694E-14	Calculated	0.02000	BETA	6.14251E+02	Calculated
256	Fe-65	1.6069E+25	3.0562E-14	3.0015E-14	Calculated	0.02000	BETA	3.96464E+02	Calculated
257	Co-54	4.0049E+25	1.9221E-14	1.4274E-14	Calculated	0.02000	BETA	7.34846E+02	Calculated
258	Co-54m	8.7133E+22	1.1947E-11	8.8718E-12	Calculated	0.02000	BETA	2.41854E+02	Calculated
259	Co-55	1.2039E+20	1.0000E-09	5.3000E-10	ICRP72	0.50000	A2 VALUE	4.87641E+02	Calculated
260	Co-56	1.1179E+18	2.5000E-09	6.7000E-09	ICRP72	0.30000	A2 VALUE	2.77634E+02	Calculated
261	Co-57	3.1220E+17	2.1000E-10	1.0000E-09	ICRP72	8.00000	A2 VALUE	3.00000E+04	TECDOC-855
262	Co-58	1.1768E+18	7.4000E-10	2.1000E-09	ICRP72	1.00000	A2 VALUE	3.00000E+03	TECDOC-855
263	Co-58m	2.2387E+20	2.4000E-11	1.7000E-11	ICRP72	40.00000	A2 VALUE	2.41706E+05	Calculated
265	Co-60	4.1865E+16	3.4000E-09	3.1000E-08	ICRP72	0.40000	A2 VALUE	3.00000E+02	TECDOC-855
266	Co-60m	1.1087E+22	1.7000E-12	1.4000E-12	ICRP72	0.02000	BETA	8.03828E+04	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
267	Co-61	1.1533E+21	7.4000E-11	5.1000E-11	ICRP72	0.02000	BETA	7.29922E+03	Calculated
268	Co-62	7.4887E+22	6.5134E-12	4.8370E-12	Calculated	0.02000	BETA	5.67192E+02	Calculated
269	Co-62m	8.0755E+21	4.7000E-11	2.1000E-11	ICRP72	0.02000	BETA	3.57232E+02	Calculated
270	Co-63	2.4207E+23	1.0519E-12	7.8119E-13	Calculated	0.02000	BETA	3.59829E+03	Calculated
271	Co-64	2.1763E+25	2.3697E-14	1.7598E-14	Calculated	0.02000	BETA	1.90752E+03	Calculated
272	Co-65	5.1425E+24	1.4498E-13	1.0766E-13	Calculated	0.02000	BETA	4.57600E+02	Calculated
273	Co-66	2.7524E+25	3.5620E-14	2.7153E-14	Calculated	0.02000	BETA	3.25521E+02	Calculated
274	Ni-55	4.0192E+25	1.7001E-14	8.1802E-15	Calculated	0.02000	BETA	7.22909E+02	Calculated
275	Ni-56	1.4158E+19	8.6000E-10	1.0000E-09	ICRP72	0.02000	BETA	5.80920E+02	Calculated
276	Ni-57	5.7041E+19	8.7000E-10	5.3000E-10	ICRP72	0.02000	BETA	5.06014E+02	Calculated
278	Ni-59	2.9532E+12	6.3000E-11	4.4000E-10	ICRP72	40.00000	A2 VALUE	3.32648E+05	Calculated
282	Ni-63	2.1232E+15	1.5000E-10	1.3000E-09	ICRP72	30.00000	A2 VALUE	3.00000E+06	TECDOC-855
284	Ni-65	7.0864E+20	1.8000E-10	9.0000E-11	ICRP72	0.30000	A2 VALUE	1.63158E+03	Calculated
285	Ni-66	3.2329E+19	3.0000E-09	1.8000E-09	ICRP72	0.02000	BETA	1.53282E+05	Calculated
286	Ni-67	3.4648E+23	7.2852E-13	3.7393E-13	Calculated	0.02000	BETA	7.66312E+02	Calculated
287	Ni-68	3.2341E+23	1.2338E-12	6.1689E-13	Calculated	0.02000	BETA	1.32651E+03	Calculated
288	Ni-69	5.3117E+23	1.0410E-12	5.2778E-13	Calculated	0.02000	BETA	3.44353E+02	Calculated
289	Ni-70	3.5955E+25	1.7015E-14	8.5075E-15	Calculated	0.02000	BETA	6.55437E+02	Calculated
290	Ni-71	3.1635E+24	2.7372E-13	1.3686E-13	Calculated	0.02000	BETA	3.88003E+02	Calculated
291	Cu-56	3.4218E+26	9.5215E-15	5.9701E-15	Calculated	0.02000	BETA	1.90785E+02	Calculated
292	Cu-57	3.1458E+25	5.3726E-14	3.3818E-14	Calculated	0.02000	BETA	7.03235E+02	Calculated
293	Cu-58	2.2484E+24	7.0355E-13	4.3532E-13	Calculated	0.02000	BETA	5.34759E+02	Calculated
294	Cu-59	8.6898E+22	1.0845E-11	6.7103E-12	Calculated	0.02000	BETA	6.28141E+02	Calculated
295	Cu-60	4.7603E+21	7.0000E-11	3.4000E-11	ICRP72	0.02000	BETA	2.50000E+02	Calculated
296	Cu-61	5.5831E+20	1.2000E-10	7.8000E-11	ICRP72	0.02000	BETA	1.16144E+03	Calculated
297	Cu-62	1.1521E+22	6.0900E-11	3.7682E-11	Calculated	0.02000	BETA	8.77208E+02	Calculated
299	Cu-64	1.4279E+20	1.2000E-10	1.2000E-10	ICRP72	0.90000	A2 VALUE	4.92274E+03	Calculated
301	Cu-66	2.0691E+22	1.6000E-11	9.9000E-12	NRPB-M	0.02000	BETA	5.29314E+03	Calculated
302	Cu-67	2.7988E+19	3.4000E-10	6.1000E-10	ICRP72	0.90000	A2 VALUE	7.63506E+03	Calculated
303	Cu-68	1.9759E+23	3.5133E-12	2.1739E-12	Calculated	0.02000	BETA	8.56898E+02	Calculated
304	Cu-68m	2.7311E+22	3.4662E-11	2.1447E-11	Calculated	0.02000	BETA	8.92538E+02	Calculated
305	Cu-69	3.3643E+22	1.2242E-11	7.9584E-12	Calculated	0.02000	BETA	3.07503E+03	Calculated
306	Cu-70	1.3264E+24	6.7781E-13	4.1940E-13	Calculated	0.02000	BETA	1.25000E+03	Calculated
307	Cu-70m	1.2700E+23	9.7448E-12	6.0296E-12	Calculated	0.02000	BETA	3.32889E+02	Calculated
308	Cu-71	3.0178E+23	3.5946E-12	2.2242E-12	Calculated	0.02000	BETA	7.19373E+02	Calculated
309	Cu-72	8.7920E+23	1.5387E-12	9.6657E-13	Calculated	0.02000	BETA	4.46532E+02	Calculated
310	Zn-58	1.1081E+26	2.5143E-14	1.7341E-14	Calculated	0.02000	BETA	3.23520E+02	Calculated
311	Zn-59	3.8547E+25	5.2940E-14	3.6512E-14	Calculated	0.02000	BETA	6.94444E+02	Calculated
312	Zn-60	4.8698E+22	1.9538E-11	1.2648E-11	Calculated	0.02000	BETA	6.12745E+02	Calculated
313	Zn-61	7.6878E+22	1.1880E-11	8.2182E-12	Calculated	0.02000	BETA	5.82751E+02	Calculated
314	Zn-62	2.0215E+20	9.4000E-10	5.5000E-10	ICRP72	0.02000	BETA	2.26142E+03	Calculated
315	Zn-63	2.8788E+21	7.9000E-11	3.7000E-11	ICRP72	0.02000	BETA	8.36188E+02	Calculated
317	Zn-65	3.0463E+17	3.9000E-09	2.2000E-09	ICRP72	2.00000	A2 VALUE	3.00000E+02	TECDOC-855
321	Zn-69	1.7708E+21	3.1000E-11	2.8000E-11	ICRP72	0.50000	A2 VALUE	3.11467E+04	Calculated
322	Zn-69m	1.2226E+20	3.3000E-10	2.7000E-10	ICRP72	0.50000	A2 VALUE	2.38776E+03	Calculated
324	Zn-71	4.0035E+22	7.3975E-12	5.1020E-12	Calculated	0.02000	BETA	2.38317E+03	Calculated
325	Zn-71m	4.1492E+20	2.4000E-10	1.6000E-10	ICRP72	0.02000	BETA	6.14266E+02	Calculated
326	Zn-72	3.4668E+19	1.4000E-09	1.3000E-09	ICRP72	0.02000	BETA	6.14402E+03	Calculated
327	Zn-73	2.4356E+23	2.0493E-12	1.4237E-12	Calculated	0.02000	BETA	3.29598E+03	Calculated
328	Zn-73m	9.8683E+23	6.3726E-13	4.4204E-13	Calculated	0.02000	BETA	1.08588E+03	Calculated
329	Zn-74	5.9061E+22	1.8101E-11	1.2484E-11	Calculated	0.02000	BETA	2.63158E+03	Calculated
330	Zn-75	5.4614E+23	2.1498E-12	1.4827E-12	Calculated	0.02000	BETA	4.95786E+02	Calculated
331	Zn-76	9.6443E+23	1.5856E-12	1.0936E-12	Calculated	0.02000	BETA	6.85253E+02	Calculated
332	Ga-64	4.1373E+22	3.0792E-11	1.5893E-11	Calculated	0.02000	BETA	2.78629E+02	Calculated
333	Ga-65	7.0488E+21	3.7000E-11	1.7000E-11	ICRP72	0.02000	BETA	8.19672E+02	Calculated
334	Ga-66	1.8512E+20	1.2000E-09	4.4000E-10	ICRP72	0.02000	BETA	3.90778E+02	Calculated
335	Ga-67	2.2136E+19	1.9000E-10	2.4000E-10	ICRP72	6.00000	A2 VALUE	6.32911E+03	Calculated
336	Ga-68	1.5144E+21	1.0000E-10	4.9000E-11	ICRP72	0.30000	A2 VALUE	9.78474E+02	Calculated
338	Ga-70	4.7063E+21	3.1000E-11	1.6000E-11	ICRP72	0.02000	BETA	1.39470E+04	Calculated
340	Ga-72	1.1433E+20	1.1000E-09	5.3000E-10	ICRP72	0.40000	A2 VALUE	3.62674E+02	Calculated
341	Ga-73	3.2649E+20	2.6000E-10	1.4000E-10	ICRP72	0.02000	BETA	3.99770E+03	Calculated
342	Ga-74	1.1594E+22	7.3465E-11	3.7917E-11	Calculated	0.02000	BETA	3.20513E+02	Calculated
343	Ga-74m	5.9436E+23	1.4544E-12	7.5067E-13	Calculated	0.02000	BETA	2.23968E+04	Calculated
344	Ga-75	4.2789E+22	9.3290E-12	4.8150E-12	Calculated	0.02000	BETA	4.86347E+03	Calculated
345	Ga-76	2.0286E+23	4.9517E-12	2.5557E-12	Calculated	0.02000	BETA	3.33045E+02	Calculated
346	Ga-77	4.1739E+23	1.8766E-12	9.6460E-13	Calculated	0.02000	BETA	1.49658E+03	Calculated
347	Ge-66	7.7776E+20	1.0000E-10	9.1000E-11	ICRP72	0.02000	BETA	1.43906E+03	Calculated
348	Ge-67	5.5683E+21	6.5000E-11	2.5000E-11	ICRP72	0.02000	BETA	6.41355E+02	Calculated
349	Ge-68	2.6262E+17	1.3000E-09	1.4000E-08	ICRP72	0.30000	A2 VALUE	2.16732E+05	Calculated
350	Ge-69	4.3072E+19	2.4000E-10	2.9000E-10	ICRP72	0.02000	BETA	1.03950E+03	Calculated
352	Ge-71	5.9569E+18	1.2000E-11	1.1000E-11	ICRP72	40.00000	A2 VALUE	2.13721E+05	Calculated
355	Ge-73m	1.1448E+25	6.7923E-16	5.3157E-16	Calculated	0.02000	BETA	6.01736E+04	Calculated
357	Ge-75	1.1217E+21	4.6000E-11	3.6000E-11	ICRP72	0.02000	BETA	1.29786E+04	Calculated
358	Ge-75m	1.1680E+23	5.7670E-13	4.5133E-13	Calculated	0.02000	BETA	1.53473E+04	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
360	Ge-77	1.3339E+20	3.3000E-10	3.7000E-10	ICRP72	0.30000	A2 VALUE	8.75427E+02	Calculated
361	Ge-77m	1.0258E+23	1.3730E-12	1.0612E-12	Calculated	0.02000	BETA	5.95238E+03	Calculated
362	Ge-78	1.0262E+21	1.2000E-10	9.5000E-11	ICRP72	0.02000	BETA	3.31416E+03	Calculated
363	Ge-79	2.7690E+23	1.0821E-12	8.4685E-13	Calculated	0.02000	BETA	2.12314E+03	Calculated
364	Ge-79m	1.3561E+23	3.1990E-12	2.5036E-12	Calculated	0.02000	BETA	5.22739E+02	Calculated
365	Ge-80	1.7704E+23	2.6417E-12	2.0674E-12	Calculated	0.02000	BETA	1.88679E+03	Calculated
366	Ge-81	6.7867E+23	1.0108E-12	7.9149E-13	Calculated	0.02000	BETA	3.56125E+02	Calculated
367	Ge-81m	6.8772E+23	9.8855E-13	7.7410E-13	Calculated	0.02000	BETA	4.53683E+02	Calculated
368	As-68	4.0530E+22	1.7378E-11	2.9317E-11	Calculated	0.02000	BETA	2.54323E+02	Calculated
369	As-69	6.6253E+21	5.7000E-11	2.1000E-11	ICRP72	0.02000	BETA	7.93210E+02	Calculated
370	As-70	1.8913E+21	1.3000E-10	6.7000E-11	ICRP72	0.02000	BETA	2.33973E+02	Calculated
371	As-71	2.5044E+19	4.6000E-10	4.0000E-10	ICRP72	0.02000	BETA	1.69895E+03	Calculated
372	As-72	6.2003E+19	1.8000E-09	9.0000E-10	ICRP72	0.20000	A2 VALUE	5.31067E+02	Calculated
373	As-73	8.2503E+17	2.6000E-10	1.0000E-09	ICRP72	40.00000	A2 VALUE	4.62107E+04	Calculated
374	As-74	3.6758E+18	1.3000E-09	2.1000E-09	ICRP72	0.50000	A2 VALUE	1.27148E+03	Calculated
376	As-76	5.8025E+19	1.6000E-09	7.4000E-10	ICRP72	0.20000	A2 VALUE	1.85414E+03	Calculated
377	As-77	3.8820E+19	4.0000E-10	3.9000E-10	ICRP72	0.50000	A2 VALUE	3.27332E+04	Calculated
378	As-78	9.8437E+20	2.1000E-10	8.9000E-11	ICRP72	0.02000	BETA	6.81199E+02	Calculated
379	As-79	9.7838E+21	9.1784E-12	1.5391E-11	Calculated	0.02000	BETA	9.52381E+03	Calculated
380	As-80	3.1654E+23	9.7977E-13	1.6429E-12	Calculated	0.02000	BETA	9.73710E+02	Calculated
381	As-81	1.5631E+23	1.5254E-12	2.5619E-12	Calculated	0.02000	BETA	3.31345E+03	Calculated
382	As-82	2.5476E+23	1.3945E-12	2.3384E-12	Calculated	0.02000	BETA	1.51812E+03	Calculated
383	As-82m	3.7465E+23	1.3568E-12	2.2752E-12	Calculated	0.02000	BETA	3.15127E+02	Calculated
384	Se-70	2.4204E+21	1.2000E-10	7.6000E-11	ICRP72	0.02000	BETA	1.00659E+03	Calculated
385	Se-71	2.0721E+22	2.5439E-11	1.3839E-11	Calculated	0.02000	BETA	7.20461E+02	Calculated
386	Se-72	7.9937E+18	5.0000E-09	4.3000E-09	KENDALL	0.02000	BETA	2.73598E+04	Calculated
387	Se-73	2.2272E+20	2.1000E-10	2.1000E-10	ICRP72	0.02000	BETA	8.45309E+02	Calculated
388	Se-73m	2.3949E+21	2.8000E-11	2.2000E-11	ICRP72	0.02000	BETA	3.56761E+03	Calculated
390	Se-75	5.3898E+17	2.6000E-09	1.3000E-09	ICRP72	3.00000	A2 VALUE	2.55322E+03	Calculated
393	Se-77m	3.1260E+23	1.0818E-13	6.0101E-14	Calculated	0.02000	BETA	1.05507E+04	Calculated
395	Se-79	2.7934E+11	2.9000E-09	6.8000E-09	ICRP72	2.00000	A2 VALUE	1.90545E+05	Calculated
396	Se-79m	2.2604E+22	4.9382E-16	2.7434E-16	Calculated	0.02000	BETA	4.50903E+04	Calculated
398	Se-81	4.6474E+21	2.7000E-11	1.5000E-11	ICRP72	0.02000	BETA	1.39834E+04	Calculated
399	Se-81m	1.5018E+21	5.3000E-11	5.1000E-11	ICRP72	0.02000	BETA	3.79606E+04	Calculated
400	Se-82	1.1581E-03	1.4923E-08	2.2366E-08	Calculated	0.02000	BETA	9.10618E+02	Calculated
401	Se-83	3.7568E+21	4.7000E-11	3.4000E-11	ICRP72	0.02000	BETA	4.04858E+02	Calculated
402	Se-83m	7.1813E+22	6.6984E-12	4.2812E-12	Calculated	0.02000	BETA	9.19118E+02	Calculated
403	Se-84	2.6743E+22	1.6195E-11	1.0974E-11	Calculated	0.02000	BETA	2.11149E+03	Calculated
404	Se-85	1.5506E+23	6.8893E-12	3.8305E-12	Calculated	0.02000	BETA	3.93391E+02	Calculated
405	Br-72	7.3825E+22	1.7010E-11	5.2416E-12	Calculated	0.02000	BETA	3.10655E+02	Calculated
406	Br-72m	5.4742E+23	2.3332E-12	7.1879E-13	Calculated	0.02000	BETA	9.89120E+03	Calculated
407	Br-73	2.8056E+22	2.2935E-11	7.3314E-12	Calculated	0.02000	BETA	6.07903E+02	Calculated
408	Br-74	3.7049E+21	8.4000E-11	3.8000E-11	ICRP72	0.02000	BETA	2.11149E+02	Calculated
409	Br-74m	2.0457E+21	1.4000E-10	6.2000E-11	ICRP72	0.02000	BETA	2.43072E+02	Calculated
410	Br-75	9.5724E+20	7.9000E-11	5.3000E-11	ICRP72	0.02000	BETA	8.00000E+02	Calculated
411	Br-76	9.4303E+19	4.6000E-10	4.1000E-10	ICRP72	0.30000	A2 VALUE	3.51494E+02	Calculated
412	Br-76m	4.1968E+24	1.1937E-14	9.6800E-15	Calculated	0.02000	BETA	2.94118E+04	Calculated
413	Br-77	2.6429E+19	9.6000E-11	8.4000E-11	ICRP72	3.00000	A2 VALUE	3.10943E+03	Calculated
414	Br-77m	2.1115E+22	2.5578E-13	1.4626E-13	Calculated	0.02000	BETA	6.94444E+04	Calculated
415	Br-78	1.3821E+22	2.9204E-11	8.8555E-12	Calculated	0.02000	BETA	8.80824E+02	Calculated
417	Br-79m	1.0839E+24	3.7048E-14	1.1234E-14	Calculated	0.02000	BETA	6.16665E+03	Calculated
418	Br-80	4.9461E+21	3.1000E-11	9.4000E-12	ICRP72	0.02000	BETA	6.69305E+03	Calculated
419	Br-80m	3.2899E+20	1.1000E-10	7.6000E-11	ICRP72	0.02000	BETA	3.28568E+04	Calculated
421	Br-82	4.0076E+19	5.4000E-10	6.3000E-10	ICRP72	0.40000	A2 VALUE	3.77031E+02	Calculated
422	Br-82m	1.3946E+22	2.5627E-12	2.0848E-12	Calculated	0.02000	BETA	6.58336E+04	Calculated
423	Br-83	5.8511E+20	4.3000E-11	4.8000E-11	ICRP72	0.02000	BETA	2.53217E+04	Calculated
424	Br-84	2.6071E+21	8.8000E-11	3.7000E-11	ICRP72	0.02000	BETA	5.34759E+02	Calculated
425	Br-84m	1.3817E+22	4.8550E-11	1.4722E-11	Calculated	0.02000	BETA	3.49528E+02	Calculated
426	Br-85	2.8580E+22	9.6292E-12	2.9284E-12	Calculated	0.02000	BETA	5.84795E+03	Calculated
427	Br-86	8.8333E+22	1.0763E-11	3.2637E-12	Calculated	0.02000	BETA	2.76855E+02	Calculated
428	Kr-74	8.1825E+21	6.1103E-11	1.0337E-10	Calculated	0.02000	BETA	8.18331E+02	Calculated
429	Kr-75	2.1592E+22	2.2012E-11	3.4761E-11	Calculated	0.02000	BETA	6.20617E+02	Calculated
430	Kr-76	1.0315E+20	9.0294E-10	2.0638E-09	Calculated	0.02000	BETA	2.34996E+03	Calculated
431	Kr-77	1.2167E+21	1.9241E-10	2.7088E-10	Calculated	0.02000	BETA	9.24984E+02	Calculated
433	Kr-79	4.1930E+19	9.0128E-10	1.2973E-09	Calculated	0.02000	BETA	3.84268E+03	Calculated
434	Kr-79m	1.0578E+23	5.2767E-13	7.5067E-13	Calculated	0.02000	BETA	2.04889E+04	Calculated
436	Kr-81	7.7842E+11	1.4033E-10	1.3908E-08	Calculated	40.00000	A2 VALUE	1.26464E+05	Calculated
437	Kr-81m	3.9081E+23	6.5995E-14	9.1568E-14	Calculated	0.02000	BETA	7.26750E+03	Calculated
440	Kr-83m	7.6418E+20	7.2203E-12	1.0018E-11	Calculated	0.02000	BETA	1.57007E+05	Calculated
442	Kr-85	1.4518E+16	2.7806E-09	2.6391E-07	Calculated	10.00000	A2 VALUE	3.66357E+04	Calculated
443	Kr-85m	3.0481E+20	1.7472E-10	2.4504E-10	Calculated	6.00000	A2 VALUE	5.47252E+03	Calculated
445	Kr-87	1.0491E+21	2.5737E-10	3.5710E-10	Calculated	0.20000	A2 VALUE	1.07875E+03	Calculated
446	Kr-88	4.6440E+20	1.3454E-09	1.8667E-09	Calculated	0.02000	BETA	5.03146E+02	Calculated
447	Kr-89	2.4682E+22	2.7733E-11	4.6227E-11	Calculated	0.02000	BETA	3.11818E+02	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
448	Rb-78	5.0533E+21	1.7910E-10	3.1840E-11	Calculated	0.02000	BETA	2.32396E+02	Calculated
449	Rb-78m	1.5571E+22	5.7381E-11	1.0201E-11	Calculated	0.02000	BETA	2.95247E+02	Calculated
450	Rb-79	3.8605E+21	5.0000E-11	1.6000E-11	ICRP72	0.02000	BETA	6.65336E+02	Calculated
451	Rb-80	1.5361E+23	3.4298E-12	6.0974E-13	Calculated	0.02000	BETA	7.17360E+02	Calculated
452	Rb-81	3.1313E+20	5.4000E-11	3.4000E-11	ICRP72	0.90000	A2 VALUE	1.50466E+03	Calculated
453	Rb-81m	2.8204E+21	9.7000E-12	7.0000E-12	ICRP72	0.02000	BETA	2.36967E+04	Calculated
454	Rb-82	6.6714E+22	5.9755E-12	1.0623E-12	Calculated	0.02000	BETA	8.10241E+02	Calculated
455	Rb-82m	2.1870E+20	1.3000E-10	1.1000E-10	ICRP72	0.02000	BETA	3.40194E+02	Calculated
456	Rb-83	6.7596E+17	1.9000E-09	6.9000E-10	ICRP72	2.00000	A2 VALUE	2.01234E+03	Calculated
457	Rb-84	1.7186E+18	2.8000E-09	1.0000E-09	ICRP72	0.90000	A2 VALUE	1.10910E+03	Calculated
458	Rb-84m	4.0640E+21	1.8886E-11	3.5698E-12	Calculated	0.02000	BETA	2.55818E+03	Calculated
460	Rb-86	3.0186E+18	2.8000E-09	9.3000E-10	ICRP72	0.30000	A2 VALUE	6.12279E+03	Calculated
461	Rb-86m	7.9652E+22	1.1653E-12	2.2355E-13	Calculated	0.02000	BETA	1.82809E+03	Calculated
462	Rb-87	3.1730E+06	1.5000E-09	5.0000E-10	ICRP72	0.02000	BETA	1.26904E+05	Calculated
463	Rb-88	4.4459E+21	9.0000E-11	1.6000E-11	ICRP72	0.02000	BETA	1.18570E+03	Calculated
464	Rb-89	5.1648E+21	4.7000E-11	1.4000E-11	ICRP72	0.02000	BETA	5.39665E+02	Calculated
465	Rb-90	3.0343E+22	1.9314E-11	3.4686E-12	Calculated	0.02000	BETA	4.24010E+02	Calculated
466	Rb-90m	1.7994E+22	4.1462E-11	7.4299E-12	Calculated	0.02000	BETA	2.61938E+02	Calculated
467	Sr-80	8.1860E+20	3.4000E-10	1.4000E-10	ICRP72	0.02000	BETA	2.42189E+03	Calculated
468	Sr-81	3.8552E+21	7.7000E-11	3.7000E-11	ICRP72	0.02000	BETA	6.22278E+02	Calculated
469	Sr-82	2.3078E+18	6.1000E-09	1.1000E-08	ICRP72	0.20000	A2 VALUE	1.19261E+05	Calculated
470	Sr-83	4.3147E+19	4.9000E-10	3.4000E-10	ICRP72	0.02000	BETA	1.26404E+03	Calculated
471	Sr-83m	1.0170E+24	2.8491E-14	1.9302E-14	Calculated	0.02000	BETA	4.32514E+03	Calculated
473	Sr-85	8.7738E+17	5.6000E-10	8.1000E-10	ICRP72	2.00000	A2 VALUE	1.92525E+03	Calculated
474	Sr-85m	1.2118E+21	6.1000E-12	4.3000E-12	ICRP72	5.00000	A2 VALUE	4.60327E+03	Calculated
477	Sr-87m	4.7513E+20	3.0000E-11	2.1000E-11	ICRP72	3.00000	A2 VALUE	3.05912E+03	Calculated
479	Sr-89	1.0756E+18	2.6000E-09	7.9000E-09	ICRP72	0.50000	A2 VALUE	3.00000E+05	TECDOC-855
480	Sr-90	5.0967E+15	2.8000E-08	1.6000E-07	ICRP72	0.10000	A2 VALUE	3.00000E+03	TECDOC-855
481	Sr-91	1.3398E+20	6.5000E-10	4.1000E-10	ICRP72	0.30000	A2 VALUE	1.29992E+03	Calculated
482	Sr-92	4.6552E+20	4.3000E-10	2.3000E-10	ICRP72	0.20000	A2 VALUE	8.70246E+02	Calculated
483	Sr-93	1.0229E+22	1.1171E-11	5.5039E-12	Calculated	0.02000	BETA	5.39084E+02	Calculated
484	Sr-94	5.8406E+22	2.2944E-12	8.6792E-13	Calculated	0.02000	BETA	6.50195E+02	Calculated
485	Sr-95	1.7521E+23	9.4372E-13	3.9482E-13	Calculated	0.02000	BETA	6.45136E+02	Calculated
486	Sr-96	4.1054E+24	4.0941E-14	2.5922E-14	Calculated	0.02000	BETA	8.95255E+02	Calculated
487	Y-82	5.3632E+23	1.2019E-12	1.9619E-12	Calculated	0.02000	BETA	6.36943E+02	Calculated
488	Y-83	1.1844E+22	3.9037E-11	5.5203E-11	Calculated	0.02000	BETA	6.45578E+02	Calculated
489	Y-83m	2.9438E+22	1.4450E-11	2.0467E-11	Calculated	0.02000	BETA	7.66284E+02	Calculated
490	Y-84	1.0813E+24	4.4429E-13	6.1646E-13	Calculated	0.02000	BETA	6.57895E+02	Calculated
491	Y-84m	2.0725E+21	3.2566E-10	4.5186E-10	Calculated	0.02000	BETA	2.44499E+02	Calculated
492	Y-85	5.0940E+20	1.5000E-10	1.4000E-10	NRPB-M	0.02000	BETA	7.54318E+02	Calculated
493	Y-85m	2.8090E+20	3.2000E-10	2.5000E-10	NRPB-M	0.02000	BETA	7.08617E+02	Calculated
494	Y-86	9.1567E+19	9.6000E-10	4.7000E-10	ICRP72	0.02000	BETA	2.77639E+02	Calculated
495	Y-86m	1.6870E+21	5.6000E-11	2.8000E-11	ICRP72	0.02000	BETA	4.49620E+03	Calculated
496	Y-87	1.6613E+19	5.5000E-10	3.9000E-10	ICRP72	2.00000	A2 VALUE	2.18019E+03	Calculated
497	Y-87m	1.0351E+20	2.1000E-10	1.9000E-10	NRPB-M	0.02000	BETA	3.17773E+03	Calculated
498	Y-88	5.1540E+17	1.3000E-09	4.4000E-09	ICRP72	0.40000	A2 VALUE	3.70742E+02	Calculated
500	Y-89m	2.9253E+23	3.8295E-13	5.3134E-13	Calculated	0.02000	BETA	1.10848E+03	Calculated
501	Y-90	2.0117E+19	2.7000E-09	1.5000E-09	ICRP72	0.20000	A2 VALUE	3.00000E+05	TECDOC-855
502	Y-90m	4.0429E+20	1.7000E-10	1.0000E-10	ICRP72	0.02000	BETA	1.56617E+03	Calculated
503	Y-91	9.0537E+17	2.4000E-09	8.9000E-09	ICRP72	0.30000	A2 VALUE	1.53275E+04	Calculated
504	Y-91m	1.5392E+21	1.1000E-11	1.1000E-11	ICRP72	2.00000	A2 VALUE	1.88533E+03	Calculated
505	Y-92	3.5638E+20	4.9000E-10	1.8000E-10	ICRP72	0.20000	A2 VALUE	2.51813E+03	Calculated
506	Y-93	1.2356E+20	1.2000E-09	4.2000E-10	ICRP72	0.20000	A2 VALUE	4.76205E+03	Calculated
507	Y-93m	5.4790E+24	4.3397E-14	3.2136E-14	Calculated	0.02000	BETA	1.45607E+03	Calculated
508	Y-94	3.8786E+21	8.1000E-11	2.8000E-11	ICRP72	0.02000	BETA	9.26526E+02	Calculated
509	Y-95	7.1164E+21	4.6000E-11	1.6000E-11	ICRP72	0.02000	BETA	8.37521E+02	Calculated
510	Y-96	8.1042E+23	4.6156E-13	6.4042E-13	Calculated	0.02000	BETA	2.41815E+03	Calculated
511	Y-96m	4.5239E+23	1.6002E-12	2.2202E-12	Calculated	0.02000	BETA	2.14061E+02	Calculated
512	Y-97	1.1641E+24	2.1572E-16	2.9931E-16	Calculated	0.02000	BETA	5.35332E+02	Calculated
513	Y-97m	3.5595E+24	1.5250E-13	2.0902E-13	Calculated	0.02000	BETA	5.02260E+02	Calculated
514	Zr-84	3.2089E+21	4.0193E-10	1.9137E-10	Calculated	0.02000	BETA	9.77200E+02	Calculated
515	Zr-85	1.0423E+22	7.6822E-11	3.4540E-11	Calculated	0.02000	BETA	6.06796E+02	Calculated
516	Zr-85m	4.5095E+23	1.9246E-12	8.6927E-13	Calculated	0.02000	BETA	3.42231E+03	Calculated
517	Zr-86	8.1793E+19	8.6000E-10	4.3000E-10	ICRP72	0.02000	BETA	3.35537E+03	Calculated
518	Zr-87	7.6966E+20	3.1000E-11	2.8000E-11	NRPB-M	0.02000	BETA	1.00301E+03	Calculated
519	Zr-87m	3.4305E+23	2.8502E-13	1.6541E-13	Calculated	0.02000	BETA	4.06174E+03	Calculated
520	Zr-88	6.5896E+17	4.5000E-10	3.6000E-09	ICRP72	3.00000	A2 VALUE	2.54181E+03	Calculated
521	Zr-89	1.6635E+19	7.9000E-10	5.5000E-10	ICRP72	0.02000	BETA	3.80005E+03	Calculated
522	Zr-89m	1.8720E+22	8.5249E-12	4.2031E-12	Calculated	0.02000	BETA	1.55931E+03	Calculated
524	Zr-90m	5.5939E+24	9.0043E-14	4.2872E-14	Calculated	0.02000	BETA	4.31202E+02	Calculated
527	Zr-93	9.3054E+10	1.1000E-09	2.5000E-08	ICRP72	0.20000	A2 VALUE	5.22715E+05	Calculated
529	Zr-95	7.9502E+17	9.5000E-10	5.9000E-09	ICRP72	0.90000	A2 VALUE	1.34709E+03	Calculated
531	Zr-97	7.0797E+19	2.1000E-09	9.2000E-10	ICRP72	0.30000	A2 VALUE	3.75657E+03	Calculated
532	Zr-98	1.3887E+23	4.2308E-12	2.0144E-12	Calculated	0.02000	BETA	1.09410E+04	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
533	Zr-99	2.0095E+24	4.4916E-13	2.1915E-13	Calculated	0.02000	BETA	9.17431E+02	Calculated
534	Nb-86	5.5204E+22	7.3207E-12	4.8571E-12	Calculated	0.02000	BETA	2.56476E+02	Calculated
535	Nb-87	3.0784E+22	4.7723E-12	3.2945E-12	Calculated	0.02000	BETA	6.41026E+02	Calculated
536	Nb-87m	2.0971E+22	9.5013E-12	6.4878E-12	Calculated	0.02000	BETA	7.25426E+02	Calculated
537	Nb-88	5.4573E+21	6.3000E-11	2.8000E-11	ICRP72	0.02000	BETA	2.27273E+02	Calculated
538	Nb-88m	1.0145E+22	3.5960E-11	2.3887E-11	Calculated	0.02000	BETA	2.37643E+02	Calculated
539	Nb-89	6.4135E+20	2.7000E-10	1.2000E-10	ICRP72	0.02000	BETA	6.65070E+02	Calculated
540	Nb-89m	1.1855E+21	1.4000E-10	7.1000E-11	ICRP72	0.02000	BETA	4.97265E+02	Calculated
541	Nb-90	8.8330E+19	1.2000E-09	6.6000E-10	ICRP72	0.02000	BETA	2.35571E+02	Calculated
542	Nb-90m	2.4668E+23	4.6147E-13	2.5736E-13	Calculated	0.02000	BETA	1.15821E+04	Calculated
543	Nb-91	2.1398E+14	6.4000E-11	4.1000E-09	R245	0.02000	BETA	7.60230E+04	Calculated
544	Nb-91m	8.7266E+17	6.3000E-10	2.3000E-09	R245	0.02000	BETA	2.11065E+04	Calculated
545	Nb-92	4.1120E+09	1.1000E-09	3.8000E-08	KENDALL	0.02000	BETA	6.64848E+02	Calculated
546	Nb-92m	5.1790E+18	6.0000E-10	5.9000E-10	R245	0.70000	A2 VALUE	1.02984E+03	Calculated
548	Nb-93m	8.8288E+15	1.2000E-10	1.8000E-09	ICRP72	6.00000	A2 VALUE	2.06164E+05	Calculated
549	Nb-94	7.0476E+12	1.7000E-09	4.9000E-08	ICRP72	0.60000	A2 VALUE	3.00000E+02	TECDOC-855
550	Nb-94m	1.1835E+22	2.4666E-13	1.6326E-13	Calculated	0.02000	BETA	6.33737E+04	Calculated
551	Nb-95	1.4555E+18	5.8000E-10	1.8000E-09	ICRP72	1.00000	A2 VALUE	1.30072E+03	Calculated
552	Nb-95m	1.4108E+19	5.6000E-10	8.8000E-10	ICRP72	0.02000	BETA	1.12304E+04	Calculated
553	Nb-96	5.1776E+19	1.1000E-09	6.6000E-10	ICRP72	0.02000	BETA	4.08266E+02	Calculated
554	Nb-97	9.9570E+20	6.8000E-11	4.5000E-11	ICRP72	0.50000	A2 VALUE	1.40056E+03	Calculated
555	Nb-97m	7.1790E+22	1.5616E-12	1.0334E-12	Calculated	0.02000	BETA	1.37018E+03	Calculated
556	Nb-98	1.5226E+24	7.8893E-14	5.2208E-14	Calculated	0.02000	BETA	3.58680E+03	Calculated
557	Nb-98m	1.3851E+21	1.1000E-10	5.8000E-11	ICRP72	0.02000	BETA	3.58551E+02	Calculated
558	Nb-99	2.9512E+23	3.7415E-13	2.6245E-13	Calculated	0.02000	BETA	2.98151E+03	Calculated
559	Nb-99m	2.7052E+22	4.9772E-12	3.4557E-12	Calculated	0.02000	BETA	1.11483E+03	Calculated
560	Nb-100	2.9842E+24	6.1879E-14	4.0949E-14	Calculated	0.02000	BETA	1.01145E+03	Calculated
561	Nb-100m	1.4406E+24	1.6534E-13	1.0942E-13	Calculated	0.02000	BETA	4.40692E+02	Calculated
562	Mo-88	9.8910E+21	7.5616E-11	4.5379E-11	Calculated	0.02000	BETA	2.34908E+03	Calculated
563	Mo-89	3.8478E+22	1.6637E-11	1.1390E-11	Calculated	0.02000	BETA	7.18907E+02	Calculated
564	Mo-90	2.2746E+20	2.2000E-10	3.6000E-10	ICRP72	0.02000	BETA	1.21178E+03	Calculated
565	Mo-91	4.9403E+21	5.2888E-11	4.2597E-11	Calculated	0.02000	BETA	8.90678E+02	Calculated
566	Mo-91m	7.0422E+22	4.8263E-12	3.8873E-12	Calculated	0.02000	BETA	6.91471E+02	Calculated
568	Mo-93	4.7274E+13	3.1000E-09	2.3000E-09	ICRP72	7.00000	A2 VALUE	8.69158E+04	Calculated
569	Mo-93m	1.8219E+20	1.1000E-10	1.7000E-10	ICRP72	0.02000	BETA	4.29511E+02	Calculated
575	Mo-99	1.7776E+19	6.0000E-10	9.9000E-10	ICRP72	0.50000	A2 VALUE	5.37657E+03	Calculated
577	Mo-101	4.7221E+21	4.1000E-11	2.6000E-11	ICRP72	0.02000	BETA	6.55387E+02	Calculated
578	Mo-102	6.0952E+21	3.7848E-11	3.0484E-11	Calculated	0.02000	BETA	1.81399E+04	Calculated
579	Mo-103	6.0090E+22	5.0292E-12	4.0877E-12	Calculated	0.02000	BETA	8.62866E+02	Calculated
580	Mo-104	6.6950E+22	5.1961E-12	2.9111E-12	Calculated	0.02000	BETA	3.78788E+03	Calculated
581	Mo-105	1.0841E+23	4.6331E-12	3.8253E-12	Calculated	0.02000	BETA	4.01432E+02	Calculated
582	Tc-92	1.7202E+22	4.1191E-11	2.6015E-11	Calculated	0.02000	BETA	2.43546E+02	Calculated
583	Tc-93	4.5381E+20	5.5000E-11	3.5000E-11	ICRP72	0.02000	BETA	7.51529E+02	Calculated
584	Tc-93m	1.7214E+21	2.5000E-11	1.7000E-11	ICRP72	0.02000	BETA	1.24332E+03	Calculated
585	Tc-94	2.5284E+20	2.0000E-10	1.3000E-10	ICRP72	0.02000	BETA	3.75429E+02	Calculated
586	Tc-94m	1.4247E+21	1.0000E-10	4.6000E-11	ICRP72	0.02000	BETA	4.97141E+02	Calculated
587	Tc-95	6.1086E+19	1.8000E-10	1.1000E-10	ICRP72	0.02000	BETA	1.25231E+03	Calculated
588	Tc-95m	8.3457E+17	5.6000E-10	1.2000E-09	ICRP72	2.00000	A2 VALUE	1.38798E+03	Calculated
589	Tc-96	1.1770E+19	1.1000E-09	7.0000E-10	ICRP72	0.40000	A2 VALUE	3.99358E+02	Calculated
590	Tc-96m	1.4085E+21	1.2000E-11	7.5000E-12	ICRP72	0.40000	A2 VALUE	2.21619E+04	Calculated
591	Tc-97	5.2498E+10	6.8000E-11	1.8000E-09	ICRP72	0.02000	BETA	8.16691E+04	Calculated
592	Tc-97m	5.5272E+17	5.5000E-10	4.1000E-09	ICRP72	40.00000	A2 VALUE	5.49430E+04	Calculated
593	Tc-98	3.2189E+10	2.0000E-09	4.5000E-08	ICRP72	0.70000	A2 VALUE	7.01951E+02	Calculated
594	Tc-99	6.3292E+11	6.4000E-10	1.3000E-08	ICRP72	0.90000	A2 VALUE	3.00000E+05	TECDOC-855
595	Tc-99m	1.9506E+20	2.2000E-11	2.0000E-11	ICRP72	8.00000	A2 VALUE	3.00000E+04	TECDOC-855
596	Tc-100	2.6444E+23	6.0569E-13	3.8254E-13	Calculated	0.02000	BETA	4.66200E+03	Calculated
597	Tc-101	4.8553E+21	1.9000E-11	1.2000E-11	ICRP72	0.02000	BETA	2.60419E+03	Calculated
598	Tc-102	7.7576E+23	2.9330E-13	1.8524E-13	Calculated	0.02000	BETA	3.63290E+03	Calculated
599	Tc-102m	1.5694E+22	2.3940E-11	1.5120E-11	Calculated	0.02000	BETA	3.84220E+02	Calculated
600	Tc-103	8.1125E+22	1.5285E-12	9.9053E-13	Calculated	0.02000	BETA	2.87134E+03	Calculated
601	Tc-104	3.6387E+21	8.0000E-11	2.9000E-11	ICRP72	0.02000	BETA	4.13052E+02	Calculated
602	Tc-105	8.7255E+21	2.5231E-11	1.7004E-11	Calculated	0.02000	BETA	1.62379E+03	Calculated
603	Tc-106	1.0948E+23	4.1425E-12	2.6619E-12	Calculated	0.02000	BETA	4.32259E+02	Calculated
604	Ru-94	1.4292E+21	9.4000E-11	4.4000E-11	ICRP72	0.02000	BETA	1.92123E+03	Calculated
605	Ru-95	7.4544E+20	5.7000E-11	8.2000E-11	NRPB-M	0.02000	BETA	7.99616E+02	Calculated
607	Ru-97	1.7191E+19	1.5000E-10	1.1000E-10	ICRP72	4.00000	A2 VALUE	4.08248E+03	Calculated
613	Ru-103	1.1958E+18	7.3000E-10	3.0000E-09	ICRP72	0.90000	A2 VALUE	1.98284E+03	Calculated
615	Ru-105	2.4899E+20	2.6000E-10	1.8000E-10	ICRP72	0.50000	A2 VALUE	1.32328E+03	Calculated
616	Ru-106	1.2390E+17	7.0000E-09	6.6000E-08	ICRP72	0.20000	A2 VALUE	3.00000E+03	TECDOC-855
617	Ru-107	1.7353E+22	2.6902E-11	1.2580E-11	Calculated	0.02000	BETA	2.20751E+03	Calculated
618	Ru-108	1.4327E+22	5.7396E-11	2.6866E-11	Calculated	0.02000	BETA	1.07673E+04	Calculated
619	Ru-109	1.1109E+23	9.0356E-12	4.1546E-12	Calculated	0.02000	BETA	4.53721E+02	Calculated
620	Ru-109m	2.9710E+23	2.9552E-12	1.3553E-12	Calculated	0.02000	BETA	7.00771E+02	Calculated
621	Ru-110	3.0141E+23	2.7407E-12	1.2829E-12	Calculated	0.02000	BETA	1.80245E+03	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
622	Ru-111	1.7106E+24	6.9092E-13	3.2867E-13	Calculated	0.02000	BETA	1.07527E+03	Calculated
623	Rh-96	7.3266E+21	8.1303E-11	5.7768E-11	Calculated	0.02000	BETA	2.45399E+02	Calculated
624	Rh-96m	4.8036E+22	1.2104E-11	8.5999E-12	Calculated	0.02000	BETA	7.81250E+02	Calculated
625	Rh-97	2.3034E+21	1.0314E-10	7.3507E-11	Calculated	0.02000	BETA	6.75219E+02	Calculated
626	Rh-97m	1.6193E+21	1.9268E-10	1.3722E-10	Calculated	0.02000	BETA	4.40412E+02	Calculated
627	Rh-98	8.1672E+21	4.4965E-11	3.1949E-11	Calculated	0.02000	BETA	5.35103E+02	Calculated
628	Rh-98m	2.0301E+22	1.9776E-11	1.4051E-11	Calculated	0.02000	BETA	4.10004E+02	Calculated
629	Rh-99	3.0340E+18	5.1000E-10	8.7000E-10	ICRP72	2.00000	A2 VALUE	1.96928E+03	Calculated
630	Rh-99m	2.4972E+20	6.6000E-11	4.0000E-11	ICRP72	0.02000	BETA	1.54914E+03	Calculated
631	Rh-100	5.5782E+19	7.1000E-10	3.5000E-10	ICRP72	0.02000	BETA	3.58939E+02	Calculated
632	Rh-100m	1.5138E+22	2.9558E-12	1.5406E-12	Calculated	0.02000	BETA	2.14638E+04	Calculated
633	Rh-101	3.9776E+16	5.5000E-10	5.4000E-09	ICRP72	4.00000	A2 VALUE	3.30426E+03	Calculated
634	Rh-101m	1.1031E+19	2.2000E-10	2.1000E-10	ICRP72	0.02000	BETA	3.26819E+03	Calculated
635	Rh-102	4.4725E+16	2.6000E-09	1.7000E-08	ICRP72	0.50000	A2 VALUE	4.70973E+02	Calculated
636	Rh-102m	2.2793E+17	1.2000E-09	7.1000E-09	ICRP72	0.90000	A2 VALUE	1.95877E+03	Calculated
638	Rh-103m	1.2048E+21	3.8000E-12	2.7000E-12	ICRP72	40.00000	A2 VALUE	1.81103E+05	Calculated
639	Rh-104	9.4971E+22	1.1909E-12	8.4614E-13	Calculated	0.02000	BETA	8.84393E+03	Calculated
640	Rh-104m	1.5427E+22	8.2915E-12	5.8913E-12	Calculated	0.02000	BETA	1.84697E+04	Calculated
641	Rh-105	3.1240E+19	3.7000E-10	3.5000E-10	ICRP72	0.90000	A2 VALUE	1.07113E+04	Calculated
642	Rh-105m	9.9475E+22	2.6307E-13	2.1427E-13	Calculated	0.02000	BETA	2.26645E+04	Calculated
643	Rh-106	1.3094E+23	1.3784E-12	9.7941E-13	Calculated	0.02000	BETA	2.79162E+03	Calculated
644	Rh-106m	4.9765E+20	1.6000E-10	1.1000E-10	ICRP72	0.02000	BETA	3.58245E+02	Calculated
645	Rh-107	2.9989E+21	2.4000E-11	1.7000E-11	ICRP72	0.02000	BETA	2.80728E+03	Calculated
646	Rh-108	1.0927E+22	3.1828E-11	2.2615E-11	Calculated	0.02000	BETA	4.24322E+02	Calculated
647	Rh-108m	2.3026E+23	1.1080E-12	7.8725E-13	Calculated	0.02000	BETA	1.40964E+03	Calculated
648	Rh-109	4.7910E+22	3.1880E-12	2.1358E-12	Calculated	0.02000	BETA	2.42578E+03	Calculated
649	Rh-110	1.2659E+24	2.0490E-13	1.4559E-13	Calculated	0.02000	BETA	3.31963E+03	Calculated
650	Rh-110m	1.3326E+23	2.8232E-12	2.0060E-12	Calculated	0.02000	BETA	4.30234E+02	Calculated
651	Rh-111	3.4214E+23	8.4768E-13	6.2193E-13	Calculated	0.02000	BETA	2.80505E+03	Calculated
652	Rh-112	9.8154E+23	6.7588E-13	4.3798E-13	Calculated	0.02000	BETA	3.48068E+02	Calculated
653	Pd-98	4.0143E+21	2.0637E-10	2.2667E-10	Calculated	0.02000	BETA	2.10970E+03	Calculated
654	Pd-99	3.2867E+21	1.1907E-10	1.3218E-10	Calculated	0.02000	BETA	7.67813E+02	Calculated
655	Pd-100	1.3306E+19	9.4000E-10	8.5000E-10	ICRP72	0.02000	BETA	9.19591E+03	Calculated
656	Pd-101	1.3567E+20	9.4000E-11	6.2000E-11	ICRP72	0.02000	BETA	2.80041E+03	Calculated
658	Pd-103	2.7649E+18	1.9000E-10	4.5000E-10	ICRP72	40.00000	A2 VALUE	6.55042E+04	Calculated
662	Pd-107	1.9035E+10	3.7000E-11	5.9000E-10	ICRP72	0.02000	BETA	1.06333E+06	Calculated
663	Pd-107m	1.8331E+23	2.5006E-13	2.7465E-13	Calculated	0.02000	BETA	6.32355E+03	Calculated
665	Pd-109	7.9100E+19	5.5000E-10	3.7000E-10	ICRP72	0.50000	A2 VALUE	2.70030E+04	Calculated
666	Pd-109m	1.3563E+22	6.1252E-12	5.3623E-12	Calculated	0.02000	BETA	8.39061E+03	Calculated
668	Pd-111	2.6807E+21	7.9180E-11	9.4449E-11	Calculated	0.02000	BETA	7.80415E+03	Calculated
669	Pd-111m	1.9009E+20	5.2000E-10	4.8000E-10	NRPB-M	0.02000	BETA	2.49836E+03	Calculated
670	Pd-112	5.1041E+19	6.7071E-09	4.9396E-09	Calculated	0.02000	BETA	7.02347E+04	Calculated
671	Pd-113	3.9752E+22	1.2180E-11	1.3196E-11	Calculated	0.02000	BETA	4.81440E+03	Calculated
672	Pd-113m	3.6970E+22	1.3103E-11	1.4195E-11	Calculated	0.02000	BETA	1.00000E+06	Calculated
673	Pd-114	2.4928E+22	2.3513E-11	2.5825E-11	Calculated	0.02000	BETA	1.24271E+04	Calculated
674	Pd-115	8.8598E+22	1.1031E-11	1.0917E-11	Calculated	0.02000	BETA	6.34518E+02	Calculated
675	Ag-100	3.4527E+22	1.3017E-11	8.6447E-12	Calculated	0.02000	BETA	2.81215E+02	Calculated
676	Ag-100m	3.1177E+22	1.2103E-11	8.0347E-12	Calculated	0.02000	BETA	3.66300E+02	Calculated
677	Ag-101	6.2109E+21	3.4427E-11	2.2690E-11	Calculated	0.02000	BETA	6.18429E+02	Calculated
678	Ag-101m	1.3343E+24	1.7221E-13	1.1358E-13	Calculated	0.02000	BETA	6.58111E+03	Calculated
679	Ag-102	5.2919E+21	4.0000E-11	1.8000E-11	ICRP72	0.02000	BETA	2.85225E+02	Calculated
680	Ag-102m	8.9042E+21	3.6367E-11	2.1690E-11	Calculated	0.02000	BETA	4.90918E+02	Calculated
681	Ag-103	1.0295E+21	4.3000E-11	2.7000E-11	ICRP72	0.02000	BETA	1.16591E+03	Calculated
682	Ag-103m	7.1162E+23	7.8731E-14	5.0055E-14	Calculated	0.02000	BETA	2.11864E+04	Calculated
683	Ag-104	9.6800E+20	6.0000E-11	3.7000E-11	ICRP72	0.02000	BETA	3.67782E+02	Calculated
684	Ag-104m	1.9986E+21	5.4000E-11	2.6000E-11	ICRP72	0.02000	BETA	7.74593E+02	Calculated
685	Ag-105	1.1151E+18	4.7000E-10	8.1000E-10	ICRP72	2.00000	A2 VALUE	1.87828E+03	Calculated
686	Ag-105m	9.1724E+21	3.0862E-13	2.6561E-13	Calculated	0.02000	BETA	2.66325E+05	Calculated
687	Ag-106	2.7371E+21	3.2000E-11	1.6000E-11	ICRP72	0.02000	BETA	1.32218E+03	Calculated
688	Ag-106m	5.3922E+18	1.5000E-09	1.1000E-09	ICRP72	0.02000	BETA	3.62888E+02	Calculated
690	Ag-107m	8.8540E+22	8.9760E-14	5.9729E-14	Calculated	0.02000	BETA	4.85997E+04	Calculated
691	Ag-108	2.6864E+22	1.9765E-12	1.3152E-12	Calculated	0.02000	BETA	1.19935E+04	Calculated
692	Ag-108m	2.9326E+14	2.3000E-09	3.7000E-08	ICRP72	0.60000	A2 VALUE	6.12871E+02	Calculated
694	Ag-109m	9.6305E+22	7.6678E-14	5.1024E-14	Calculated	0.02000	BETA	5.31672E+04	Calculated
695	Ag-110	1.5376E+23	6.5264E-13	4.3429E-13	Calculated	0.02000	BETA	6.56777E+03	Calculated
696	Ag-110m	1.7598E+17	2.8000E-09	1.2000E-08	ICRP72	0.40000	A2 VALUE	3.00000E+02	TECDOC-855
697	Ag-111	5.8473E+18	1.3000E-09	1.7000E-09	ICRP72	0.50000	A2 VALUE	1.62158E+04	Calculated
698	Ag-111m	5.8083E+22	2.1923E-13	2.2952E-13	Calculated	0.02000	BETA	8.01345E+04	Calculated
699	Ag-112	3.2998E+20	4.3000E-10	1.7000E-10	ICRP72	0.02000	BETA	1.20111E+03	Calculated
700	Ag-113	1.9124E+20	3.9000E-10	2.5000E-10	NRPB-M	0.02000	BETA	6.75324E+03	Calculated
701	Ag-113m	5.3814E+22	1.5029E-12	9.7303E-13	Calculated	0.02000	BETA	7.34179E+03	Calculated
702	Ag-114	7.7969E+23	2.4314E-13	1.6179E-13	Calculated	0.02000	BETA	2.07711E+03	Calculated
703	Ag-114m	2.4430E+27	8.4119E-17	5.5975E-17	Calculated	0.02000	BETA	9.31932E+03	Calculated
704	Ag-115	2.9534E+21	6.0000E-11	2.9000E-11	ICRP72	0.02000	BETA	8.26315E+02	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
705	Ag-115m	1.9530E+23	7.4204E-13	4.5263E-13	Calculated	0.02000	BETA	1.85393E+03	Calculated
706	Ag-116	2.2735E+22	1.2795E-11	8.5144E-12	Calculated	0.02000	BETA	4.41234E+02	Calculated
707	Ag-116m	3.4297E+23	7.4431E-13	4.9528E-13	Calculated	0.02000	BETA	6.69948E+02	Calculated
708	Cd-102	1.2412E+22	1.0524E-10	1.0833E-10	Calculated	0.02000	BETA	1.25340E+03	Calculated
709	Cd-103	9.2604E+21	1.2282E-10	1.6276E-10	Calculated	0.02000	BETA	4.73037E+02	Calculated
710	Cd-104	1.1610E+21	5.4000E-11	3.5000E-11	ICRP72	0.02000	BETA	5.28312E+03	Calculated
711	Cd-105	1.1949E+21	4.7367E-10	6.3791E-10	Calculated	0.02000	BETA	7.80336E+02	Calculated
713	Cd-107	1.6635E+20	6.2000E-11	8.3000E-11	ICRP72	0.02000	BETA	4.57272E+04	Calculated
715	Cd-109	9.5898E+16	2.0000E-09	8.1000E-09	ICRP72	1.00000	A2 VALUE	3.00000E+05	TECDOC-855
718	Cd-111m	1.2923E+21	1.1092E-10	1.4842E-10	Calculated	0.02000	BETA	3.30956E+03	Calculated
720	Cd-113	1.2597E+01	2.5000E-08	1.2000E-07	ICRP72	0.02000	BETA	7.34435E+04	Calculated
721	Cd-113m	8.5514E+15	2.3000E-08	1.1000E-07	ICRP72	0.09000	A2 VALUE	5.43747E+04	Calculated
723	Cd-115	1.8897E+19	1.4000E-09	1.1000E-09	ICRP72	0.50000	A2 VALUE	4.44337E+03	Calculated
724	Cd-115m	9.4273E+17	3.3000E-09	7.7000E-09	ICRP72	0.30000	A2 VALUE	1.05875E+04	Calculated
726	Cd-117	3.9832E+20	2.8000E-10	1.7000E-10	ICRP72	0.02000	BETA	8.83900E+02	Calculated
727	Cd-117m	2.9518E+20	2.8000E-10	2.1000E-10	ICRP72	0.02000	BETA	4.85666E+02	Calculated
728	Cd-118	1.1731E+21	6.6695E-10	8.9243E-10	Calculated	0.02000	BETA	4.05482E+04	Calculated
729	Cd-119	2.1750E+22	6.7562E-11	7.0093E-11	Calculated	0.02000	BETA	5.74059E+02	Calculated
730	Cd-119m	2.6594E+22	5.4742E-11	7.3000E-11	Calculated	0.02000	BETA	4.14546E+02	Calculated
731	Cd-120	6.8526E+22	1.6398E-11	2.1941E-11	Calculated	0.02000	BETA	1.48506E+04	Calculated
732	Cd-121	2.7618E+23	5.8424E-12	7.7368E-12	Calculated	0.02000	BETA	5.32155E+02	Calculated
733	Cd-121m	7.1922E+23	2.4700E-12	3.2766E-12	Calculated	0.02000	BETA	4.25018E+02	Calculated
734	Cd-122	5.9238E+23	2.7374E-12	3.6629E-12	Calculated	0.02000	BETA	1.22682E+03	Calculated
735	Cd-123	1.5436E+24	1.4985E-12	1.8878E-12	Calculated	0.02000	BETA	3.36010E+02	Calculated
736	Cd-124	3.3686E+24	6.7135E-13	8.9831E-13	Calculated	0.02000	BETA	3.08150E+03	Calculated
737	Cd-125	4.7736E+24	5.5747E-13	7.4184E-13	Calculated	0.02000	BETA	3.04757E+02	Calculated
738	In-106	1.0594E+22	3.5292E-11	2.6116E-11	Calculated	0.02000	BETA	2.73823E+02	Calculated
739	In-106m	1.2632E+22	2.9732E-11	2.2001E-11	Calculated	0.02000	BETA	3.22061E+02	Calculated
740	In-107	2.0084E+21	7.7291E-11	5.7196E-11	Calculated	0.02000	BETA	6.43915E+02	Calculated
741	In-107m	7.7469E+22	2.7276E-12	2.0184E-12	Calculated	0.02000	BETA	1.55152E+03	Calculated
742	In-108	1.1116E+21	2.5034E-10	1.8525E-10	Calculated	0.02000	BETA	3.08005E+02	Calculated
743	In-108m	1.6253E+21	1.7484E-10	1.2938E-10	Calculated	0.02000	BETA	3.53245E+02	Calculated
744	In-109	2.5383E+20	6.6000E-11	4.2000E-11	ICRP72	0.02000	BETA	1.47984E+03	Calculated
745	In-109m	4.7910E+22	1.4463E-12	1.0340E-12	Calculated	0.02000	BETA	1.62866E+03	Calculated
746	In-109n	1.8252E+25	1.0301E-14	7.5277E-15	Calculated	0.02000	BETA	4.73934E+02	Calculated
747	In-110	2.1579E+20	2.4000E-10	1.3000E-10	ICRP72	0.02000	BETA	3.22479E+02	Calculated
748	In-110m	9.1517E+20	1.0000E-10	4.7000E-11	ICRP72	0.02000	BETA	6.16143E+02	Calculated
749	In-111	1.5532E+19	2.9000E-10	2.3000E-10	ICRP72	2.00000	A2 VALUE	3.00000E+03	TECDOC-855
750	In-111m	7.9405E+21	5.9622E-12	4.4421E-12	Calculated	0.02000	BETA	2.09899E+03	Calculated
751	In-112	4.2292E+21	1.0000E-11	7.4000E-12	ICRP72	0.02000	BETA	3.17754E+03	Calculated
752	In-112m	3.0033E+21	1.8205E-11	1.3472E-11	Calculated	0.02000	BETA	2.13746E+04	Calculated
754	In-113m	6.1941E+20	2.8000E-11	2.0000E-11	ICRP72	4.00000	A2 VALUE	3.65652E+03	Calculated
755	In-114	5.0969E+22	1.1779E-12	8.7163E-13	Calculated	0.02000	BETA	1.23012E+04	Calculated
756	In-114m	8.4830E+17	4.1000E-09	9.3000E-09	ICRP72	0.30000	A2 VALUE	9.70134E+03	Calculated
757	In-115	2.6103E+02	3.2000E-08	3.9000E-07	ICRP72	0.02000	BETA	4.81051E+04	Calculated
758	In-115m	2.2495E+20	8.6000E-11	5.9000E-11	ICRP72	0.90000	A2 VALUE	5.56787E+03	Calculated
759	In-116	2.5362E+23	4.0953E-13	3.0306E-13	Calculated	0.02000	BETA	7.09572E+03	Calculated
760	In-116m	1.0993E+21	6.4000E-11	4.5000E-11	ICRP72	0.02000	BETA	3.96504E+02	Calculated
761	In-116n	1.6596E+24	4.9851E-14	3.5326E-14	Calculated	0.02000	BETA	1.28895E+04	Calculated
762	In-117	1.3587E+21	3.1000E-11	2.9000E-11	ICRP72	0.02000	BETA	1.39198E+03	Calculated
763	In-117m	5.1082E+20	1.2000E-10	7.2000E-11	ICRP72	0.02000	BETA	7.44823E+03	Calculated
764	In-118	7.0806E+23	2.1751E-13	1.6096E-13	Calculated	0.02000	BETA	1.93114E+03	Calculated
765	In-118m	1.3260E+22	1.8602E-11	1.3766E-11	Calculated	0.02000	BETA	3.59925E+02	Calculated
766	In-118n	4.1651E+23	6.1676E-13	4.5640E-13	Calculated	0.02000	BETA	1.16014E+04	Calculated
767	In-119	2.4379E+22	4.2012E-12	3.1089E-12	Calculated	0.02000	BETA	1.20849E+03	Calculated
768	In-119m	3.2505E+21	4.7000E-11	1.7000E-11	ICRP72	0.02000	BETA	8.62679E+03	Calculated
769	In-120	1.1303E+24	1.7630E-13	1.3046E-13	Calculated	0.02000	BETA	1.75877E+03	Calculated
770	In-120m	7.8405E+22	3.6760E-12	2.7202E-12	Calculated	0.02000	BETA	3.25762E+02	Calculated
771	In-120n	7.5350E+22	4.0504E-12	2.9973E-12	Calculated	0.02000	BETA	3.36700E+02	Calculated
772	In-121	1.4945E+23	9.7357E-13	7.0372E-13	Calculated	0.02000	BETA	9.72930E+02	Calculated
773	In-121m	1.4830E+22	8.3894E-12	6.0169E-12	Calculated	0.02000	BETA	4.52761E+03	Calculated
774	In-122	2.2827E+24	1.0069E-13	7.4513E-14	Calculated	0.02000	BETA	1.11982E+03	Calculated
775	In-122m	3.4240E+23	9.6606E-13	7.1488E-13	Calculated	0.02000	BETA	3.13914E+02	Calculated
776	In-122n	3.1704E+23	1.0749E-12	7.9544E-13	Calculated	0.02000	BETA	2.83286E+02	Calculated
777	In-123	5.6887E+23	3.8604E-13	2.4717E-13	Calculated	0.02000	BETA	8.05448E+02	Calculated
778	In-123m	7.1049E+22	2.7316E-12	1.7018E-12	Calculated	0.02000	BETA	3.74344E+03	Calculated
779	In-124	1.0527E+24	3.2681E-13	2.4184E-13	Calculated	0.02000	BETA	3.43575E+02	Calculated
780	In-124m	1.4036E+24	2.7895E-13	2.0642E-13	Calculated	0.02000	BETA	2.51545E+02	Calculated
781	In-125	1.4342E+24	1.6370E-13	1.1855E-13	Calculated	0.02000	BETA	6.77669E+02	Calculated
782	In-125m	2.7391E+23	9.6414E-13	7.1598E-13	Calculated	0.02000	BETA	2.43891E+03	Calculated
783	In-126	2.2100E+24	1.6661E-13	1.2329E-13	Calculated	0.02000	BETA	3.27310E+02	Calculated
784	In-126m	2.2863E+24	1.9025E-13	1.4078E-13	Calculated	0.02000	BETA	2.22097E+02	Calculated
785	Sn-108	6.2592E+21	6.4832E-11	1.4945E-10	Calculated	0.02000	BETA	1.48017E+03	Calculated
786	Sn-109	3.5488E+21	7.2372E-11	1.6499E-10	Calculated	0.02000	BETA	4.32713E+02	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
787	Sn-110	2.5662E+20	3.5000E-10	1.6000E-10	ICRP72	0.02000	BETA	2.94907E+03	Calculated
788	Sn-111	1.7770E+21	2.3000E-11	1.3000E-11	ICRP72	0.02000	BETA	1.91808E+03	Calculated
790	Sn-113	3.7180E+17	7.3000E-10	2.7000E-09	ICRP72	4.00000	A2 VALUE	4.18743E+04	Calculated
791	Sn-113m	2.9483E+21	2.4303E-12	5.7194E-12	Calculated	0.02000	BETA	4.91623E+04	Calculated
796	Sn-117m	3.0388E+18	7.1000E-10	2.4000E-09	ICRP72	2.00000	A2 VALUE	5.80832E+03	Calculated
799	Sn-119m	1.3868E+17	3.4000E-10	2.2000E-09	ICRP72	40.00000	A2 VALUE	5.21186E+04	Calculated
801	Sn-121	3.5652E+19	2.3000E-10	2.3000E-10	ICRP72	0.02000	BETA	8.68176E+04	Calculated
802	Sn-121m	1.9891E+15	3.8000E-10	4.5000E-09	ICRP72	0.90000	A2 VALUE	1.15899E+05	Calculated
804	Sn-123	3.0425E+17	2.1000E-09	8.1000E-09	ICRP72	0.50000	A2 VALUE	1.66708E+04	Calculated
805	Sn-123m	1.4116E+21	3.8000E-11	2.7000E-11	ICRP72	0.02000	BETA	5.29812E+03	Calculated
807	Sn-125	4.0123E+18	3.1000E-09	3.1000E-09	ICRP72	0.20000	A2 VALUE	2.52141E+03	Calculated
808	Sn-125m	5.8506E+21	1.6743E-11	3.9042E-11	Calculated	0.02000	BETA	2.34352E+03	Calculated
809	Sn-126	5.0752E+11	4.7000E-09	2.8000E-08	ICRP72	0.30000	A2 VALUE	1.43656E+04	Calculated
810	Sn-127	4.3507E+20	2.0000E-10	1.3000E-10	ICRP72	0.02000	BETA	5.24592E+02	Calculated
811	Sn-127m	1.3273E+22	1.1658E-11	3.1354E-11	Calculated	0.02000	BETA	1.49593E+03	Calculated
812	Sn-128	9.2030E+20	1.5000E-10	9.2000E-11	ICRP72	0.02000	BETA	1.60100E+03	Calculated
813	Sn-128m	5.0206E+23	6.2283E-13	9.7057E-13	Calculated	0.02000	BETA	4.95197E+02	Calculated
814	Sn-129	2.2486E+22	1.6774E-11	4.0351E-11	Calculated	0.02000	BETA	3.92619E+02	Calculated
815	Sn-129m	7.8213E+21	4.7015E-11	1.1322E-10	Calculated	0.02000	BETA	4.01919E+02	Calculated
816	Sn-130	1.4395E+22	2.5542E-11	5.8881E-11	Calculated	0.02000	BETA	4.13223E+03	Calculated
817	Sn-130m	3.1501E+22	1.2522E-11	3.0262E-11	Calculated	0.02000	BETA	4.17014E+02	Calculated
818	Sn-131	8.1755E+22	7.0183E-12	1.4818E-11	Calculated	0.02000	BETA	4.08497E+02	Calculated
819	Sn-131m	5.2099E+22	1.1404E-11	2.4152E-11	Calculated	0.02000	BETA	3.99872E+02	Calculated
820	Sb-112	7.2566E+22	4.4995E-12	2.3462E-12	Calculated	0.02000	BETA	3.33845E+02	Calculated
821	Sb-113	9.2425E+21	1.5486E-11	8.0816E-12	Calculated	0.02000	BETA	7.33676E+02	Calculated
822	Sb-114	1.7500E+22	1.5766E-11	8.2207E-12	Calculated	0.02000	BETA	3.50275E+02	Calculated
823	Sb-115	1.8862E+21	2.4000E-11	1.4000E-11	ICRP72	0.02000	BETA	1.09999E+03	Calculated
824	Sb-116	3.7909E+21	2.6000E-11	1.3000E-11	ICRP72	0.02000	BETA	4.39174E+02	Calculated
825	Sb-116m	9.9485E+20	6.7000E-11	4.9000E-11	ICRP72	0.02000	BETA	3.09741E+02	Calculated
826	Sb-117	3.5423E+20	1.8000E-11	1.7000E-11	ICRP72	0.02000	BETA	5.32453E+03	Calculated
827	Sb-118	1.6390E+22	6.9284E-12	3.6126E-12	Calculated	0.02000	BETA	1.12322E+03	Calculated
828	Sb-118m	1.9668E+20	2.1000E-10	1.2000E-10	ICRP72	0.02000	BETA	3.87132E+02	Calculated
829	Sb-119	2.5461E+19	8.0000E-11	3.6000E-11	ICRP72	0.02000	BETA	3.84387E+04	Calculated
830	Sb-120	3.6491E+21	1.4000E-11	7.3000E-12	ICRP72	0.02000	BETA	2.03788E+03	Calculated
831	Sb-120m	6.9952E+18	1.2000E-09	1.1000E-09	ICRP72	0.02000	BETA	4.05389E+02	Calculated
833	Sb-122	1.4701E+19	1.7000E-09	1.1000E-09	ICRP72	0.30000	A2 VALUE	2.02289E+03	Calculated
834	Sb-122m	1.3620E+22	2.6219E-12	1.5977E-12	Calculated	0.02000	BETA	1.25264E+04	Calculated
836	Sb-124	6.4727E+17	2.5000E-09	8.6000E-09	ICRP72	0.50000	A2 VALUE	3.00000E+02	TECDOC-855
837	Sb-124m	3.6224E+22	1.0153E-12	6.2719E-13	Calculated	0.02000	BETA	2.22743E+03	Calculated
838	Sb-124n	2.7796E+21	8.0000E-12	5.9000E-12	ICRP72	0.02000	BETA	3.43036E+05	Calculated
839	Sb-125	3.8384E+16	1.1000E-09	1.2000E-08	ICRP72	0.90000	A2 VALUE	2.27089E+03	Calculated
840	Sb-126	3.0920E+18	2.4000E-09	3.2000E-09	ICRP72	0.40000	A2 VALUE	3.58745E+02	Calculated
841	Sb-126m	2.8929E+21	3.6000E-11	2.0000E-11	ICRP72	0.02000	BETA	6.10326E+02	Calculated
842	Sb-126n	3.0139E+23	3.5035E-13	1.9447E-13	Calculated	0.02000	BETA	3.83334E+05	Calculated
843	Sb-127	9.9139E+18	1.7000E-09	1.9000E-09	ICRP72	0.02000	BETA	1.44959E+03	Calculated
844	Sb-128	1.0061E+20	7.6000E-10	4.2000E-10	ICRP72	0.02000	BETA	3.19063E+02	Calculated
845	Sb-128m	5.2299E+21	3.3000E-11	1.5000E-11	ICRP72	0.02000	BETA	4.78076E+02	Calculated
846	Sb-129	2.0630E+20	4.2000E-10	2.5000E-10	ICRP72	0.02000	BETA	7.06428E+02	Calculated
847	Sb-129m	3.0491E+21	5.5293E-11	2.9144E-11	Calculated	0.02000	BETA	6.33767E+02	Calculated
848	Sb-130	1.3388E+21	9.1000E-11	5.3000E-11	ICRP72	0.02000	BETA	3.00026E+02	Calculated
849	Sb-130m	8.5003E+21	2.5233E-11	1.3157E-11	Calculated	0.02000	BETA	3.86038E+02	Calculated
850	Sb-131	2.3106E+21	1.0000E-10	4.4000E-11	ICRP72	0.02000	BETA	5.62430E+02	Calculated
851	Sb-131m	3.1801E+21	7.0348E-11	2.3075E-11	Calculated	0.02000	BETA	8.82613E+02	Calculated
852	Sb-132	1.2557E+22	1.9796E-11	9.5666E-12	Calculated	0.02000	BETA	4.00453E+02	Calculated
853	Sb-132m	1.8836E+22	1.3469E-11	6.5190E-12	Calculated	0.02000	BETA	3.76762E+02	Calculated
854	Te-114	4.0268E+21	1.8222E-10	3.8603E-10	Calculated	0.02000	BETA	9.34006E+02	Calculated
855	Te-115	1.0438E+22	3.8891E-11	8.4332E-11	Calculated	0.02000	BETA	4.70345E+02	Calculated
856	Te-115m	9.0362E+21	4.9881E-11	1.0792E-10	Calculated	0.02000	BETA	3.93654E+02	Calculated
857	Te-116	4.0193E+20	1.7000E-10	1.1000E-10	ICRP72	0.02000	BETA	1.14155E+04	Calculated
858	Te-117	9.5982E+20	4.6000E-11	7.4000E-11	NRPB-M	0.02000	BETA	6.41108E+02	Calculated
859	Te-117m	3.4665E+25	2.3033E-15	4.2303E-15	Calculated	0.02000	BETA	3.74097E+03	Calculated
860	Te-118	6.8293E+18	2.7000E-09	2.2000E-09	NRPB-M	0.20000	A2 VALUE	4.90292E+04	Calculated
861	Te-119	6.0757E+19	1.7000E-10	1.7000E-10	NRPB-M	0.02000	BETA	1.29485E+03	Calculated
862	Te-119m	8.6679E+18	8.3000E-10	6.3000E-10	R245	0.02000	BETA	6.58931E+02	Calculated
864	Te-121	2.3810E+18	4.3000E-10	4.1000E-10	ICRP72	2.00000	A2 VALUE	1.73055E+03	Calculated
865	Te-121m	2.5959E+17	2.3000E-09	5.7000E-09	ICRP72	5.00000	A2 VALUE	4.45276E+03	Calculated
867	Te-123	1.0770E+04	4.4000E-09	3.9000E-09	ICRP72	0.02000	BETA	2.16403E+06	Calculated
868	Te-123m	3.2840E+17	1.4000E-09	5.1000E-09	ICRP72	7.00000	A2 VALUE	6.31572E+03	Calculated
871	Te-125m	6.6690E+17	8.7000E-10	4.2000E-09	ICRP72	9.00000	A2 VALUE	2.13322E+04	Calculated
873	Te-127	9.7720E+19	1.7000E-10	1.4000E-10	ICRP72	0.50000	A2 VALUE	3.66472E+04	Calculated
874	Te-127m	3.4927E+17	2.3000E-09	9.8000E-09	ICRP72	0.50000	A2 VALUE	5.05201E+04	Calculated
876	Te-129	7.7543E+20	6.3000E-11	3.9000E-11	ICRP72	0.50000	A2 VALUE	8.71416E+03	Calculated
877	Te-129m	1.1088E+18	3.0000E-09	7.9000E-09	ICRP72	0.50000	A2 VALUE	1.58840E+04	Calculated
879	Te-131	2.1258E+21	8.7000E-11	2.8000E-11	ICRP72	0.02000	BETA	2.02576E+03	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
880	Te-131m	2.9525E+19	1.9000E-09	9.4000E-10	ICRP72	0.50000	A2 VALUE	6.90833E+02	Calculated
881	Te-132	1.1339E+19	3.8000E-09	2.0000E-09	ICRP72	0.40000	A2 VALUE	4.09825E+03	Calculated
882	Te-133	4.1875E+21	7.2000E-11	2.0000E-11	ICRP72	0.02000	BETA	7.86164E+02	Calculated
883	Te-133m	9.4483E+20	2.8000E-10	8.7000E-11	ICRP72	0.02000	BETA	5.06842E+02	Calculated
884	Te-134	1.2419E+21	1.1000E-10	6.8000E-11	ICRP72	0.02000	BETA	1.13507E+03	Calculated
885	Te-135	1.6284E+23	1.8428E-12	3.9547E-12	Calculated	0.02000	BETA	1.40056E+03	Calculated
886	I-118	4.3172E+21	4.3194E-09	6.2825E-10	Calculated	0.02000	BETA	4.61467E+02	Calculated
887	I-118m	6.9414E+21	3.0870E-09	4.5047E-10	Calculated	0.02000	BETA	2.74952E+02	Calculated
888	I-119	3.0632E+21	2.2840E-09	3.2984E-10	Calculated	0.02000	BETA	1.09890E+03	Calculated
889	I-120	7.1628E+20	3.4000E-10	1.0000E-10	ICRP72	0.02000	BETA	3.53357E+02	Calculated
890	I-120m	1.0947E+21	2.1000E-10	8.8000E-11	ICRP72	0.02000	BETA	1.92311E+02	Calculated
891	I-121	4.5248E+20	8.2000E-11	2.7000E-11	ICRP72	0.02000	BETA	2.28050E+03	Calculated
892	I-122	1.5707E+22	6.2209E-10	9.2765E-11	Calculated	0.02000	BETA	9.32836E+02	Calculated
893	I-123	7.1501E+19	2.1000E-10	7.4000E-11	ICRP72	6.00000	A2 VALUE	3.00000E+04	TECDOC-855
894	I-124	9.3268E+18	1.3000E-08	4.4000E-09	ICRP72	0.90000	A2 VALUE	9.05305E+02	Calculated
895	I-125	6.5084E+17	1.5000E-08	5.1000E-09	ICRP72	2.00000	A2 VALUE	3.00000E+04	TECDOC-855
896	I-126	2.9563E+18	2.9000E-08	9.8000E-09	ICRP72	0.90000	A2 VALUE	2.22219E+03	Calculated
898	I-128	2.1765E+21	4.6000E-11	2.0000E-11	ICRP72	0.02000	BETA	6.18092E+03	Calculated
899	I-129	6.5404E+09	1.1000E-07	3.6000E-08	ICRP72	0.02000	BETA	3.00000E+04	TECDOC-855
900	I-130	7.2215E+19	2.0000E-09	6.7000E-10	ICRP72	0.02000	BETA	4.61474E+02	Calculated
901	I-130m	5.9505E+21	2.5033E-10	4.1087E-11	Calculated	0.02000	BETA	7.24359E+03	Calculated
902	I-131	4.5903E+18	2.2000E-08	7.4000E-09	ICRP72	0.50000	A2 VALUE	3.00000E+03	TECDOC-855
903	I-132	3.8503E+20	2.9000E-10	1.1000E-10	ICRP72	0.40000	A2 VALUE	4.33896E+02	Calculated
904	I-132m	6.3544E+20	2.2000E-10	8.7000E-11	ICRP72	0.02000	BETA	2.76936E+03	Calculated
905	I-133	4.1943E+19	4.3000E-09	1.5000E-09	ICRP72	0.50000	A2 VALUE	1.54156E+03	Calculated
906	I-133m	3.4897E+23	2.0749E-11	3.1973E-12	Calculated	0.02000	BETA	6.29997E+02	Calculated
907	I-134	9.8771E+20	1.1000E-10	5.5000E-11	ICRP72	0.30000	A2 VALUE	3.74251E+02	Calculated
908	I-134m	1.4041E+22	1.2038E-10	2.0611E-11	Calculated	0.02000	BETA	3.98556E+03	Calculated
909	I-135	1.3003E+20	9.3000E-10	3.2000E-10	ICRP72	0.50000	A2 VALUE	6.13685E+02	Calculated
910	I-136	3.6562E+22	5.0394E-10	7.5148E-11	Calculated	0.02000	BETA	3.86100E+02	Calculated
911	I-136m	6.8249E+22	2.9266E-10	4.3642E-11	Calculated	0.02000	BETA	3.66166E+02	Calculated
912	Xe-120	1.4504E+21	3.2993E-11	5.0092E-11	Calculated	0.02000	BETA	2.30256E+03	Calculated
913	Xe-121	1.4349E+21	1.3969E-10	1.9464E-10	Calculated	0.02000	BETA	5.88156E+02	Calculated
914	Xe-122	4.7294E+19	4.2200E-09	5.8732E-09	Calculated	0.20000	A2 VALUE	6.69308E+03	Calculated
915	Xe-123	4.5343E+20	1.6301E-10	2.2737E-10	Calculated	0.20000	A2 VALUE	1.51837E+03	Calculated
917	Xe-125	5.4929E+19	4.8998E-10	6.8655E-10	Calculated	0.02000	BETA	3.64994E+03	Calculated
918	Xe-125m	5.9677E+22	8.2204E-13	1.1468E-12	Calculated	0.02000	BETA	7.71023E+03	Calculated
920	Xe-127	1.0447E+18	3.2261E-09	3.5903E-08	Calculated	4.00000	A2 VALUE	3.52223E+03	Calculated
921	Xe-127m	4.7259E+22	6.1425E-13	1.5470E-12	Calculated	0.02000	BETA	5.51418E+03	Calculated
924	Xe-129m	4.2254E+18	1.9989E-09	6.5828E-09	Calculated	0.02000	BETA	1.42614E+04	Calculated
927	Xe-131m	3.1092E+18	1.4795E-09	6.1183E-09	Calculated	40.00000	A2 VALUE	2.82008E+04	Calculated
929	Xe-133	6.9333E+18	1.3051E-09	3.0000E-09	Calculated	20.00000	A2 VALUE	1.67353E+04	Calculated
930	Xe-133m	1.6599E+19	1.5173E-09	2.8598E-09	Calculated	0.02000	BETA	1.66588E+04	Calculated
932	Xe-134m	1.0749E+25	1.4959E-14	2.0756E-14	Calculated	0.02000	BETA	5.25223E+02	Calculated
933	Xe-135	9.4553E+19	4.8538E-10	6.7346E-10	Calculated	4.00000	A2 VALUE	3.56832E+03	Calculated
934	Xe-135m	3.2952E+21	2.6907E-11	3.7333E-11	Calculated	0.02000	BETA	2.26626E+03	Calculated
936	Xe-137	1.3308E+22	1.0497E-11	1.4598E-11	Calculated	0.02000	BETA	2.59067E+03	Calculated
937	Xe-138	3.5600E+21	1.0164E-10	1.3546E-10	Calculated	0.02000	BETA	8.38392E+02	Calculated
938	Xe-139	7.5726E+22	5.8352E-12	8.0182E-12	Calculated	0.02000	BETA	9.09091E+02	Calculated
939	Cs-122	1.6304E+23	2.2245E-12	1.1135E-12	Calculated	0.02000	BETA	6.65451E+02	Calculated
940	Cs-122m	1.2681E+22	3.1745E-11	1.5888E-11	Calculated	0.02000	BETA	3.05335E+02	Calculated
941	Cs-122n	9.5107E+24	3.8180E-14	1.9111E-14	Calculated	0.02000	BETA	2.70270E+05	Calculated
942	Cs-123	9.6480E+21	1.6355E-11	8.1909E-12	Calculated	0.02000	BETA	9.93049E+02	Calculated
943	Cs-123m	2.1226E+24	7.8734E-14	3.9428E-14	Calculated	0.02000	BETA	6.28931E+03	Calculated
944	Cs-124	1.0937E+23	1.6910E-12	8.4550E-13	Calculated	0.02000	BETA	6.97350E+02	Calculated
945	Cs-124m	5.3471E+23	3.9027E-13	1.9513E-13	Calculated	0.02000	BETA	3.18066E+03	Calculated
946	Cs-125	1.2377E+21	3.5000E-11	2.3000E-11	ICRP72	0.02000	BETA	1.29366E+03	Calculated
947	Cs-126	3.3692E+22	4.2217E-12	2.1109E-12	Calculated	0.02000	BETA	7.81861E+02	Calculated
948	Cs-127	1.4619E+20	2.4000E-11	3.8000E-11	ICRP72	0.02000	BETA	2.48694E+03	Calculated
949	Cs-128	1.5025E+22	6.5962E-12	3.2981E-12	Calculated	0.02000	BETA	1.02459E+03	Calculated
950	Cs-129	2.7935E+19	6.0000E-11	7.7000E-11	ICRP72	4.00000	A2 VALUE	3.50941E+03	Calculated
951	Cs-130	1.7911E+21	2.8000E-11	1.4000E-11	ICRP72	0.02000	BETA	1.82017E+03	Calculated
952	Cs-131	3.8087E+18	5.8000E-11	4.7000E-11	ICRP72	40.00000	A2 VALUE	4.20919E+04	Calculated
953	Cs-132	5.6090E+18	5.0000E-10	3.0000E-10	ICRP72	1.00000	A2 VALUE	1.39537E+03	Calculated
955	Cs-134	4.7833E+16	1.9000E-08	2.0000E-08	ICRP72	0.50000	A2 VALUE	3.00000E+02	TECDOC-855
956	Cs-134m	2.9777E+20	2.0000E-11	6.0000E-11	ICRP72	9.00000	A2 VALUE	2.61413E+04	Calculated
957	Cs-135	4.0854E+10	2.0000E-09	8.6000E-09	ICRP72	0.90000	A2 VALUE	1.49556E+05	Calculated
958	Cs-135m	9.7301E+20	1.9000E-11	1.6000E-11	ICRP72	0.02000	BETA	6.24909E+02	Calculated
959	Cs-136	2.7282E+18	3.0000E-09	2.8000E-09	ICRP72	0.50000	A2 VALUE	4.63010E+02	Calculated
960	Cs-136m	1.6165E+23	4.2989E-13	2.2592E-13	Calculated	0.02000	BETA	1.47420E+03	Calculated
961	Cs-137	3.2022E+15	1.3000E-08	3.9000E-08	ICRP72	0.50000	A2 VALUE	3.00000E+02	TECDOC-855
962	Cs-138	1.5666E+21	9.2000E-11	4.3000E-11	ICRP72	0.02000	BETA	4.01932E+02	Calculated
963	Cs-138m	1.7395E+22	8.9525E-12	4.2574E-12	Calculated	0.02000	BETA	2.20946E+03	Calculated
964	Cs-139	5.4045E+21	2.7675E-11	1.3578E-11	Calculated	0.02000	BETA	2.15983E+03	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
965	Cs-140	4.6835E+22	3.8961E-12	2.1149E-12	Calculated	0.02000	BETA	5.63063E+02	Calculated
966	Ba-124	4.7445E+21	7.9170E-11	4.1292E-11	Calculated	0.02000	BETA	2.42777E+03	Calculated
967	Ba-125	1.5913E+22	1.3891E-11	7.9043E-12	Calculated	0.02000	BETA	2.13372E+03	Calculated
968	Ba-126	5.5253E+20	2.6000E-10	1.1000E-10	ICRP72	0.02000	BETA	1.91890E+03	Calculated
969	Ba-127	4.3164E+21	2.6700E-11	1.5283E-11	Calculated	0.02000	BETA	1.28041E+03	Calculated
970	Ba-128	1.5540E+19	2.7000E-09	1.4000E-09	ICRP72	0.02000	BETA	1.49923E+04	Calculated
971	Ba-129	3.7804E+20	1.3630E-10	7.6445E-11	Calculated	0.02000	BETA	2.08681E+03	Calculated
972	Ba-129m	4.2044E+20	2.5673E-10	1.3871E-10	Calculated	0.02000	BETA	8.23472E+02	Calculated
974	Ba-131	3.1954E+18	4.5000E-10	8.7000E-10	ICRP72	2.00000	A2 VALUE	2.15451E+03	Calculated
975	Ba-131m	3.6401E+21	4.9000E-12	7.8000E-12	ICRP72	0.02000	BETA	1.13435E+04	Calculated
977	Ba-133	9.4125E+15	1.5000E-09	1.0000E-08	ICRP72	3.00000	A2 VALUE	2.45097E+03	Calculated
978	Ba-133m	2.2838E+19	5.4000E-10	4.6000E-10	ICRP72	0.90000	A2 VALUE	1.12270E+04	Calculated
981	Ba-135m	2.9948E+19	4.3000E-10	3.6000E-10	ICRP72	0.02000	BETA	1.26638E+04	Calculated
983	Ba-136m	9.9593E+24	1.5971E-14	8.3299E-15	Calculated	0.02000	BETA	5.17012E+02	Calculated
985	Ba-137m	1.9904E+22	2.5846E-12	1.3480E-12	Calculated	0.02000	BETA	1.65315E+03	Calculated
987	Ba-139	6.0293E+20	1.2000E-10	5.9000E-11	ICRP72	0.02000	BETA	7.36377E+03	Calculated
988	Ba-140	2.7104E+18	2.6000E-09	5.8000E-09	ICRP72	0.40000	A2 VALUE	4.66881E+03	Calculated
989	Ba-141	2.7023E+21	7.0000E-11	3.4000E-11	ICRP72	0.02000	BETA	9.48187E+02	Calculated
990	Ba-142	4.6247E+21	3.5000E-11	2.2000E-11	ICRP72	0.02000	BETA	1.23916E+03	Calculated
991	Ba-143	2.0142E+23	2.9179E-12	1.3745E-12	Calculated	0.02000	BETA	1.01010E+03	Calculated
992	La-128	1.0878E+22	1.9111E-11	8.2452E-12	Calculated	0.02000	BETA	3.20410E+02	Calculated
993	La-129	4.6523E+21	1.8983E-11	8.3546E-12	Calculated	0.02000	BETA	9.27644E+02	Calculated
994	La-129m	5.7822E+24	1.6287E-14	7.1593E-15	Calculated	0.02000	BETA	1.68067E+04	Calculated
995	La-130	6.1554E+21	3.6723E-11	1.5852E-11	Calculated	0.02000	BETA	2.65252E+02	Calculated
996	La-131	9.0074E+20	3.5000E-11	2.3000E-11	ICRP72	0.02000	BETA	1.44781E+03	Calculated
997	La-132	1.8292E+20	3.9000E-10	1.6000E-10	ICRP72	0.02000	BETA	4.91642E+02	Calculated
998	La-132m	2.1704E+21	3.3103E-11	1.3755E-11	Calculated	0.02000	BETA	2.03666E+03	Calculated
999	La-133	2.2306E+20	9.9000E-12	1.1000E-11	NRPB-M	0.02000	BETA	6.48929E+03	Calculated
1000	La-134	8.0548E+21	6.4727E-12	2.7941E-12	Calculated	0.02000	BETA	1.26295E+03	Calculated
1001	La-135	4.4076E+19	3.0000E-11	1.4000E-11	ICRP72	0.02000	BETA	2.76152E+04	Calculated
1002	La-136	5.1864E+21	6.7868E-12	2.9297E-12	Calculated	0.02000	BETA	2.12766E+03	Calculated
1003	La-136m	2.6942E+25	1.5548E-15	6.7118E-16	Calculated	0.02000	BETA	6.48508E+03	Calculated
1004	La-137	1.6113E+12	8.1000E-11	8.7000E-09	ICRP72	2.00000	A2 VALUE	3.23990E+04	Calculated
1005	La-138	9.1346E+05	1.1000E-09	1.5000E-07	ICRP72	0.02000	BETA	8.05405E+02	Calculated
1007	La-140	2.0572E+19	2.0000E-09	1.1000E-09	ICRP72	0.40000	A2 VALUE	4.22636E+02	Calculated
1008	La-141	2.0938E+20	3.6000E-10	1.5000E-10	ICRP72	0.02000	BETA	7.12754E+03	Calculated
1009	La-142	5.3773E+20	1.8000E-10	8.9000E-11	ICRP72	0.02000	BETA	4.07432E+02	Calculated
1010	La-143	3.4443E+21	5.6000E-11	2.1000E-11	ICRP72	0.02000	BETA	3.92157E+03	Calculated
1011	La-144	7.1088E+22	1.6818E-12	7.3434E-13	Calculated	0.02000	BETA	4.20521E+02	Calculated
1012	Ce-130	2.1420E+21	1.5539E-10	3.7169E-10	Calculated	0.02000	BETA	1.60514E+04	Calculated
1013	Ce-131	5.3142E+21	1.6023E-11	4.9095E-11	Calculated	0.02000	BETA	1.35221E+03	Calculated
1014	Ce-131m	1.0628E+22	1.1851E-11	3.3732E-11	Calculated	0.02000	BETA	3.14218E+03	Calculated
1015	Ce-132	2.5043E+20	3.1000E-10	2.2000E-10	NRPB-M	0.02000	BETA	3.64047E+03	Calculated
1016	Ce-133	1.7844E+20	1.0000E-10	1.1000E-10	NRPB-M	0.02000	BETA	5.76336E+02	Calculated
1017	Ce-133m	5.3962E+20	8.9433E-11	2.3630E-10	Calculated	0.02000	BETA	1.80180E+03	Calculated
1018	Ce-134	1.1418E+19	2.5000E-09	1.3000E-09	ICRP72	0.02000	BETA	3.37610E+04	Calculated
1019	Ce-135	4.8573E+19	7.9000E-10	5.0000E-10	ICRP72	0.02000	BETA	1.21544E+03	Calculated
1020	Ce-135m	1.5471E+23	3.9907E-13	5.1824E-13	Calculated	0.02000	BETA	3.59712E+03	Calculated
1022	Ce-137	9.4103E+19	2.5000E-11	1.0000E-11	ICRP72	0.02000	BETA	2.43861E+04	Calculated
1023	Ce-137m	2.4628E+19	5.4000E-10	4.4000E-10	ICRP72	0.02000	BETA	1.32100E+04	Calculated
1025	Ce-139	2.5268E+17	2.6000E-10	1.9000E-09	ICRP72	6.00000	A2 VALUE	6.06766E+03	Calculated
1026	Ce-139m	5.3566E+22	6.9888E-13	1.6777E-12	Calculated	0.02000	BETA	1.41918E+03	Calculated
1028	Ce-141	1.0550E+18	7.1000E-10	3.8000E-09	ICRP72	0.50000	A2 VALUE	1.06773E+04	Calculated
1029	Ce-142	1.8655E+00	7.7317E-08	4.3152E-07	Calculated	0.00002	ALPHA	2.58674E+05	Calculated
1030	Ce-143	2.4586E+19	1.1000E-09	8.3000E-10	ICRP72	0.50000	A2 VALUE	3.16092E+03	Calculated
1031	Ce-144	1.1784E+17	5.2000E-09	5.3000E-08	ICRP72	0.20000	A2 VALUE	3.00000E+04	TECDOC-855
1032	Ce-145	1.5914E+22	6.4800E-12	1.3097E-11	Calculated	0.02000	BETA	1.19048E+03	Calculated
1033	Ce-146	3.3576E+21	3.8913E-11	9.3077E-11	Calculated	0.02000	BETA	4.85437E+03	Calculated
1034	Ce-147	4.9844E+22	2.8399E-12	5.5642E-12	Calculated	0.02000	BETA	3.30728E+03	Calculated
1035	Ce-148	5.0390E+22	3.1525E-12	7.5406E-12	Calculated	0.02000	BETA	2.73224E+03	Calculated
1036	Ce-149	5.3901E+23	5.6871E-13	1.4486E-12	Calculated	0.02000	BETA	3.70572E+02	Calculated
1037	Pr-134	3.0559E+21	1.2178E-10	9.2458E-11	Calculated	0.02000	BETA	4.47099E+02	Calculated
1038	Pr-134m	4.7228E+21	7.8813E-11	5.9835E-11	Calculated	0.02000	BETA	4.47024E+02	Calculated
1039	Pr-135	2.1486E+21	8.3777E-11	5.2962E-11	Calculated	0.02000	BETA	1.05152E+03	Calculated
1040	Pr-136	3.9075E+21	3.3000E-11	1.4000E-11	ICRP72	0.02000	BETA	4.37637E+02	Calculated
1041	Pr-137	6.6136E+20	4.0000E-11	2.1000E-11	ICRP72	0.02000	BETA	2.57069E+03	Calculated
1042	Pr-138	3.4790E+22	4.4386E-12	3.7195E-12	Calculated	0.02000	BETA	1.07411E+03	Calculated
1043	Pr-138m	3.9826E+20	1.3000E-10	7.4000E-11	ICRP72	0.02000	BETA	3.99584E+02	Calculated
1044	Pr-139	1.8923E+20	3.1000E-11	2.0000E-11	ICRP72	0.02000	BETA	7.23233E+03	Calculated
1045	Pr-140	1.4668E+22	5.7119E-12	4.7865E-12	Calculated	0.02000	BETA	1.67515E+03	Calculated
1047	Pr-142	4.2712E+19	1.3000E-09	5.5000E-10	ICRP72	0.20000	A2 VALUE	7.17860E+03	Calculated
1048	Pr-142m	3.3578E+21	1.7000E-11	7.0000E-12	ICRP72	0.02000	BETA	2.71518E+05	Calculated
1049	Pr-143	2.4931E+18	1.2000E-09	2.4000E-09	ICRP72	0.50000	A2 VALUE	3.17865E+04	Calculated
1050	Pr-144	2.7976E+21	5.0000E-11	1.8000E-11	ICRP72	0.02000	BETA	6.50083E+03	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
1051	Pr-144m	7.0061E+21	2.0602E-11	7.7276E-12	Calculated	0.02000	BETA	5.44102E+04	Calculated
1052	Pr-145	1.3380E+20	3.9000E-10	1.7000E-10	ICRP72	0.02000	BETA	1.05169E+04	Calculated
1053	Pr-146	1.9742E+21	8.7214E-11	7.3085E-11	Calculated	0.02000	BETA	8.75657E+02	Calculated
1054	Pr-147	3.4818E+21	3.3000E-11	1.8000E-11	ICRP72	0.02000	BETA	1.09170E+03	Calculated
1055	Pr-148	2.0719E+22	8.7299E-12	7.3156E-12	Calculated	0.02000	BETA	1.12063E+03	Calculated
1056	Pr-148m	2.3516E+22	8.2488E-12	6.9125E-12	Calculated	0.02000	BETA	8.95435E+02	Calculated
1057	Pr-149	2.0610E+22	1.1877E-11	1.1220E-11	Calculated	0.02000	BETA	1.89455E+03	Calculated
1058	Pr-150	4.5642E+23	4.3876E-13	3.6768E-13	Calculated	0.02000	BETA	1.28663E+03	Calculated
1059	Nd-136	1.0106E+21	9.9000E-11	5.4000E-11	ICRP72	0.02000	BETA	3.32668E+03	Calculated
1060	Nd-137	1.3198E+21	4.2084E-11	2.3541E-11	Calculated	0.02000	BETA	8.39081E+02	Calculated
1061	Nd-137m	1.9055E+24	3.6351E-14	2.0644E-14	Calculated	0.02000	BETA	2.76251E+03	Calculated
1062	Nd-138	1.6722E+20	6.4000E-10	2.5000E-10	ICRP72	0.02000	BETA	2.08030E+04	Calculated
1063	Nd-139	1.6882E+21	2.0000E-11	1.0000E-11	ICRP72	0.02000	BETA	2.07469E+03	Calculated
1064	Nd-139m	1.5176E+20	2.5000E-10	1.5000E-10	ICRP72	0.02000	BETA	3.69004E+02	Calculated
1065	Nd-140	1.0247E+19	2.8000E-09	2.0000E-09	R245	0.02000	BETA	3.52104E+04	Calculated
1066	Nd-141	3.3062E+20	8.3000E-12	5.0000E-12	ICRP72	0.02000	BETA	1.30685E+04	Calculated
1067	Nd-141m	4.7473E+22	5.4533E-13	3.2851E-13	Calculated	0.02000	BETA	1.42818E+03	Calculated
1070	Nd-144	4.3798E+01	7.0161E-08	9.8620E-08	Calculated	0.00002	ALPHA	2.85057E+05	Calculated
1073	Nd-147	2.9841E+18	1.1000E-09	2.4000E-09	ICRP72	0.50000	A2 VALUE	6.05353E+03	Calculated
1075	Nd-149	4.5137E+20	1.2000E-10	8.9000E-11	ICRP72	0.50000	A2 VALUE	2.36967E+03	Calculated
1077	Nd-151	3.7075E+21	3.0000E-11	1.7000E-11	ICRP72	0.02000	BETA	1.00020E+03	Calculated
1078	Nd-152	4.0169E+21	1.4566E-11	8.7745E-12	Calculated	0.02000	BETA	5.05334E+03	Calculated
1079	Nd-153	8.5298E+22	8.1552E-13	5.0846E-13	Calculated	0.02000	BETA	4.27899E+03	Calculated
1080	Pm-140	3.2428E+23	4.4428E-13	4.2900E-13	Calculated	0.02000	BETA	7.97830E+02	Calculated
1081	Pm-140m	8.3568E+21	2.1177E-11	2.0292E-11	Calculated	0.02000	BETA	3.20718E+02	Calculated
1082	Pm-141	2.3622E+21	3.6000E-11	1.5000E-11	ICRP72	0.02000	BETA	1.23138E+03	Calculated
1083	Pm-142	7.2627E+22	1.0908E-12	1.0099E-12	Calculated	0.02000	BETA	9.94233E+02	Calculated
1084	Pm-143	1.2709E+17	2.3000E-10	1.5000E-09	ICRP72	3.00000	A2 VALUE	3.15829E+03	Calculated
1085	Pm-144	9.2482E+16	9.7000E-10	8.2000E-09	ICRP72	0.60000	A2 VALUE	6.42151E+02	Calculated
1086	Pm-145	5.1569E+15	1.1000E-10	3.6000E-09	ICRP72	7.00000	A2 VALUE	3.05362E+04	Calculated
1087	Pm-146	1.6391E+16	9.0000E-10	2.1000E-08	ICRP72	0.02000	BETA	1.30936E+03	Calculated
1088	Pm-147	3.4338E+16	2.6000E-10	5.0000E-09	ICRP72	0.90000	A2 VALUE	3.00000E+06	TECDOC-855
1089	Pm-148	6.0846E+18	2.7000E-09	2.2000E-09	ICRP72	0.02000	BETA	1.54056E+03	Calculated
1090	Pm-148m	7.9566E+17	1.7000E-09	5.7000E-09	ICRP72	0.50000	A2 VALUE	4.99814E+02	Calculated
1091	Pm-149	1.4669E+19	9.9000E-10	7.3000E-10	ICRP72	0.50000	A2 VALUE	2.02530E+04	Calculated
1092	Pm-150	2.8859E+20	2.6000E-10	1.3000E-10	ICRP72	0.02000	BETA	6.38348E+02	Calculated
1093	Pm-151	2.7341E+19	7.3000E-10	4.6000E-10	ICRP72	0.50000	A2 VALUE	2.82107E+03	Calculated
1094	Pm-152	1.1115E+22	4.5784E-12	4.2390E-12	Calculated	0.02000	BETA	3.49379E+03	Calculated
1095	Pm-152m	6.1058E+21	1.3014E-11	1.2049E-11	Calculated	0.02000	BETA	6.28205E+02	Calculated
1096	Pm-152n	3.1801E+21	3.0054E-11	2.7826E-11	Calculated	0.02000	BETA	4.47701E+02	Calculated
1097	Pm-153	8.4247E+21	3.7322E-12	3.7658E-12	Calculated	0.02000	BETA	8.18771E+03	Calculated
1098	Pm-154	2.6587E+22	3.2874E-12	3.0437E-12	Calculated	0.02000	BETA	5.31651E+02	Calculated
1099	Pm-154m	1.6740E+22	5.3648E-12	4.9670E-12	Calculated	0.02000	BETA	5.14737E+02	Calculated
1100	Pm-155	5.6131E+22	1.4453E-12	1.3148E-12	Calculated	0.02000	BETA	2.44559E+03	Calculated
1101	Pm-156	1.0026E+23	1.1668E-12	1.1279E-12	Calculated	0.02000	BETA	4.31012E+02	Calculated
1102	Sm-142	6.7633E+20	1.9000E-10	7.1000E-11	ICRP72	0.02000	BETA	1.01760E+04	Calculated
1103	Sm-143	5.5130E+21	1.0698E-11	6.5702E-12	Calculated	0.02000	BETA	1.77664E+03	Calculated
1104	Sm-143m	4.4254E+22	2.3386E-12	1.4331E-12	Calculated	0.02000	BETA	1.44624E+03	Calculated
1106	Sm-145	9.8056E+16	2.1000E-10	1.6000E-09	ICRP72	20.00000	A2 VALUE	1.51661E+04	Calculated
1107	Sm-146	9.0652E+08	5.4000E-08	1.1000E-05	ICRP72	0.00002	ALPHA	1.81818E+05	Calculated
1108	Sm-147	8.4937E+05	4.9000E-08	9.6000E-06	ICRP72	0.00002	ALPHA	2.08333E+05	Calculated
1109	Sm-148	1.2828E+01	4.2120E-08	8.4996E-06	Calculated	0.00002	ALPHA	2.35306E+05	Calculated
1110	Sm-149	4.4411E+01	1.3438E-07	1.9159E-07	Calculated	0.00002	ALPHA	1.48831E+05	Calculated
1112	Sm-151	9.7383E+14	9.8000E-11	4.0000E-09	ICRP72	4.00000	A2 VALUE	4.99599E+05	Calculated
1114	Sm-153	1.6377E+19	7.4000E-10	6.3000E-10	ICRP72	0.50000	A2 VALUE	1.11547E+04	Calculated
1116	Sm-155	2.0319E+21	2.9000E-11	1.7000E-11	ICRP72	0.02000	BETA	6.09548E+03	Calculated
1117	Sm-156	7.9109E+19	2.5000E-10	2.2000E-10	ICRP72	0.02000	BETA	6.90393E+03	Calculated
1118	Sm-157	5.4958E+21	8.2852E-12	5.1312E-12	Calculated	0.02000	BETA	1.87547E+03	Calculated
1119	Sm-158	7.9852E+21	1.1683E-11	7.5674E-12	Calculated	0.02000	BETA	2.64590E+03	Calculated
1120	Sm-159	2.3450E+23	7.7249E-13	4.4158E-13	Calculated	0.02000	BETA	1.52908E+03	Calculated
1121	Eu-143	1.8485E+22	1.9745E-11	8.8873E-12	Calculated	0.02000	BETA	8.09389E+02	Calculated
1122	Eu-144	2.8435E+23	1.1840E-12	5.3212E-13	Calculated	0.02000	BETA	7.71426E+02	Calculated
1123	Eu-145	5.6259E+18	7.5000E-10	5.5000E-10	ICRP72	0.02000	BETA	7.44879E+02	Calculated
1124	Eu-146	7.2057E+18	1.3000E-09	8.0000E-10	ICRP72	0.02000	BETA	4.59846E+02	Calculated
1125	Eu-147	1.3726E+18	4.4000E-10	1.1000E-09	ICRP72	2.00000	A2 VALUE	1.99641E+03	Calculated
1126	Eu-148	5.9915E+17	1.3000E-09	2.6000E-09	ICRP72	0.50000	A2 VALUE	4.48051E+02	Calculated
1127	Eu-149	3.4847E+17	1.0000E-10	2.9000E-10	ICRP72	20.00000	A2 VALUE	1.46127E+04	Calculated
1128	Eu-150	2.4266E+15	1.3000E-09	5.3000E-08	ICRP72	0.70000	A2 VALUE	6.53278E+02	Calculated
1129	Eu-150m	6.0423E+19	3.8000E-10	1.9000E-10	ICRP72	0.02000	BETA	1.23536E+04	Calculated
1131	Eu-152	6.4388E+15	1.4000E-09	4.2000E-08	ICRP72	0.90000	A2 VALUE	3.00000E+02	TECDOC-855
1132	Eu-152m	8.2288E+19	5.0000E-10	2.2000E-10	ICRP72	0.50000	A2 VALUE	2.76793E+03	Calculated
1133	Eu-152n	4.7702E+20	9.9000E-11	6.2000E-11	NRPB-M	0.02000	BETA	1.20872E+04	Calculated
1135	Eu-154	1.0001E+16	2.0000E-09	5.3000E-08	ICRP72	0.50000	A2 VALUE	7.85727E+02	Calculated
1136	Eu-154m	9.7410E+20	1.4000E-12	2.0000E-12	NRPB-M	0.02000	BETA	1.21055E+04	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
1137	Eu-155	1.7619E+16	3.2000E-10	6.9000E-09	ICRP72	2.00000	A2 VALUE	1.41216E+04	Calculated
1138	Eu-156	2.0385E+18	2.2000E-09	3.4000E-09	ICRP72	0.50000	A2 VALUE	7.53016E+02	Calculated
1139	Eu-157	4.8674E+19	6.0000E-10	2.8000E-10	ICRP72	0.02000	BETA	3.40391E+03	Calculated
1140	Eu-158	9.5974E+20	9.4000E-11	4.7000E-11	ICRP72	0.02000	BETA	8.47458E+02	Calculated
1141	Eu-159	2.3409E+21	6.1859E-11	2.3740E-11	Calculated	0.02000	BETA	2.76329E+03	Calculated
1142	Eu-160	4.9432E+22	6.2059E-12	2.7892E-12	Calculated	0.02000	BETA	5.12069E+02	Calculated
1143	Gd-145	2.0872E+21	4.4000E-11	2.0000E-11	ICRP72	0.02000	BETA	4.05778E+02	Calculated
1144	Gd-145m	3.3886E+22	4.1361E-12	3.6234E-12	Calculated	0.02000	BETA	1.44634E+03	Calculated
1145	Gd-146	6.8584E+17	9.6000E-10	6.4000E-09	ICRP72	0.40000	A2 VALUE	3.74995E+03	Calculated
1146	Gd-147	2.0708E+19	6.1000E-10	4.0000E-10	ICRP72	0.02000	BETA	7.96673E+02	Calculated
1147	Gd-148	1.2008E+15	5.6000E-08	2.6000E-05	ICRP72	0.00030	A2 VALUE	7.69231E+04	Calculated
1148	Gd-149	3.4605E+18	4.5000E-10	7.3000E-10	ICRP72	0.02000	BETA	1.89934E+03	Calculated
1149	Gd-150	4.8478E+10	5.2000E-08	8.3000E-05	KENDALL	0.00002	ALPHA	2.40964E+04	Calculated
1150	Gd-151	2.5816E+17	2.0000E-10	8.6000E-10	ICRP72	0.00002	ALPHA	1.34620E+04	Calculated
1151	Gd-152	8.0673E+02	4.1000E-08	1.9000E-05	ICRP72	0.00002	ALPHA	1.05263E+05	Calculated
1152	Gd-153	1.3136E+17	2.7000E-10	2.1000E-09	ICRP72	5.00000	A2 VALUE	9.00739E+03	Calculated
1158	Gd-159	3.9310E+19	4.9000E-10	2.7000E-10	ICRP72	0.50000	A2 VALUE	1.20318E+04	Calculated
1160	Gd-161	1.1790E+22	4.9238E-12	8.0820E-12	Calculated	0.02000	BETA	2.21720E+03	Calculated
1161	Gd-162	4.7737E+21	2.8344E-11	4.4075E-11	Calculated	0.02000	BETA	2.16303E+03	Calculated
1162	Gd-163	3.7675E+22	5.1501E-12	8.0085E-12	Calculated	0.02000	BETA	4.93389E+02	Calculated
1163	Gd-164	8.0071E+22	3.0670E-12	4.7694E-12	Calculated	0.02000	BETA	9.88128E+02	Calculated
1164	Gd-165	5.9837E+22	3.8139E-12	5.9189E-12	Calculated	0.02000	BETA	9.95917E+02	Calculated
1165	Tb-146	3.5756E+23	6.6642E-13	6.2527E-13	Calculated	0.02000	BETA	6.79025E+02	Calculated
1166	Tb-146m	1.2437E+23	2.1632E-12	2.0277E-12	Calculated	0.02000	BETA	2.73898E+02	Calculated
1167	Tb-147	4.8154E+20	1.6000E-10	7.6000E-11	ICRP72	0.02000	BETA	6.07533E+02	Calculated
1168	Tb-147m	2.5828E+22	5.1471E-12	4.5487E-12	Calculated	0.02000	BETA	5.44722E+02	Calculated
1169	Tb-148	7.8385E+20	2.7000E-11	4.1000E-11	NRPB-M	0.02000	BETA	4.14027E+02	Calculated
1170	Tb-148m	2.1378E+22	8.3106E-12	8.5301E-12	Calculated	0.02000	BETA	3.41542E+02	Calculated
1171	Tb-149	1.8850E+20	2.5000E-10	4.9000E-09	ICRP72	0.00002	ALPHA	7.12144E+02	Calculated
1172	Tb-149m	1.1230E+22	1.2796E-10	1.1908E-10	Calculated	0.00002	ALPHA	6.95866E+02	Calculated
1173	Tb-150	2.2274E+20	2.5000E-10	1.1000E-10	ICRP72	0.00002	ALPHA	4.85437E+02	Calculated
1174	Tb-150m	8.0007E+21	1.6428E-11	1.5287E-11	Calculated	0.02000	BETA	4.21683E+02	Calculated
1175	Tb-151	4.3631E+19	3.4000E-10	2.3000E-10	ICRP72	0.00002	ALPHA	9.99400E+02	Calculated
1176	Tb-151m	1.1063E+23	1.6447E-13	1.2127E-13	Calculated	0.02000	BETA	1.28008E+04	Calculated
1177	Tb-152	4.3612E+19	5.8000E-10	5.5000E-10	NRPB-M	0.02000	BETA	7.13267E+02	Calculated
1178	Tb-152m	1.0650E+22	6.3690E-12	5.9597E-12	Calculated	0.02000	BETA	1.31062E+03	Calculated
1179	Tb-153	1.3500E+19	2.5000E-10	1.9000E-10	ICRP72	0.02000	BETA	3.22123E+03	Calculated
1180	Tb-154	3.5037E+19	6.5000E-10	3.6000E-10	ICRP72	0.02000	BETA	4.51834E+02	Calculated
1181	Tb-154m	8.3700E+19	9.1272E-10	8.3029E-10	Calculated	0.02000	BETA	7.72439E+02	Calculated
1182	Tb-154n	3.3193E+19	8.7000E-10	8.5000E-10	NRPB-M	0.02000	BETA	4.83232E+02	Calculated
1183	Tb-155	5.8573E+18	2.1000E-10	2.2000E-10	ICRP72	0.02000	BETA	5.56174E+03	Calculated
1184	Tb-156	5.9932E+18	1.2000E-09	1.2000E-09	ICRP72	0.02000	BETA	5.14448E+02	Calculated
1185	Tb-156m	3.0477E+19	1.7000E-10	2.1000E-10	ICRP72	0.02000	BETA	2.51286E+04	Calculated
1186	Tb-156n	1.4581E+20	8.1000E-11	9.6000E-11	ICRP72	0.02000	BETA	7.60495E+04	Calculated
1187	Tb-157	8.5143E+14	3.4000E-11	1.2000E-09	ICRP72	10.00000	A2 VALUE	9.12054E+04	Calculated
1188	Tb-158	4.6371E+14	1.1000E-09	4.6000E-08	ICRP72	0.70000	A2 VALUE	1.22835E+03	Calculated
1189	Tb-158m	2.5173E+23	2.2141E-14	2.0686E-14	Calculated	0.02000	BETA	3.09215E+04	Calculated
1191	Tb-160	4.1783E+17	1.6000E-09	7.0000E-09	ICRP72	0.50000	A2 VALUE	8.69623E+02	Calculated
1192	Tb-161	4.3573E+18	7.2000E-10	1.3000E-09	ICRP72	0.02000	BETA	1.85752E+04	Calculated
1193	Tb-162	5.6531E+21	1.4860E-11	1.3827E-11	Calculated	0.02000	BETA	8.62069E+02	Calculated
1194	Tb-163	2.1897E+21	2.6036E-11	2.4227E-11	Calculated	0.02000	BETA	1.21714E+03	Calculated
1195	Tb-164	1.4146E+22	8.5883E-12	7.9916E-12	Calculated	0.02000	BETA	4.26076E+02	Calculated
1196	Tb-165	1.9991E+22	5.1535E-12	4.7759E-12	Calculated	0.02000	BETA	1.67813E+03	Calculated
1197	Tb-166	3.0199E+22	5.5473E-12	5.5052E-12	Calculated	0.02000	BETA	4.12455E+02	Calculated
1198	Dy-148	1.5171E+22	5.6262E-12	3.8103E-12	Calculated	0.02000	BETA	1.44442E+03	Calculated
1199	Dy-149	1.1035E+22	3.0247E-11	8.3388E-11	Calculated	0.02000	BETA	4.21941E+02	Calculated
1200	Dy-150	6.4719E+21	3.4371E-10	1.8875E-10	Calculated	0.00002	ALPHA	3.93407E+03	Calculated
1201	Dy-151	2.5752E+21	1.8585E-10	1.0197E-10	Calculated	0.00002	ALPHA	7.36648E+02	Calculated
1202	Dy-152	3.2210E+20	2.5000E-10	7.3000E-09	NRPB-M	0.00002	ALPHA	3.98148E+03	Calculated
1203	Dy-153	1.1868E+20	1.4000E-10	1.4000E-10	NRPB-M	0.00002	ALPHA	1.44113E+03	Calculated
1204	Dy-154	3.0132E+10	5.8000E-08	2.3000E-05	KENDALL	0.00002	ALPHA	8.69565E+04	Calculated
1205	Dy-155	7.4843E+19	1.3000E-10	7.7000E-11	ICRP72	0.02000	BETA	1.55448E+03	Calculated
1207	Dy-157	9.0773E+19	6.1000E-11	3.0000E-11	ICRP72	0.02000	BETA	2.84344E+03	Calculated
1209	Dy-159	2.1052E+17	1.0000E-10	3.7000E-10	ICRP72	20.00000	A2 VALUE	2.13713E+04	Calculated
1215	Dy-165	3.0121E+20	1.1000E-10	6.0000E-11	ICRP72	0.50000	A2 VALUE	1.40511E+04	Calculated
1216	Dy-165m	3.3530E+22	1.2251E-12	6.7086E-13	Calculated	0.02000	BETA	3.34528E+04	Calculated
1217	Dy-166	8.5635E+18	1.6000E-09	1.9000E-09	ICRP72	0.30000	A2 VALUE	1.80930E+04	Calculated
1218	Dy-167	6.7218E+21	1.3486E-11	7.4790E-12	Calculated	0.02000	BETA	1.65289E+03	Calculated
1219	Dy-168	4.8737E+21	3.4667E-11	1.9257E-11	Calculated	0.02000	BETA	1.61991E+03	Calculated
1220	Dy-169	6.3517E+22	3.2375E-12	1.8110E-12	Calculated	0.02000	BETA	9.56948E+02	Calculated
1221	Dy-170	1.2040E+23	2.2964E-12	1.2756E-12	Calculated	0.02000	BETA	1.30493E+03	Calculated
1222	Dy-171	7.4446E+23	3.7443E-13	1.9173E-13	Calculated	0.02000	BETA	6.34397E+02	Calculated
1223	Ho-153	2.2746E+22	2.4661E-11	2.4052E-11	Calculated	0.00002	ALPHA	9.41620E+02	Calculated
1224	Ho-153m	4.8741E+21	1.3909E-10	1.3470E-10	Calculated	0.00002	ALPHA	6.35001E+02	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
1225	Ho-154	3.8194E+21	9.6266E-11	8.5113E-11	Calculated	0.00002	ALPHA	8.68372E+02	Calculated
1226	Ho-154m	1.3906E+22	4.5289E-11	4.0044E-11	Calculated	0.00002	ALPHA	5.01706E+02	Calculated
1227	Ho-155	9.3552E+20	3.7000E-11	2.0000E-11	ICRP72	0.02000	BETA	1.68919E+03	Calculated
1228	Ho-156	7.9672E+20	5.6584E-10	5.0032E-10	Calculated	0.02000	BETA	7.09079E+02	Calculated
1229	Ho-157	3.5185E+21	6.5000E-12	4.2000E-12	ICRP72	0.02000	BETA	2.13808E+03	Calculated
1230	Ho-158	4.0047E+21	2.1318E-10	1.8849E-10	Calculated	0.02000	BETA	6.46281E+02	Calculated
1231	Ho-158m	1.6315E+21	5.2328E-10	4.6269E-10	Calculated	0.02000	BETA	8.00000E+06	Calculated
1232	Ho-158n	2.0649E+21	4.0284E-10	3.5620E-10	Calculated	0.02000	BETA	3.65464E+02	Calculated
1233	Ho-159	1.3245E+21	7.9000E-12	6.1000E-12	ICRP72	0.02000	BETA	2.18780E+03	Calculated
1234	Ho-159m	3.1645E+23	2.2708E-13	1.9708E-13	Calculated	0.02000	BETA	9.06125E+03	Calculated
1235	Ho-160	1.7194E+21	3.1089E-10	2.7489E-10	Calculated	0.02000	BETA	5.81225E+02	Calculated
1236	Ho-160m	1.4500E+20	2.2000E-10	2.2000E-10	NRPB-M	0.02000	BETA	1.51987E+03	Calculated
1237	Ho-160n	9.0002E+23	6.6036E-13	5.8390E-13	Calculated	0.02000	BETA	8.69047E+03	Calculated
1238	Ho-161	2.9053E+20	1.3000E-11	6.0000E-12	ICRP72	0.02000	BETA	1.62567E+04	Calculated
1239	Ho-161m	3.8314E+23	1.7376E-13	1.4947E-13	Calculated	0.02000	BETA	8.74150E+03	Calculated
1240	Ho-162	2.8642E+21	3.3000E-12	2.8000E-12	ICRP72	0.02000	BETA	6.35413E+03	Calculated
1241	Ho-162m	6.4125E+20	2.6000E-11	2.1000E-11	ICRP72	0.02000	BETA	1.72236E+03	Calculated
1242	Ho-163	1.7767E+13	4.1254E-11	8.5114E-11	Calculated	40.00000	A2 VALUE	9.09100E+05	Calculated
1243	Ho-163m	2.3505E+24	3.6517E-14	3.2289E-14	Calculated	0.02000	BETA	4.20521E+03	Calculated
1244	Ho-164	1.4634E+21	9.5000E-12	8.4000E-12	ICRP72	0.02000	BETA	3.44654E+04	Calculated
1245	Ho-164m	1.1317E+21	1.6000E-11	1.2000E-11	ICRP72	0.02000	BETA	1.84502E+04	Calculated
1247	Ho-166	2.6074E+19	1.4000E-09	6.5000E-10	ICRP72	0.30000	A2 VALUE	1.01510E+04	Calculated
1248	Ho-166m	6.6429E+13	2.0000E-09	1.2000E-07	ICRP72	0.30000	A2 VALUE	5.75274E+02	Calculated
1249	Ho-167	2.2406E+20	8.3000E-11	7.1000E-11	ICRP72	0.02000	BETA	2.63152E+03	Calculated
1250	Ho-168	1.3809E+22	3.2253E-11	2.8518E-11	Calculated	0.02000	BETA	1.09132E+03	Calculated
1251	Ho-169	9.3594E+21	3.3481E-11	3.0172E-11	Calculated	0.02000	BETA	1.84740E+03	Calculated
1252	Ho-170	1.4726E+22	5.1144E-11	4.5222E-11	Calculated	0.02000	BETA	5.21325E+02	Calculated
1253	Ho-170m	5.7123E+22	1.0094E-11	8.9255E-12	Calculated	0.02000	BETA	1.22565E+03	Calculated
1254	Ho-171	4.6074E+22	7.6383E-12	5.0203E-12	Calculated	0.02000	BETA	2.75482E+03	Calculated
1255	Ho-172	9.7107E+22	2.6182E-12	2.2035E-12	Calculated	0.02000	BETA	2.75482E+03	Calculated
1256	Er-156	2.2880E+21	4.0512E-11	5.3967E-11	Calculated	0.02000	BETA	4.57400E+04	Calculated
1257	Er-157	2.3770E+21	1.0297E-11	1.3046E-11	Calculated	0.02000	BETA	3.17058E+03	Calculated
1258	Er-158	3.2631E+20	3.2000E-12	3.5000E-12	NRPB-M	0.02000	BETA	7.11238E+03	Calculated
1259	Er-159	1.2159E+21	4.7614E-11	6.3146E-11	Calculated	0.02000	BETA	1.11582E+03	Calculated
1260	Er-160	2.5365E+19	7.4000E-10	6.2000E-10	NRPB-M	0.02000	BETA	7.95805E+04	Calculated
1261	Er-161	2.2438E+20	8.0000E-11	4.8000E-11	ICRP72	0.02000	BETA	1.05612E+03	Calculated
1263	Er-163	5.6933E+20	2.4000E-12	2.1000E-12	NRPB-M	0.02000	BETA	2.45543E+04	Calculated
1265	Er-165	6.7852E+19	1.9000E-11	7.9000E-12	ICRP72	0.02000	BETA	2.60981E+04	Calculated
1268	Er-167m	1.0967E+24	1.0586E-14	1.4101E-14	Calculated	0.02000	BETA	7.85957E+03	Calculated
1270	Er-169	3.0751E+18	3.7000E-10	1.0000E-09	ICRP72	0.90000	A2 VALUE	9.70371E+04	Calculated
1272	Er-171	9.0209E+19	3.6000E-10	2.2000E-10	ICRP72	0.50000	A2 VALUE	2.41313E+03	Calculated
1273	Er-172	1.3677E+19	1.0000E-09	1.1000E-09	ICRP72	0.02000	BETA	1.93461E+03	Calculated
1274	Er-173	2.8734E+22	3.6941E-12	4.0227E-12	Calculated	0.02000	BETA	1.11607E+03	Calculated
1275	Er-174	1.2120E+22	1.6915E-11	2.2534E-11	Calculated	0.02000	BETA	1.18526E+03	Calculated
1276	Er-175	1.3557E+23	1.6067E-12	1.6315E-12	Calculated	0.02000	BETA	6.66978E+02	Calculated
1277	Tm-160	4.6276E+21	4.0583E-11	9.1237E-11	Calculated	0.02000	BETA	7.71209E+02	Calculated
1278	Tm-160m	3.5033E+22	1.1570E-12	2.2459E-12	Calculated	0.02000	BETA	4.56621E+03	Calculated
1279	Tm-161	1.1376E+21	1.1157E-10	2.4050E-10	Calculated	0.02000	BETA	9.97410E+02	Calculated
1280	Tm-162	1.9798E+21	2.9000E-11	1.6000E-11	ICRP72	0.02000	BETA	6.05290E+02	Calculated
1281	Tm-162m	1.0608E+23	6.4526E-13	7.1473E-13	Calculated	0.02000	BETA	3.24675E+03	Calculated
1282	Tm-163	3.9318E+20	5.3000E-11	5.9000E-11	NRPB-M	0.02000	BETA	7.69669E+02	Calculated
1283	Tm-164	2.1219E+22	3.2434E-12	7.5655E-12	Calculated	0.02000	BETA	1.29702E+03	Calculated
1284	Tm-164m	8.3212E+21	2.5393E-12	5.9231E-12	Calculated	0.02000	BETA	2.83978E+03	Calculated
1285	Tm-165	2.3386E+19	3.2000E-10	2.8000E-10	NRPB-M	0.02000	BETA	1.81617E+03	Calculated
1286	Tm-166	9.0750E+19	2.8000E-10	1.7000E-10	ICRP72	0.02000	BETA	5.13242E+02	Calculated
1287	Tm-167	3.1323E+18	5.6000E-10	1.1000E-09	ICRP72	7.00000	A2 VALUE	6.31712E+03	Calculated
1288	Tm-168	3.0900E+17	9.6000E-10	3.1000E-09	NRPB-M	0.80000	A2 VALUE	8.15408E+02	Calculated
1290	Tm-170	2.2107E+17	1.3000E-09	7.0000E-09	ICRP72	0.50000	A2 VALUE	2.60487E+04	Calculated
1291	Tm-171	4.0297E+16	1.1000E-10	1.4000E-09	ICRP72	10.00000	A2 VALUE	3.16056E+05	Calculated
1292	Tm-172	1.0602E+19	1.7000E-09	1.1000E-09	ICRP72	0.02000	BETA	1.86220E+03	Calculated
1293	Tm-173	8.1269E+19	3.1000E-10	1.8000E-10	ICRP72	0.02000	BETA	2.38777E+03	Calculated
1294	Tm-174	7.4067E+21	1.6186E-11	3.7754E-11	Calculated	0.02000	BETA	5.46150E+02	Calculated
1295	Tm-175	2.6220E+21	2.7000E-11	1.8000E-11	ICRP72	0.02000	BETA	8.28089E+02	Calculated
1296	Tm-176	2.0811E+22	6.3316E-12	1.4769E-11	Calculated	0.02000	BETA	5.58650E+02	Calculated
1297	Yb-162	2.2771E+21	2.3000E-11	1.4000E-11	ICRP72	0.02000	BETA	4.27307E+03	Calculated
1298	Yb-163	3.8641E+21	1.5668E-11	1.5792E-11	Calculated	0.02000	BETA	1.32450E+03	Calculated
1299	Yb-164	5.5962E+20	8.7922E-11	1.0153E-10	Calculated	0.02000	BETA	7.38711E+04	Calculated
1300	Yb-165	4.2606E+21	5.6736E-12	5.6560E-12	Calculated	0.02000	BETA	2.85063E+03	Calculated
1301	Yb-166	1.2325E+19	9.5000E-10	7.7000E-10	ICRP72	0.02000	BETA	1.11099E+04	Calculated
1302	Yb-167	2.3814E+21	6.7000E-12	6.9000E-12	ICRP72	0.02000	BETA	3.55341E+03	Calculated
1304	Yb-169	8.9341E+17	7.1000E-10	3.0000E-09	ICRP72	3.00000	A2 VALUE	2.96317E+03	Calculated
1305	Yb-169m	5.3715E+22	2.8971E-14	6.9715E-14	Calculated	0.02000	BETA	4.13208E+05	Calculated
1311	Yb-175	6.5990E+18	4.4000E-10	7.3000E-10	ICRP72	0.90000	A2 VALUE	1.08577E+04	Calculated
1313	Yb-176m	2.0811E+23	1.8454E-13	2.1310E-13	Calculated	0.02000	BETA	1.09290E+03	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
1314	Yb-177	3.4692E+20	8.8000E-11	6.9000E-11	ICRP72	0.02000	BETA	4.38596E+03	Calculated
1315	Yb-177m	3.6803E+23	1.1531E-13	1.0240E-13	Calculated	0.02000	BETA	5.98086E+03	Calculated
1316	Yb-178	5.2833E+20	1.2000E-10	7.5000E-11	ICRP72	0.02000	BETA	1.56838E+03	Calculated
1317	Yb-179	4.7604E+21	2.0836E-11	2.3490E-11	Calculated	0.02000	BETA	5.99880E+02	Calculated
1318	Yb-180	1.6109E+22	7.9965E-12	9.2342E-12	Calculated	0.02000	BETA	1.24533E+03	Calculated
1319	Lu-166	1.5821E+22	1.4136E-11	9.3540E-12	Calculated	0.02000	BETA	4.58022E+02	Calculated
1320	Lu-166m	2.9594E+22	6.1374E-12	4.0299E-12	Calculated	0.02000	BETA	1.14325E+03	Calculated
1321	Lu-166n	1.9807E+22	1.1680E-11	7.7376E-12	Calculated	0.02000	BETA	4.65571E+02	Calculated
1322	Lu-167	8.0921E+20	2.3292E-10	1.5626E-10	Calculated	0.02000	BETA	9.74344E+02	Calculated
1323	Lu-168	7.5320E+21	4.9208E-11	3.3650E-11	Calculated	0.02000	BETA	2.25882E+02	Calculated
1324	Lu-168m	6.1830E+21	3.1390E-11	2.1465E-11	Calculated	0.02000	BETA	4.37139E+02	Calculated
1325	Lu-169	2.0151E+19	4.6000E-10	3.8000E-10	ICRP72	0.02000	BETA	8.20951E+02	Calculated
1326	Lu-169m	1.5443E+22	7.1883E-13	5.7694E-13	Calculated	0.02000	BETA	2.77778E+05	Calculated
1327	Lu-170	1.4198E+19	9.9000E-10	6.6000E-10	ICRP72	0.02000	BETA	3.95993E+02	Calculated
1328	Lu-170m	3.6661E+24	5.5409E-15	3.7232E-15	Calculated	0.02000	BETA	8.91266E+04	Calculated
1329	Lu-171	3.4259E+18	6.7000E-10	8.8000E-10	ICRP72	0.02000	BETA	1.53815E+03	Calculated
1330	Lu-171m	3.1307E+22	2.5066E-13	2.1757E-13	Calculated	0.02000	BETA	1.14546E+05	Calculated
1331	Lu-172	4.1939E+18	1.3000E-09	1.6000E-09	ICRP72	0.50000	A2 VALUE	5.08557E+02	Calculated
1332	Lu-172m	1.0936E+22	7.9530E-13	8.1652E-13	Calculated	0.02000	BETA	1.75812E+05	Calculated
1333	Lu-173	5.7247E+16	2.6000E-10	2.4000E-09	ICRP72	8.00000	A2 VALUE	5.72142E+03	Calculated
1334	Lu-174	2.1366E+16	2.7000E-10	4.2000E-09	ICRP72	4.00000	A2 VALUE	8.25390E+03	Calculated
1335	Lu-174m	1.9560E+17	5.3000E-10	4.2000E-09	ICRP72	8.00000	A2 VALUE	1.36329E+04	Calculated
1337	Lu-176	2.0811E+06	1.8000E-09	7.0000E-08	ICRP72	0.02000	BETA	1.92604E+03	Calculated
1338	Lu-176m	1.7906E+20	1.7000E-10	1.2000E-10	ICRP72	0.02000	BETA	1.61812E+04	Calculated
1339	Lu-177	4.0752E+18	5.3000E-10	1.2000E-09	ICRP72	0.90000	A2 VALUE	1.93781E+04	Calculated
1340	Lu-177m	1.7033E+17	1.7000E-09	1.6000E-08	ICRP72	0.02000	BETA	5.68254E+03	Calculated
1341	Lu-178	1.3766E+21	4.7000E-11	2.6000E-11	ICRP72	0.02000	BETA	4.62963E+03	Calculated
1342	Lu-178m	1.6925E+21	3.8000E-11	3.3000E-11	ICRP72	0.02000	BETA	9.08265E+02	Calculated
1343	Lu-179	1.4120E+20	2.1000E-10	1.2000E-10	ICRP72	0.02000	BETA	1.31579E+04	Calculated
1344	Lu-180	6.7826E+21	2.3386E-11	1.5992E-11	Calculated	0.02000	BETA	6.34921E+02	Calculated
1345	Lu-181	1.0985E+22	4.5868E-12	3.3397E-12	Calculated	0.02000	BETA	1.75778E+03	Calculated
1346	Lu-182	1.9117E+22	8.5007E-12	5.8129E-12	Calculated	0.02000	BETA	4.81719E+02	Calculated
1347	Hf-168	1.5963E+21	6.7803E-11	1.3641E-10	Calculated	0.02000	BETA	2.32558E+03	Calculated
1348	Hf-169	1.2710E+22	2.8503E-12	5.8163E-12	Calculated	0.02000	BETA	8.69565E+02	Calculated
1349	Hf-170	4.2644E+19	4.8000E-10	3.2000E-10	ICRP72	0.02000	BETA	1.99124E+03	Calculated
1350	Hf-171	5.6007E+19	7.9438E-10	1.6448E-09	Calculated	0.02000	BETA	1.07067E+03	Calculated
1351	Hf-172	4.1148E+16	1.0000E-09	3.2000E-08	ICRP72	0.30000	A2 VALUE	8.31947E+03	Calculated
1352	Hf-173	2.8053E+19	2.3000E-10	1.6000E-10	ICRP72	0.02000	BETA	2.48873E+03	Calculated
1353	Hf-174	3.8023E+01	7.6800E-08	3.6054E-07	Calculated	0.00002	ALPHA	2.60418E+05	Calculated
1354	Hf-175	3.9452E+17	4.1000E-10	1.2000E-09	ICRP72	3.00000	A2 VALUE	2.72081E+03	Calculated
1357	Hf-177m	2.1843E+24	1.2066E-14	2.4277E-14	Calculated	0.02000	BETA	9.15674E+02	Calculated
1358	Hf-177n	7.6494E+20	8.1000E-11	9.0000E-11	ICRP72	0.02000	BETA	8.31654E+02	Calculated
1360	Hf-178m	5.8645E+23	3.9181E-14	7.8830E-14	Calculated	0.02000	BETA	9.80352E+02	Calculated
1361	Hf-178n	2.3979E+15	4.7000E-09	2.6000E-07	ICRP72	0.02000	BETA	8.12690E+02	Calculated
1363	Hf-179m	1.2494E+23	5.7060E-14	1.1480E-13	Calculated	0.02000	BETA	4.01445E+03	Calculated
1364	Hf-179n	1.0750E+18	1.2000E-09	3.8000E-09	ICRP72	0.02000	BETA	1.05932E+03	Calculated
1366	Hf-180m	1.1716E+20	1.7000E-10	1.3000E-10	ICRP72	0.02000	BETA	9.92769E+02	Calculated
1367	Hf-181	6.3001E+17	1.1000E-09	5.0000E-09	ICRP72	0.90000	A2 VALUE	1.81497E+03	Calculated
1368	Hf-182	8.0832E+09	3.0000E-09	3.1000E-07	ICRP72	0.03000	A2 VALUE	4.55818E+03	Calculated
1369	Hf-182m	6.2172E+20	4.2000E-11	4.6000E-11	ICRP72	0.02000	BETA	9.99147E+02	Calculated
1370	Hf-183	5.9416E+20	7.3000E-11	5.7000E-11	ICRP72	0.02000	BETA	1.23153E+03	Calculated
1371	Hf-184	1.5301E+20	5.2000E-10	3.3000E-10	ICRP72	0.02000	BETA	3.38983E+03	Calculated
1372	Hf-185	1.0744E+22	8.9521E-12	1.8053E-11	Calculated	0.02000	BETA	4.54545E+02	Calculated
1373	Hf-186	1.6505E+22	3.7106E-12	6.3181E-12	Calculated	0.02000	BETA	1.92197E+03	Calculated
1374	Hf-187	2.1468E+22	6.0026E-12	1.3104E-11	Calculated	0.02000	BETA	7.62021E+02	Calculated
1375	Ta-170	6.0498E+21	3.2289E-11	1.8226E-11	Calculated	0.02000	BETA	8.60585E+02	Calculated
1376	Ta-171	1.7467E+21	1.3553E-10	9.5984E-11	Calculated	0.02000	BETA	5.22739E+02	Calculated
1377	Ta-172	1.0995E+21	5.3000E-11	3.5000E-11	ICRP72	0.02000	BETA	5.27371E+02	Calculated
1378	Ta-173	2.1360E+20	1.9000E-10	1.1000E-10	ICRP72	0.02000	BETA	1.82315E+03	Calculated
1379	Ta-174	5.6465E+20	5.7000E-11	4.3000E-11	ICRP72	0.02000	BETA	1.05597E+03	Calculated
1380	Ta-175	6.3123E+19	2.1000E-10	1.3000E-10	ICRP72	0.02000	BETA	1.18113E+03	Calculated
1381	Ta-176	8.1528E+19	3.1000E-10	2.0000E-10	ICRP72	0.02000	BETA	4.65918E+02	Calculated
1382	Ta-177	1.1619E+19	1.1000E-10	1.1000E-10	ICRP72	0.02000	BETA	1.42807E+04	Calculated
1383	Ta-178	4.1994E+21	1.9897E-12	1.3884E-12	Calculated	1.00000	A2 VALUE	8.11030E+03	Calculated
1384	Ta-178m	2.7598E+20	7.2000E-11	6.8000E-11	ICRP72	0.02000	BETA	8.55242E+02	Calculated
1385	Ta-179	4.5916E+16	6.5000E-11	5.6000E-10	ICRP72	30.00000	A2 VALUE	3.33493E+04	Calculated
1386	Ta-180	7.9747E+19	5.4000E-11	4.4000E-11	ICRP72	0.02000	BETA	1.91075E+04	Calculated
1387	Ta-180m	4.0837E+01	8.4000E-10	2.6000E-08	ICRP72	0.02000	BETA	1.73882E+03	Calculated
1389	Ta-182	2.3150E+17	1.5000E-09	1.0000E-08	ICRP72	0.50000	A2 VALUE	7.66311E+02	Calculated
1390	Ta-182m	8.1066E+24	1.4980E-16	3.6021E-16	Calculated	0.02000	BETA	2.98572E+05	Calculated
1391	Ta-182n	2.4139E+21	1.2000E-11	2.1000E-11	ICRP72	0.02000	BETA	3.58328E+03	Calculated
1392	Ta-183	5.1881E+18	1.3000E-09	2.1000E-09	ICRP72	0.02000	BETA	3.10974E+03	Calculated
1393	Ta-184	7.2451E+19	6.8000E-10	4.3000E-10	ICRP72	0.02000	BETA	5.90283E+02	Calculated
1394	Ta-185	7.6765E+20	6.8000E-11	4.8000E-11	ICRP72	0.02000	BETA	4.12906E+03	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
1395	Ta-186	3.5630E+21	3.3000E-11	1.8000E-11	ICRP72	0.02000	BETA	6.85871E+02	Calculated
1396	Ta-187	2.2327E+24	1.0185E-13	8.0408E-14	Calculated	0.02000	BETA	4.54545E+02	Calculated
1397	Ta-188	2.2203E+24	9.3538E-14	6.5643E-14	Calculated	0.02000	BETA	4.54545E+02	Calculated
1398	W-172	6.0691E+21	1.5167E-11	1.7540E-12	Calculated	0.02000	BETA	1.24750E+03	Calculated
1399	W-173	5.0494E+21	8.3203E-12	8.5346E-13	Calculated	0.02000	BETA	5.98802E+03	Calculated
1400	W-174	1.3635E+21	5.8891E-11	7.2022E-12	Calculated	0.02000	BETA	1.60429E+03	Calculated
1401	W-175	1.1696E+21	8.9392E-11	1.0514E-11	Calculated	0.02000	BETA	9.09100E+02	Calculated
1402	W-176	2.8584E+20	1.0000E-10	4.1000E-11	ICRP72	0.02000	BETA	6.17139E+03	Calculated
1403	W-177	2.9124E+20	5.8000E-11	2.4000E-11	ICRP72	0.02000	BETA	1.09219E+03	Calculated
1404	W-178	1.2570E+18	2.2000E-10	7.2000E-11	ICRP72	1.00000	A2 VALUE	5.03444E+04	Calculated
1405	W-179	1.0367E+21	3.3000E-12	9.2000E-13	ICRP72	0.02000	BETA	1.84672E+04	Calculated
1406	W-179m	6.0746E+21	1.9063E-12	3.1666E-13	Calculated	0.02000	BETA	2.72480E+04	Calculated
1408	W-181	2.2070E+17	7.6000E-11	2.7000E-11	ICRP72	30.00000	A2 VALUE	2.35438E+04	Calculated
1411	W-183m	4.3459E+23	3.1793E-14	3.7848E-15	Calculated	0.02000	BETA	6.95476E+03	Calculated
1413	W-185	3.4782E+17	4.4000E-10	1.2000E-10	ICRP72	0.90000	A2 VALUE	7.85518E+04	Calculated
1414	W-185m	2.2569E+22	3.9382E-13	4.7925E-14	Calculated	0.02000	BETA	2.32894E+04	Calculated
1416	W-187	2.6004E+19	6.3000E-10	1.9000E-10	ICRP72	0.50000	A2 VALUE	2.11762E+03	Calculated
1417	W-188	3.7014E+17	2.1000E-09	5.7000E-10	ICRP72	0.20000	A2 VALUE	8.43882E+04	Calculated
1418	W-189	3.2015E+21	3.2040E-11	3.7687E-12	Calculated	0.02000	BETA	7.61422E+02	Calculated
1419	W-190	1.2208E+21	9.4427E-11	1.1241E-11	Calculated	0.02000	BETA	5.07614E+03	Calculated
1420	W-191	2.1855E+24	9.2783E-14	1.1099E-14	Calculated	0.02000	BETA	4.54545E+02	Calculated
1421	W-192	2.8313E+22	4.4843E-12	5.3382E-13	Calculated	0.02000	BETA	1.53304E+03	Calculated
1422	W-193	2.1207E+22	1.3098E-11	1.5416E-12	Calculated	0.02000	BETA	7.65873E+02	Calculated
1423	Re-178	2.9618E+21	2.5000E-11	1.4000E-11	ICRP72	0.02000	BETA	5.83090E+02	Calculated
1424	Re-179	1.9937E+21	4.0692E-11	2.6754E-11	Calculated	0.02000	BETA	9.26278E+02	Calculated
1425	Re-180	1.5888E+22	5.4915E-12	3.3325E-12	Calculated	0.02000	BETA	8.45094E+02	Calculated
1426	Re-181	3.2039E+19	4.2000E-10	2.5000E-10	ICRP72	0.02000	BETA	1.21536E+03	Calculated
1427	Re-182	9.9572E+18	1.4000E-09	1.2000E-09	ICRP72	0.02000	BETA	5.49753E+02	Calculated
1428	Re-182m	5.0200E+19	2.7000E-10	2.0000E-10	ICRP72	0.02000	BETA	8.20883E+02	Calculated
1429	Re-183	3.7713E+17	7.6000E-10	1.8000E-09	R245	5.00000	A2 VALUE	6.00962E+03	Calculated
1430	Re-184	6.9183E+17	1.0000E-09	1.9000E-09	ICRP72	1.00000	A2 VALUE	1.11495E+03	Calculated
1431	Re-184m	1.5868E+17	1.5000E-09	6.5000E-09	ICRP72	3.00000	A2 VALUE	2.48725E+03	Calculated
1433	Re-186	6.8794E+18	1.5000E-09	1.1000E-09	ICRP72	0.50000	A2 VALUE	1.94818E+04	Calculated
1434	Re-186m	3.5631E+11	2.2000E-09	1.2000E-08	ICRP72	0.02000	BETA	1.49656E+04	Calculated
1435	Re-187	1.4160E+06	5.1000E-12	6.3000E-12	ICRP72	0.02000	BETA	1.51515E+07	Calculated
1436	Re-188	3.6330E+19	1.4000E-09	5.4000E-10	ICRP72	0.20000	A2 VALUE	7.36920E+03	Calculated
1437	Re-188m	1.9900E+21	3.0000E-11	1.3000E-11	ICRP72	0.02000	BETA	1.21655E+04	Calculated
1438	Re-189	2.5252E+19	7.8000E-10	4.3000E-10	ICRP72	0.50000	A2 VALUE	1.08696E+04	Calculated
1439	Re-190	1.1814E+22	1.1061E-11	6.7120E-12	Calculated	0.02000	BETA	7.03730E+02	Calculated
1440	Re-190m	1.9108E+20	4.1000E-10	3.8000E-10	NRPB-M	0.02000	BETA	1.05097E+03	Calculated
1441	Re-191	3.7558E+21	1.2433E-11	7.7788E-12	Calculated	0.02000	BETA	1.33463E+04	Calculated
1442	Re-192	3.5072E+23	3.2160E-13	1.9516E-13	Calculated	0.02000	BETA	3.09745E+03	Calculated
1443	Re-193	2.1632E+24	1.2084E-13	7.2033E-14	Calculated	0.02000	BETA	4.54545E+02	Calculated
1444	Re-194	2.1517E+24	1.1548E-13	7.0257E-14	Calculated	0.02000	BETA	4.54545E+02	Calculated
1445	Re-195	2.0990E+23	1.0822E-12	6.0609E-13	Calculated	0.02000	BETA	7.63942E+02	Calculated
1446	Os-180	1.7982E+21	1.7000E-11	1.5000E-11	ICRP72	0.02000	BETA	1.45560E+05	Calculated
1447	Os-181	1.4239E+22	4.1584E-12	4.4111E-12	Calculated	0.02000	BETA	2.62329E+03	Calculated
1448	Os-181m	3.6616E+20	8.9000E-11	6.5000E-11	ICRP72	0.02000	BETA	7.20254E+02	Calculated
1449	Os-182	2.8821E+19	5.6000E-10	3.8000E-10	ICRP72	0.02000	BETA	2.14460E+03	Calculated
1450	Os-183	4.8752E+19	2.0000E-10	2.3000E-10	NRPB-M	0.02000	BETA	1.56431E+03	Calculated
1451	Os-183m	6.4089E+19	1.9000E-10	2.1000E-10	NRPB-M	0.02000	BETA	9.97407E+02	Calculated
1453	Os-185	2.7848E+17	5.1000E-10	1.6000E-09	ICRP72	1.00000	A2 VALUE	1.38722E+03	Calculated
1454	Os-186	3.7413E+01	4.0092E-07	9.9830E-07	Calculated	0.00002	ALPHA	4.98853E+04	Calculated
1458	Os-189m	1.2769E+20	1.8000E-11	5.3000E-12	ICRP72	0.02000	BETA	2.25428E+05	Calculated
1460	Os-190m	3.6994E+21	4.0123E-11	4.2817E-11	Calculated	0.02000	BETA	6.24916E+02	Calculated
1461	Os-191	1.6423E+18	5.7000E-10	1.9000E-09	ICRP72	0.90000	A2 VALUE	2.06186E+04	Calculated
1462	Os-191m	4.6350E+19	9.6000E-11	1.6000E-10	ICRP72	40.00000	A2 VALUE	6.89463E+04	Calculated
1464	Os-192m	3.6856E+23	4.7695E-13	5.0898E-13	Calculated	0.02000	BETA	5.27398E+02	Calculated
1465	Os-193	1.9701E+19	8.1000E-10	5.2000E-10	ICRP72	0.50000	A2 VALUE	9.55110E+03	Calculated
1466	Os-194	1.1387E+16	2.4000E-09	8.5000E-08	ICRP72	0.20000	A2 VALUE	1.80724E+05	Calculated
1467	Os-195	5.4897E+21	2.0011E-11	1.6683E-11	Calculated	0.02000	BETA	4.67822E+03	Calculated
1468	Os-196	1.0172E+21	1.4465E-10	1.5437E-10	Calculated	0.02000	BETA	8.29089E+03	Calculated
1469	Os-197	6.2138E+23	4.2259E-13	4.5351E-13	Calculated	0.02000	BETA	1.26791E+03	Calculated
1470	Os-198	6.4087E+22	3.7442E-12	3.9956E-12	Calculated	0.02000	BETA	2.52525E+03	Calculated
1471	Os-199	5.7318E+22	6.6448E-12	7.8503E-12	Calculated	0.02000	BETA	7.95355E+02	Calculated
1472	Ir-182	2.5490E+21	4.8000E-11	2.4000E-11	ICRP72	0.02000	BETA	1.20948E+03	Calculated
1473	Ir-183	6.9138E+20	2.8941E-10	5.8375E-10	Calculated	0.02000	BETA	3.57119E+02	Calculated
1474	Ir-184	2.0875E+20	1.7000E-10	1.2000E-10	ICRP72	0.02000	BETA	5.73010E+02	Calculated
1475	Ir-185	4.5137E+19	2.6000E-10	1.9000E-10	ICRP72	0.02000	BETA	1.09092E+03	Calculated
1476	Ir-186	3.7474E+19	4.9000E-10	3.2000E-10	ICRP72	0.02000	BETA	6.12445E+02	Calculated
1477	Ir-186m	3.1177E+20	6.1000E-11	4.4000E-11	ICRP72	0.02000	BETA	6.93481E+02	Calculated
1478	Ir-187	5.9067E+19	1.2000E-10	7.9000E-11	ICRP72	0.02000	BETA	1.81820E+03	Calculated
1479	Ir-188	1.4865E+19	6.3000E-10	4.2000E-10	ICRP72	0.02000	BETA	4.75249E+02	Calculated
1480	Ir-189	1.9378E+18	2.4000E-10	6.0000E-10	ICRP72	10.00000	A2 VALUE	1.15492E+04	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
1481	Ir-190	2.1194E+18	1.2000E-09	2.4000E-09	ICRP72	0.70000	A2 VALUE	6.73269E+02	Calculated
1482	Ir-190m	5.4499E+20	8.0000E-12	1.0000E-11	ICRP72	0.02000	BETA	2.14268E+05	Calculated
1483	Ir-190n	1.9773E+20	1.2000E-10	8.3000E-11	ICRP72	0.02000	BETA	1.61914E+04	Calculated
1485	Ir-191m	4.4249E+23	1.5665E-14	3.1520E-14	Calculated	0.02000	BETA	2.06186E+04	Calculated
1486	Ir-191n	3.9743E+23	2.7974E-13	5.6289E-13	Calculated	0.02000	BETA	5.31915E+02	Calculated
1487	Ir-192	3.4088E+17	1.4000E-09	6.6000E-09	ICRP72	0.50000	A2 VALUE	3.00000E+03	TECDOC-855
1488	Ir-192m	2.5168E+22	1.4661E-13	3.4623E-13	Calculated	0.02000	BETA	1.67610E+05	Calculated
1489	Ir-192n	2.8611E+14	3.1000E-10	3.9000E-08	ICRP72	0.02000	BETA	6.21118E+03	Calculated
1491	Ir-193m	2.3616E+18	2.7000E-10	1.3000E-09	ICRP72	10.00000	A2 VALUE	1.02669E+05	Calculated
1492	Ir-194	3.1216E+19	1.3000E-09	5.6000E-10	ICRP72	0.20000	A2 VALUE	5.81395E+03	Calculated
1493	Ir-194m	1.4541E+17	2.1000E-09	1.3000E-08	ICRP72	0.02000	BETA	4.27663E+02	Calculated
1494	Ir-195	2.3789E+20	1.0000E-10	7.1000E-11	ICRP72	0.02000	BETA	1.04167E+04	Calculated
1495	Ir-195m	1.5628E+20	2.1000E-10	1.7000E-10	ICRP72	0.02000	BETA	2.25530E+03	Calculated
1496	Ir-196	4.0963E+22	1.8507E-12	3.7240E-12	Calculated	0.02000	BETA	2.85714E+03	Calculated
1497	Ir-196m	4.2263E+20	1.2000E-10	1.6000E-10	NRPB-M	0.02000	BETA	3.97614E+02	Calculated
1498	Ir-197	6.0897E+21	1.4962E-11	3.0420E-11	Calculated	0.02000	BETA	1.26557E+03	Calculated
1499	Ir-197m	3.9686E+21	2.8059E-11	6.3967E-11	Calculated	0.02000	BETA	1.26263E+03	Calculated
1500	Ir-198	2.6356E+23	4.3700E-13	8.7932E-13	Calculated	0.02000	BETA	1.04895E+03	Calculated
1501	Ir-199	4.1373E+22	2.9553E-12	7.2168E-12	Calculated	0.02000	BETA	1.29870E+03	Calculated
1502	Ir-200	4.0214E+23	4.8588E-13	9.5410E-13	Calculated	0.02000	BETA	7.11339E+02	Calculated
1503	Pt-184	2.1860E+21	5.9367E-11	9.8673E-12	Calculated	0.00002	ALPHA	5.50767E+02	Calculated
1504	Pt-185	5.2977E+20	4.0172E-10	7.7316E-11	Calculated	0.02000	BETA	3.75000E+02	Calculated
1505	Pt-185m	1.1398E+21	1.7189E-10	3.2985E-11	Calculated	0.02000	BETA	3.17682E+02	Calculated
1506	Pt-186	3.1176E+20	9.3000E-11	3.3000E-11	ICRP72	0.00002	ALPHA	1.52940E+03	Calculated
1507	Pt-187	2.6391E+20	4.0936E-10	7.8105E-11	Calculated	0.02000	BETA	9.40448E+02	Calculated
1508	Pt-188	2.5236E+18	7.6000E-10	4.2000E-10	ICRP72	0.60000	A2 VALUE	4.94306E+03	Calculated
1509	Pt-189	5.6353E+19	1.2000E-10	3.8000E-11	ICRP72	0.02000	BETA	3.31016E+03	Calculated
1510	Pt-190	1.0565E+05	8.2000E-09	2.3000E-07	R245	0.00002	ALPHA	2.43902E+06	Calculated
1511	Pt-191	8.7088E+18	3.4000E-10	1.1000E-10	ICRP72	3.00000	A2 VALUE	3.59286E+03	Calculated
1513	Pt-193	1.3710E+15	3.1000E-11	2.1000E-11	ICRP72	40.00000	A2 VALUE	2.89296E+04	Calculated
1514	Pt-193m	5.7690E+18	4.5000E-10	1.2000E-10	ICRP72	9.00000	A2 VALUE	3.82721E+04	Calculated
1517	Pt-195m	6.1647E+18	6.3000E-10	1.8000E-10	ICRP72	2.00000	A2 VALUE	1.07643E+04	Calculated
1519	Pt-197	3.2159E+19	4.0000E-10	8.5000E-11	ICRP72	0.50000	A2 VALUE	1.98413E+04	Calculated
1520	Pt-197m	3.7443E+20	8.4000E-11	2.4000E-11	ICRP72	0.90000	A2 VALUE	8.73362E+03	Calculated
1522	Pt-199	1.1352E+21	3.9000E-11	1.2000E-11	ICRP72	0.02000	BETA	3.92157E+03	Calculated
1523	Pt-199m	1.5426E+23	4.2017E-13	1.1480E-13	Calculated	0.02000	BETA	2.87274E+03	Calculated
1524	Pt-200	4.6387E+19	1.2000E-09	2.2000E-10	ICRP72	0.02000	BETA	1.23215E+04	Calculated
1525	Pt-201	1.3847E+22	7.0579E-12	1.3223E-12	Calculated	0.02000	BETA	1.05003E+03	Calculated
1526	Pt-202	1.3047E+19	4.3391E-09	1.1823E-09	Calculated	0.02000	BETA	5.57724E+03	Calculated
1527	Au-187	4.4298E+21	5.5580E-10	5.2682E-10	Calculated	0.00002	ALPHA	5.33117E+02	Calculated
1528	Au-187m	9.7071E+23	2.5457E-12	2.4130E-12	Calculated	0.02000	BETA	8.29807E+03	Calculated
1529	Au-188	4.1901E+21	3.7898E-11	3.7120E-11	Calculated	0.02000	BETA	4.86808E+02	Calculated
1530	Au-189	1.2828E+21	6.0749E-11	6.1966E-11	Calculated	0.02000	BETA	1.17925E+03	Calculated
1531	Au-189m	8.0211E+21	1.2677E-11	1.2724E-11	Calculated	0.02000	BETA	3.21602E+03	Calculated
1532	Au-190	8.5501E+20	1.7438E-10	1.6572E-10	Calculated	0.02000	BETA	5.01756E+02	Calculated
1533	Au-191	1.9174E+20	6.6000E-11	8.6000E-11	NRPB-M	0.02000	BETA	1.68296E+03	Calculated
1534	Au-191m	2.3760E+24	1.2898E-14	1.4135E-14	Calculated	0.02000	BETA	5.11509E+03	Calculated
1535	Au-192	1.2216E+20	1.7000E-10	2.0000E-10	NRPB-M	0.02000	BETA	5.24054E+02	Calculated
1536	Au-192m	1.3590E+25	3.8483E-15	4.0026E-15	Calculated	0.02000	BETA	2.31642E+03	Calculated
1537	Au-193	3.4066E+19	1.3000E-10	1.2000E-10	ICRP72	6.00000	A2 VALUE	7.04151E+03	Calculated
1538	Au-193m	5.5467E+23	4.0272E-14	3.8053E-14	Calculated	0.02000	BETA	5.82140E+03	Calculated
1539	Au-194	1.5720E+19	4.2000E-10	2.4000E-10	ICRP72	1.00000	A2 VALUE	9.81797E+02	Calculated
1540	Au-194m	3.5867E+24	1.9053E-15	1.1132E-15	Calculated	0.02000	BETA	3.12500E+05	Calculated
1541	Au-194n	5.1239E+24	2.9956E-15	2.3586E-15	Calculated	0.02000	BETA	8.26446E+03	Calculated
1542	Au-195	1.3316E+17	2.5000E-10	1.7000E-09	ICRP72	10.00000	A2 VALUE	1.10011E+04	Calculated
1543	Au-195m	7.0197E+22	3.2012E-13	3.0699E-13	Calculated	0.02000	BETA	4.71076E+03	Calculated
1544	Au-196	3.9874E+18	4.4000E-10	3.7000E-10	R245	2.00000	A2 VALUE	2.09096E+03	Calculated
1545	Au-196m	2.6297E+23	2.8411E-14	2.6270E-14	Calculated	0.02000	BETA	9.43396E+04	Calculated
1546	Au-196n	6.1034E+19	4.5000E-10	7.1000E-10	NRPB-M	0.02000	BETA	3.61011E+03	Calculated
1548	Au-197m	2.7170E+23	1.0462E-13	9.9421E-14	Calculated	0.02000	BETA	4.12031E+03	Calculated
1549	Au-198	9.0577E+18	1.0000E-09	8.6000E-10	ICRP72	0.50000	A2 VALUE	3.00000E+03	TECDOC-855
1550	Au-198m	1.0611E+19	1.3000E-09	2.0000E-09	ICRP72	0.02000	BETA	1.80495E+03	Calculated
1551	Au-199	7.7355E+18	4.4000E-10	7.9000E-10	ICRP72	0.90000	A2 VALUE	8.28638E+03	Calculated
1552	Au-200	7.1881E+20	6.8000E-11	3.5000E-11	ICRP72	0.02000	BETA	2.88184E+03	Calculated
1553	Au-200m	3.1017E+19	1.1000E-09	7.2000E-10	ICRP72	0.02000	BETA	4.98753E+02	Calculated
1554	Au-201	1.3314E+21	2.4000E-11	1.7000E-11	ICRP72	0.02000	BETA	1.30890E+04	Calculated
1555	Au-202	7.1761E+22	1.3466E-12	1.2796E-12	Calculated	0.02000	BETA	3.62427E+03	Calculated
1556	Au-203	3.8802E+22	1.4190E-12	1.3659E-12	Calculated	0.02000	BETA	7.12593E+03	Calculated
1557	Au-204	5.1417E+22	3.6531E-12	3.4716E-12	Calculated	0.02000	BETA	5.03651E+02	Calculated
1558	Hg-190	1.8311E+21	8.3533E-11	6.1934E-11	Calculated	0.02000	BETA	8.09743E+03	Calculated
1559	Hg-191	7.5373E+20	1.5549E-10	1.1970E-10	Calculated	0.02000	BETA	1.83836E+03	Calculated
1560	Hg-191m	7.1667E+20	1.6873E-10	1.2975E-10	Calculated	0.02000	BETA	6.84885E+02	Calculated
1561	Hg-192	1.2425E+20	2.2000E-10	2.2000E-10	NRPB-M	0.02000	BETA	3.85386E+03	Calculated
1562	Hg-193	1.5790E+20	8.2000E-11	7.5000E-11	ICRP72	0.02000	BETA	1.16551E+03	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
1563	Hg-193m	5.0898E+19	4.0000E-10	2.6000E-10	ICRP72	0.02000	BETA	8.85308E+02	Calculated
1564	Hg-194	1.3122E+14	5.1000E-08	1.4000E-08	ICRP72	1.00000	A2 VALUE	3.92157E+05	Calculated
1565	Hg-195	6.0140E+19	9.7000E-11	7.3000E-11	ICRP72	0.02000	BETA	4.88998E+03	Calculated
1566	Hg-195m	1.4273E+19	5.6000E-10	5.3000E-10	ICRP72	5.00000	A2 VALUE	4.60193E+03	Calculated
1568	Hg-197	9.1127E+18	2.3000E-10	3.0000E-10	ICRP72	10.00000	A2 VALUE	1.25092E+04	Calculated
1569	Hg-197m	2.4631E+19	4.7000E-10	5.3000E-10	ICRP72	0.90000	A2 VALUE	8.67678E+03	Calculated
1572	Hg-199m	8.3054E+20	3.1000E-11	3.2000E-11	ICRP72	0.02000	BETA	4.55923E+03	Calculated
1576	Hg-203	5.1084E+17	1.9000E-09	2.4000E-09	ICRP72	0.90000	A2 VALUE	4.03801E+03	Calculated
1578	Hg-205	6.5271E+21	5.4225E-12	4.0205E-12	Calculated	0.02000	BETA	1.68977E+04	Calculated
1579	Hg-206	4.1443E+21	1.6768E-11	1.2433E-11	Calculated	0.02000	BETA	6.71439E+03	Calculated
1580	Hg-207	1.1590E+22	2.6855E-11	1.9911E-11	Calculated	0.02000	BETA	3.47303E+02	Calculated
1581	Hg-208	7.9642E+20	4.9351E-10	3.6591E-10	Calculated	0.02000	BETA	8.56825E+02	Calculated
1582	Hg-209	3.5477E+22	1.0928E-11	8.1021E-12	Calculated	0.02000	BETA	5.97693E+02	Calculated
1583	Tl-193	1.6640E+21	1.2228E-11	1.0796E-11	Calculated	0.02000	BETA	8.05380E+02	Calculated
1584	Tl-193m	1.7033E+22	1.0950E-12	9.6896E-13	Calculated	0.02000	BETA	4.25951E+03	Calculated
1585	Tl-194	1.0869E+21	8.1000E-12	4.4000E-12	ICRP72	0.02000	BETA	1.40469E+03	Calculated
1586	Tl-194m	1.0935E+21	4.0000E-11	1.9000E-11	ICRP72	0.02000	BETA	3.94166E+02	Calculated
1587	Tl-195	5.1219E+20	2.7000E-11	1.5000E-11	ICRP72	0.02000	BETA	8.36855E+02	Calculated
1588	Tl-195m	5.9471E+23	3.2816E-14	2.1149E-14	Calculated	0.02000	BETA	2.69034E+03	Calculated
1589	Tl-196	3.2176E+20	4.9000E-11	6.6000E-11	NRPB-M	0.02000	BETA	5.49753E+02	Calculated
1590	Tl-196m	4.1930E+20	1.7000E-11	2.6000E-11	NRPB-M	0.02000	BETA	8.82784E+02	Calculated
1591	Tl-197	2.0736E+20	2.3000E-11	1.4000E-11	ICRP72	0.02000	BETA	2.37552E+03	Calculated
1592	Tl-197m	3.9245E+24	3.0316E-15	2.3031E-15	Calculated	0.02000	BETA	2.21288E+03	Calculated
1593	Tl-198	1.1039E+20	7.3000E-11	6.0000E-11	ICRP72	0.02000	BETA	4.99718E+02	Calculated
1594	Tl-198m	3.1330E+20	5.4000E-11	3.7000E-11	ICRP72	0.02000	BETA	8.24198E+02	Calculated
1595	Tl-199	7.8574E+19	2.6000E-11	1.9000E-11	ICRP72	0.02000	BETA	3.93267E+03	Calculated
1596	Tl-200	2.2207E+19	2.0000E-10	1.3000E-10	ICRP72	0.80000	A2 VALUE	7.61278E+02	Calculated
1597	Tl-201	7.9052E+18	9.5000E-11	4.4000E-11	ICRP72	10.00000	A2 VALUE	3.00000E+04	TECDOC-855
1598	Tl-202	1.9543E+18	4.5000E-10	1.9000E-10	ICRP72	2.00000	A2 VALUE	2.13313E+03	Calculated
1600	Tl-204	1.7110E+16	1.2000E-09	3.9000E-10	ICRP72	0.50000	A2 VALUE	4.05201E+04	Calculated
1602	Tl-206	8.0419E+21	7.5554E-13	6.5030E-13	Calculated	0.02000	BETA	1.81456E+04	Calculated
1603	Tl-206m	8.9830E+21	3.9966E-12	3.4399E-12	Calculated	0.02000	BETA	3.99232E+02	Calculated
1604	Tl-207	7.0467E+21	7.8844E-13	6.7862E-13	Calculated	0.02000	BETA	1.90563E+04	Calculated
1605	Tl-207m	1.5164E+24	1.3597E-14	1.1703E-14	Calculated	0.02000	BETA	8.50499E+02	Calculated
1606	Tl-208	1.0949E+22	4.0614E-12	3.4957E-12	Calculated	0.02000	BETA	2.90315E+02	Calculated
1607	Tl-209	1.5132E+22	2.2085E-12	1.9009E-12	Calculated	0.02000	BETA	4.56475E+02	Calculated
1608	Tl-210	2.5485E+22	1.5587E-12	1.4394E-12	Calculated	0.02000	BETA	3.49393E+02	Calculated
1609	Pb-195	2.3788E+21	3.2318E-11	2.4817E-11	Calculated	0.02000	BETA	3.38867E+03	Calculated
1610	Pb-195m	2.3788E+21	2.9000E-11	2.7000E-11	ICRP72	0.02000	BETA	5.84624E+02	Calculated
1611	Pb-196	9.5946E+20	1.5526E-10	2.1015E-10	Calculated	0.02000	BETA	1.13324E+03	Calculated
1612	Pb-197	3.5320E+21	3.1730E-11	3.2083E-11	Calculated	0.02000	BETA	5.93120E+02	Calculated
1613	Pb-197m	7.9074E+20	1.4150E-10	1.4306E-10	Calculated	0.02000	BETA	8.37802E+02	Calculated
1614	Pb-198	2.4517E+20	1.0000E-10	7.0000E-11	ICRP72	0.02000	BETA	2.29938E+03	Calculated
1615	Pb-199	3.8850E+20	5.4000E-11	3.7000E-11	ICRP72	0.02000	BETA	8.68056E+02	Calculated
1616	Pb-199m	2.8660E+21	1.4743E-11	1.3121E-11	Calculated	0.02000	BETA	5.67543E+03	Calculated
1617	Pb-200	2.6969E+19	4.0000E-10	3.5000E-10	ICRP72	0.02000	BETA	4.60660E+03	Calculated
1618	Pb-201	6.1377E+19	1.6000E-10	1.2000E-10	ICRP72	1.00000	A2 VALUE	1.29219E+03	Calculated
1619	Pb-201m	3.4049E+22	1.2338E-12	1.2280E-12	Calculated	0.02000	BETA	2.54868E+03	Calculated
1620	Pb-202	1.2357E+12	8.8000E-09	1.2000E-08	ICRP72	2.00000	A2 VALUE	1.41050E+04	Calculated
1621	Pb-202m	1.6081E+20	1.3000E-10	1.0000E-10	ICRP72	0.02000	BETA	5.02673E+02	Calculated
1622	Pb-203	1.1009E+19	2.4000E-10	2.2000E-10	ICRP72	3.00000	A2 VALUE	3.12093E+03	Calculated
1623	Pb-203m	3.2695E+23	1.3612E-13	1.4443E-13	Calculated	0.02000	BETA	1.48985E+03	Calculated
1624	Pb-203n	4.2845E+24	3.5521E-14	3.7919E-14	Calculated	0.02000	BETA	5.18616E+02	Calculated
1625	Pb-204	4.6320E-01	1.7474E-07	4.3634E-07	Calculated	0.00002	ALPHA	1.14454E+05	Calculated
1626	Pb-204m	5.0530E+20	2.1815E-10	2.3346E-10	Calculated	0.02000	BETA	4.78241E+02	Calculated
1627	Pb-205	4.2177E+09	2.8000E-10	8.5000E-10	ICRP72	0.02000	BETA	1.66143E+04	Calculated
1630	Pb-207m	2.5053E+24	3.2423E-14	3.4698E-14	Calculated	0.02000	BETA	6.12370E+02	Calculated
1632	Pb-209	1.7056E+20	5.7000E-11	6.1000E-11	ICRP72	0.02000	BETA	5.06735E+04	Calculated
1633	Pb-210	2.8248E+15	6.9000E-07	5.6000E-06	ICRP72	0.00900	A2 VALUE	3.00000E+02	TECDOC-855
1634	Pb-211	9.1340E+20	1.8000E-10	1.2000E-08	ICRP72	0.02000	BETA	8.82143E+03	Calculated
1635	Pb-212	5.1406E+19	6.0000E-09	1.9000E-07	ICRP72	0.30000	A2 VALUE	6.17207E+03	Calculated
1636	Pb-213	3.2022E+21	3.2314E-10	1.0336E-07	Calculated	0.02000	BETA	1.29871E+03	Calculated
1637	Pb-214	1.2130E+21	1.4000E-10	1.5000E-08	ICRP72	0.02000	BETA	3.62248E+03	Calculated
1638	Bi-200	9.5750E+20	5.1000E-11	3.3000E-11	ICRP72	0.02000	BETA	4.13223E+02	Calculated
1639	Bi-200m	1.1222E+21	1.4211E-11	6.5449E-12	Calculated	0.02000	BETA	6.42624E+02	Calculated
1640	Bi-201	3.2052E+20	1.2000E-10	6.6000E-11	ICRP72	0.02000	BETA	5.33789E+02	Calculated
1641	Bi-201m	5.8506E+20	2.8412E-12	9.8370E-13	Calculated	0.00002	ALPHA	7.03940E+09	Calculated
1642	Bi-202	3.4387E+20	8.9000E-11	5.5000E-11	ICRP72	0.02000	BETA	3.61781E+02	Calculated
1643	Bi-203	4.8571E+19	4.8000E-10	2.6000E-10	ICRP72	0.00002	ALPHA	4.20785E+02	Calculated
1644	Bi-203m	6.7871E+24	4.4759E-15	2.3489E-15	Calculated	0.02000	BETA	1.06383E+03	Calculated
1645	Bi-204	5.0654E+19	1.0000E-09	9.2000E-10	NRPB-M	0.02000	BETA	3.10752E+02	Calculated
1646	Bi-205	1.5393E+18	9.0000E-10	9.3000E-10	ICRP72	0.60000	A2 VALUE	5.90559E+02	Calculated
1647	Bi-206	3.7570E+18	1.9000E-09	1.7000E-09	ICRP72	0.30000	A2 VALUE	3.03827E+02	Calculated
1648	Bi-207	2.0122E+15	1.3000E-09	5.6000E-09	ICRP72	0.70000	A2 VALUE	6.44597E+02	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
1649	Bi-207m	1.1081E+28	1.3298E-18	6.2473E-19	Calculated	0.02000	BETA	5.31096E+02	Calculated
1650	Bi-208	1.7282E+11	1.4000E-09	4.0000E-09	R245	0.02000	BETA	3.76196E+02	Calculated
1651	Bi-208m	7.7792E+26	1.4821E-17	6.9530E-18	Calculated	0.02000	BETA	6.63482E+02	Calculated
1653	Bi-210	4.5896E+18	1.3000E-09	9.3000E-08	ICRP72	0.50000	A2 VALUE	2.53464E+04	Calculated
1654	Bi-210m	2.0997E+10	1.5000E-08	3.4000E-06	ICRP72	0.03000	A2 VALUE	3.76203E+03	Calculated
1655	Bi-211	1.5195E+22	6.3982E-11	3.0015E-11	Calculated	0.00002	ALPHA	2.05823E+04	Calculated
1656	Bi-212	5.4199E+20	2.6000E-10	3.1000E-08	ICRP72	0.30000	A2 VALUE	6.31231E+03	Calculated
1657	Bi-212m	1.3127E+21	6.5778E-10	3.0858E-10	Calculated	0.00002	ALPHA	1.47767E+05	Calculated
1658	Bi-212n	3.6464E+21	4.6770E-10	2.1941E-10	Calculated	0.02000	BETA	7.64811E+03	Calculated
1659	Bi-213	7.1645E+20	2.0000E-10	3.0000E-08	ICRP72	0.00002	ALPHA	5.75935E+03	Calculated
1660	Bi-214	1.6337E+21	1.1000E-10	1.4000E-08	ICRP72	0.00002	ALPHA	6.23891E+02	Calculated
1661	Bi-215	4.3727E+21	2.5213E-10	2.7548E-10	Calculated	0.02000	BETA	1.21104E+03	Calculated
1662	Po-202	7.7114E+20	1.2029E-09	2.1909E-09	Calculated	0.00002	ALPHA	1.16850E+03	Calculated
1663	Po-203	9.3475E+20	4.6000E-11	3.6000E-11	ICRP72	0.00002	ALPHA	6.08014E+02	Calculated
1664	Po-203m	2.8562E+22	1.0288E-11	1.5003E-11	Calculated	0.02000	BETA	6.15915E+02	Calculated
1665	Po-204	1.6101E+20	1.0000E-09	2.7000E-08	NRPB-M	0.00002	ALPHA	8.55432E+02	Calculated
1666	Po-205	3.4053E+20	5.8000E-11	6.9000E-11	ICRP72	0.00002	ALPHA	6.26833E+02	Calculated
1667	Po-206	2.6665E+18	1.3000E-07	1.1000E-11	R245	0.00002	ALPHA	8.30496E+02	Calculated
1668	Po-207	9.6586E+19	1.1000E-10	8.2000E-11	ICRP72	0.00002	ALPHA	7.72666E+02	Calculated
1669	Po-207m	7.2284E+23	2.5357E-13	3.8147E-13	Calculated	0.02000	BETA	8.95415E+02	Calculated
1670	Po-208	2.1706E+16	7.7000E-07	2.4000E-06	R245	0.02000	A2 VALUE	2.59740E+04	Calculated
1671	Po-209	6.2053E+14	7.7000E-07	2.4000E-06	R245	0.02000	A2 VALUE	2.59740E+04	Calculated
1672	Po-210	1.6624E+17	1.2000E-06	4.3000E-06	ICRP72	0.02000	A2 VALUE	3.00000E+03	TECDOC-855
1673	Po-211	3.8342E+24	4.8715E-12	7.5563E-12	Calculated	0.00002	ALPHA	1.28815E+05	Calculated
1674	Po-211m	7.7586E+22	2.4196E-10	3.7531E-10	Calculated	0.00002	ALPHA	6.70737E+02	Calculated
1675	Po-212	6.5636E+30	3.3427E-18	5.1849E-18	Calculated	0.00002	ALPHA	5.98323E+15	Calculated
1676	Po-212m	1.3867E+32	3.2258E-21	5.0035E-21	Calculated	0.00002	ALPHA	8.82316E+02	Calculated
1677	Po-212n	4.3660E+22	6.6154E-10	1.0261E-09	Calculated	0.00002	ALPHA	1.09565E+04	Calculated
1678	Po-213	4.6662E+29	4.4668E-17	6.9285E-17	Calculated	0.00002	ALPHA	4.25293E+07	Calculated
1679	Po-214	1.1822E+28	1.6089E-15	2.4997E-15	Calculated	0.00002	ALPHA	1.19807E+07	Calculated
1680	Po-215	1.0907E+27	1.7044E-14	6.1917E-14	Calculated	0.00002	ALPHA	4.56973E+06	Calculated
1681	Po-216	1.3328E+25	1.3035E-12	4.5629E-12	Calculated	0.00002	ALPHA	6.90217E+07	Calculated
1682	Po-217	1.9236E+23	9.6514E-11	6.3046E-09	Calculated	0.00002	ALPHA	2.07225E+08	Calculated
1683	Po-218	1.0463E+22	1.4328E-09	8.4248E-09	Calculated	0.00002	ALPHA	1.39586E+07	Calculated
1684	Po-219	2.0784E+23	1.6242E-10	4.3471E-10	Calculated	0.02000	BETA	1.44300E+03	Calculated
1685	At-205	1.2970E+21	1.8623E-10	1.8679E-09	Calculated	0.00002	ALPHA	9.11577E+02	Calculated
1686	At-206	1.1514E+21	9.9360E-11	5.7951E-10	Calculated	0.00002	ALPHA	4.00038E+02	Calculated
1687	At-207	3.1121E+20	2.4000E-10	2.3000E-09	ICRP72	0.00002	ALPHA	4.99725E+02	Calculated
1688	At-208	3.4190E+20	2.0045E-10	2.0889E-09	Calculated	0.00002	ALPHA	3.28694E+02	Calculated
1689	At-209	1.0253E+20	1.1849E-09	1.1860E-08	Calculated	0.00002	ALPHA	4.35996E+02	Calculated
1690	At-210	6.8077E+19	5.9715E-09	6.4654E-08	Calculated	0.00002	ALPHA	3.35917E+02	Calculated
1691	At-211	7.6181E+19	1.1000E-08	1.1000E-07	ICRP72	2.00000	A2 VALUE	2.53820E+04	Calculated
1692	At-212	6.2510E+24	4.2720E-13	4.2678E-12	Calculated	0.00002	ALPHA	4.68161E+10	Calculated
1693	At-212m	1.6547E+25	1.6526E-13	1.6510E-12	Calculated	0.00002	ALPHA	8.27417E+04	Calculated
1694	At-213	1.7816E+31	1.7626E-19	1.7608E-18	Calculated	0.00002	ALPHA	1.13471E+17	Calculated
1695	At-214	3.4957E+30	8.7161E-19	1.4713E-17	Calculated	0.00002	ALPHA	2.29459E+16	Calculated
1696	At-215	1.9415E+28	2.5803E-16	2.5777E-15	Calculated	0.00002	ALPHA	5.34847E+06	Calculated
1697	At-216	6.4416E+27	4.6332E-16	1.3327E-13	Calculated	0.00002	ALPHA	1.50073E+13	Calculated
1698	At-217	5.9553E+25	4.5869E-14	1.8272E-11	Calculated	0.00002	ALPHA	3.24467E+06	Calculated
1699	At-218	1.1967E+24	2.2410E-12	9.6444E-10	Calculated	0.00002	ALPHA	8.23369E+04	Calculated
1700	At-219	3.5295E+22	1.3249E-10	2.2882E-09	Calculated	0.00002	ALPHA	5.44567E+05	Calculated
1701	At-220	8.4774E+21	5.3220E-10	8.8314E-09	Calculated	0.02000	BETA	8.63334E+02	Calculated
1702	At-221	1.3686E+22	3.4824E-10	7.9590E-08	Calculated	0.02000	BETA	1.42714E+03	Calculated
1703	At-222	3.4817E+22	8.1061E-11	2.7621E-09	Calculated	0.02000	BETA	7.03087E+02	Calculated
1704	Rn-208	1.3737E+21	3.0309E-09	4.8932E-09	Calculated	0.00002	ALPHA	1.85082E+03	Calculated
1705	Rn-209	1.1680E+21	1.2348E-09	1.7136E-09	Calculated	0.00002	ALPHA	9.22211E+02	Calculated
1706	Rn-210	2.3114E+20	2.7000E-08	3.6661E-08	Calculated	0.00002	ALPHA	1.61760E+04	Calculated
1707	Rn-211	3.7612E+19	9.4234E-08	1.3084E-07	Calculated	0.00002	ALPHA	5.22000E+02	Calculated
1708	Rn-212	1.3674E+21	4.8291E-09	6.7075E-09	Calculated	0.00002	ALPHA	4.14154E+06	Calculated
1709	Rn-213	7.8392E+25	1.0810E-13	1.4999E-13	Calculated	0.00002	ALPHA	1.85012E+11	Calculated
1710	Rn-214	7.2245E+30	1.3166E-18	1.8476E-18	Calculated	0.00002	ALPHA	1.51905E+16	Calculated
1711	Rn-215	8.4413E+29	1.9830E-17	2.7514E-17	Calculated	0.00002	ALPHA	1.00857E+15	Calculated
1712	Rn-216	4.2945E+28	4.0522E-16	5.6224E-16	Calculated	0.00002	ALPHA	4.93562E+13	Calculated
1713	Rn-217	3.5622E+27	4.6573E-15	6.4621E-15	Calculated	0.00002	ALPHA	6.18213E+06	Calculated
1714	Rn-218	5.4707E+25	2.7744E-13	3.8528E-13	Calculated	0.00002	ALPHA	1.29751E+06	Calculated
1715	Rn-219	4.8130E+23	3.0312E-11	7.1841E-11	Calculated	0.00002	ALPHA	1.78713E+04	Calculated
1716	Rn-220	3.4124E+22	3.9775E-10	9.1952E-10	Calculated	0.00002	ALPHA	1.44368E+06	Calculated
1717	Rn-221	1.2591E+21	1.1425E-08	3.6418E-07	Calculated	0.00002	ALPHA	7.93821E+03	Calculated
1718	Rn-222	5.6891E+18	1.4815E-06	7.0863E-06	Calculated	0.00400	A2 VALUE	1.35000E+04	Calculated
1719	Rn-223	1.2890E+21	5.3340E-11	5.3552E-11	Calculated	0.02000	BETA	2.54690E+03	Calculated
1720	Rn-224	2.9023E+20	3.1163E-10	4.3673E-10	Calculated	0.02000	BETA	3.86663E+03	Calculated
1721	Rn-225	6.8703E+21	2.0680E-11	2.8871E-11	Calculated	0.02000	BETA	1.14064E+03	Calculated
1722	Fr-218	1.9147E+27	1.4009E-12	5.4690E-12	Calculated	0.00002	ALPHA	1.42763E+10	Calculated
1723	Fr-219	9.0760E+25	3.8704E-11	1.1057E-10	Calculated	0.00002	ALPHA	5.16744E+08	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
1724	Fr-220	6.9244E+22	3.5436E-08	1.7027E-06	Calculated	0.00002	ALPHA	1.07508E+05	Calculated
1725	Fr-221	6.4240E+21	3.5610E-07	2.3119E-05	Calculated	0.00002	ALPHA	3.25688E+04	Calculated
1726	Fr-222	2.1761E+21	7.2000E-10	1.4000E-08	ICRP72	0.02000	BETA	1.34186E+03	Calculated
1727	Fr-223	1.4310E+21	2.4000E-09	8.9000E-10	ICRP72	0.00002	ALPHA	1.03204E+04	Calculated
1728	Fr-224	9.4106E+21	1.1651E-09	3.3716E-09	Calculated	0.02000	BETA	1.59490E+03	Calculated
1729	Fr-225	7.9273E+21	1.2788E-09	3.7031E-09	Calculated	0.02000	BETA	1.49070E+03	Calculated
1730	Fr-226	3.8474E+22	3.2388E-10	9.2523E-10	Calculated	0.02000	BETA	1.74520E+03	Calculated
1731	Fr-227	1.2406E+22	9.8994E-10	2.8183E-09	Calculated	0.02000	BETA	1.12790E+03	Calculated
1732	Fr-228	4.6936E+22	3.3876E-10	9.6762E-10	Calculated	0.02000	BETA	9.27644E+02	Calculated
1733	Ra-220	8.2490E+25	5.5273E-11	2.0160E-09	Calculated	0.00002	ALPHA	2.15054E+05	Calculated
1734	Ra-221	6.7453E+22	6.2522E-08	2.2804E-06	Calculated	0.00002	ALPHA	2.32981E+04	Calculated
1735	Ra-222	4.9478E+22	8.0329E-08	2.9316E-06	Calculated	0.00002	ALPHA	1.06300E+05	Calculated
1736	Ra-223	1.8953E+18	1.0000E-07	8.7000E-06	ICRP72	0.03000	A2 VALUE	7.05377E+03	Calculated
1737	Ra-224	5.9575E+18	6.5000E-08	3.4000E-06	ICRP72	0.06000	A2 VALUE	9.72670E+04	Calculated
1738	Ra-225	1.4507E+18	9.9000E-08	7.7000E-06	ICRP72	0.02000	A2 VALUE	4.06388E+04	Calculated
1739	Ra-226	3.6576E+13	2.8000E-07	9.5000E-06	ICRP72	0.02000	A2 VALUE	3.00000E+02	TECDOC-855
1740	Ra-227	7.2616E+20	8.1000E-11	4.6000E-10	ICRP72	0.02000	BETA	4.90761E+03	Calculated
1741	Ra-228	1.0088E+16	6.9000E-07	1.6000E-05	ICRP72	0.04000	A2 VALUE	3.00000E+02	TECDOC-855
1742	Ra-229	7.5938E+21	2.3354E-09	8.5330E-08	Calculated	0.02000	BETA	1.54960E+03	Calculated
1743	Ra-230	3.2520E+20	5.5224E-08	2.0143E-06	Calculated	0.02000	BETA	3.03033E+03	Calculated
1744	Ra-231	1.7541E+22	1.7083E-09	6.2294E-08	Calculated	0.02000	BETA	1.04134E+03	Calculated
1745	Ac-222	4.4765E+23	4.3126E-10	5.8975E-08	Calculated	0.00002	ALPHA	3.39124E+07	Calculated
1746	Ac-222m	2.8487E+22	6.6555E-09	8.9079E-07	Calculated	0.00002	ALPHA	2.24519E+06	Calculated
1747	Ac-223	1.4179E+22	1.6221E-08	1.7633E-06	Calculated	0.00002	ALPHA	2.53344E+05	Calculated
1748	Ac-224	1.7848E+20	7.0000E-10	1.3000E-07	ICRP72	0.00002	ALPHA	3.64371E+03	Calculated
1749	Ac-225	2.1470E+18	2.4000E-08	8.5000E-06	ICRP72	0.02000	A2 VALUE	5.02244E+04	Calculated
1750	Ac-226	1.7690E+19	1.0000E-08	1.3000E-06	ICRP72	0.00002	ALPHA	4.07103E+03	Calculated
1751	Ac-227	2.6759E+15	1.1000E-06	5.5000E-04	ICRP72	0.00002	A2 VALUE	3.63636E+03	Calculated
1752	Ac-228	8.2681E+19	4.3000E-10	2.5000E-08	ICRP72	0.40000	A2 VALUE	9.92787E+02	Calculated
1753	Ac-229	4.8446E+20	6.6526E-10	7.2623E-08	Calculated	0.02000	BETA	2.08879E+03	Calculated
1754	Ac-230	1.4874E+22	3.7355E-11	4.0610E-09	Calculated	0.02000	BETA	1.59236E+03	Calculated
1755	Ac-231	4.0149E+21	1.5995E-10	1.7380E-08	Calculated	0.02000	BETA	8.75485E+02	Calculated
1756	Ac-232	5.1397E+22	1.8382E-11	1.9982E-09	Calculated	0.02000	BETA	7.37109E+02	Calculated
1757	Ac-233	1.2353E+22	3.0403E-11	3.2044E-09	Calculated	0.02000	BETA	1.99820E+03	Calculated
1758	Ac-234	4.0534E+22	2.6905E-11	2.9317E-09	Calculated	0.02000	BETA	6.34397E+02	Calculated
1759	Th-224	1.7916E+24	1.8960E-10	1.9465E-10	Calculated	0.00002	ALPHA	2.91001E+04	Calculated
1760	Th-225	3.8646E+21	7.2953E-08	7.4903E-08	Calculated	0.00002	ALPHA	7.85238E+03	Calculated
1761	Th-226	9.9612E+20	3.5000E-10	6.1000E-08	ICRP72	0.00002	ALPHA	3.57095E+04	Calculated
1762	Th-227	1.1369E+18	8.8000E-09	1.0000E-05	ICRP72	0.01000	A2 VALUE	8.69561E+03	Calculated
1763	Th-228	3.0323E+16	7.2000E-08	4.0000E-05	ICRP72	0.00040	A2 VALUE	3.00000E+02	TECDOC-855
1764	Th-229	7.8683E+12	4.9000E-07	2.4000E-04	ICRP72	0.00003	A2 VALUE	8.33333E+03	Calculated
1765	Th-230	7.6262E+11	2.1000E-07	1.0000E-04	ICRP72	0.00020	A2 VALUE	3.00000E+02	TECDOC-855
1766	Th-231	1.9666E+19	3.4000E-10	3.3000E-10	ICRP72	0.90000	A2 VALUE	2.36354E+04	Calculated
1767	Th-232	4.0573E+06	2.3000E-07	1.1000E-04	ICRP72	0.00002	ALPHA	3.00000E+02	TECDOC-855
1768	Th-233	1.3387E+21	1.8299E-10	1.7617E-10	Calculated	0.02000	BETA	1.27044E+04	Calculated
1769	Th-234	8.5690E+17	3.4000E-09	7.7000E-09	ICRP72	0.20000	A2 VALUE	6.73087E+04	Calculated
1770	Th-235	4.2896E+21	2.0682E-10	2.1233E-10	Calculated	0.02000	BETA	1.42045E+03	Calculated
1771	Pa-226	1.7100E+22	8.1769E-10	2.1626E-07	Calculated	0.00002	ALPHA	9.24811E+06	Calculated
1772	Pa-227	8.0010E+20	4.5000E-10	8.0000E-08	ICRP72	0.00002	ALPHA	6.89705E+04	Calculated
1773	Pa-228	2.3113E+19	7.8000E-10	7.5000E-08	ICRP72	0.00002	ALPHA	8.46410E+02	Calculated
1774	Pa-229	1.5067E+19	1.3682E-09	3.7878E-07	Calculated	0.00002	ALPHA	1.09057E+03	Calculated
1775	Pa-230	1.2070E+18	9.2000E-10	7.6000E-07	ICRP72	0.10000	A2 VALUE	1.41683E+03	Calculated
1776	Pa-231	1.7476E+12	7.1000E-07	1.4000E-04	ICRP72	0.00006	A2 VALUE	1.42857E+04	Calculated
1777	Pa-232	1.5894E+19	7.2000E-10	1.0000E-08	ICRP72	0.02000	BETA	1.04907E+03	Calculated
1778	Pa-233	7.6784E+17	8.7000E-10	3.9000E-09	ICRP72	0.90000	A2 VALUE	4.24761E+03	Calculated
1779	Pa-234	7.3071E+19	5.1000E-10	4.0000E-10	ICRP72	0.02000	BETA	6.78812E+02	Calculated
1780	Pa-234m	2.5406E+22	7.1887E-13	1.5787E-10	Calculated	0.02000	BETA	9.86298E+03	Calculated
1781	Pa-235	1.2231E+21	8.4038E-12	1.8512E-09	Calculated	0.02000	BETA	1.77677E+04	Calculated
1782	Pa-236	3.2388E+21	8.1914E-12	1.8044E-09	Calculated	0.02000	BETA	1.79368E+03	Calculated
1783	Pa-237	3.3734E+21	7.5136E-12	1.6552E-09	Calculated	0.02000	BETA	1.50150E+03	Calculated
1784	Pa-238	1.2706E+22	4.4618E-12	9.8285E-10	Calculated	0.02000	BETA	4.86539E+02	Calculated
1785	U-228	3.3527E+21	5.8069E-08	1.4418E-07	Calculated	0.00002	ALPHA	1.15359E+05	Calculated
1786	U-229	5.2372E+20	6.6923E-08	1.6641E-07	Calculated	0.00002	ALPHA	2.98850E+05	Calculated
1787	U-230	1.0097E+18	5.6000E-08	1.6000E-05	ICRP72	0.01000	A2 VALUE	1.25000E+05	Calculated
1788	U-231	4.9789E+18	2.8000E-10	4.0000E-10	ICRP72	0.00002	ALPHA	9.90907E+03	Calculated
1789	U-232	8.1669E+14	3.3000E-07	3.7000E-05	ICRP72	0.00030	A2 VALUE	3.00000E+02	TECDOC-855
1790	U-233	3.5642E+11	5.1000E-08	9.6000E-06	ICRP72	0.00100	A2 VALUE	2.08333E+05	Calculated
1791	U-234	2.3003E+11	4.9000E-08	9.4000E-06	ICRP72	0.00100	A2 VALUE	3.00000E+02	TECDOC-855
1792	U-235	7.9960E+07	4.7000E-08	8.5000E-06	ICRP72	0.00002	ALPHA	3.00000E+02	TECDOC-855
1793	U-235m	1.1384E+21	1.7106E-14	4.2473E-14	Calculated	0.02000	BETA	1.31579E+08	Calculated
1794	U-236	2.3931E+09	4.7000E-08	8.7000E-06	ICRP72	0.00100	A2 VALUE	2.29885E+05	Calculated
1795	U-237	3.0194E+18	7.6000E-10	1.9000E-09	ICRP72	0.02000	BETA	6.12189E+03	Calculated
1796	U-238	1.2436E+07	4.5000E-08	8.0000E-06	ICRP72	0.00002	ALPHA	3.00000E+02	TECDOC-855
1797	U-239	1.2400E+21	2.7000E-11	2.4000E-11	ICRP72	0.02000	BETA	1.08036E+04	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
1798	U-240	3.4256E+19	1.1000E-09	5.8000E-10	ICRP72	0.02000	BETA	4.20149E+04	Calculated
1799	U-241	6.4134E+21	7.7110E-11	1.9634E-10	Calculated	0.02000	BETA	1.20729E+03	Calculated
1800	U-242	1.7074E+21	2.6828E-10	6.6613E-10	Calculated	0.02000	BETA	2.48139E+04	Calculated
1801	U-243	1.0733E+22	8.0435E-11	1.9925E-10	Calculated	0.02000	BETA	9.18274E+02	Calculated
1802	U-244	1.0893E+22	8.5172E-11	2.1147E-10	Calculated	0.02000	BETA	1.53304E+03	Calculated
1803	U-245	1.4941E+23	7.3115E-12	1.7699E-11	Calculated	0.02000	BETA	7.45156E+02	Calculated
1804	Np-230	6.5746E+21	1.1827E-10	1.1084E-08	Calculated	0.00002	ALPHA	1.69103E+08	Calculated
1805	Np-231	6.1705E+20	2.0723E-10	8.6484E-09	Calculated	0.00002	ALPHA	8.20644E+02	Calculated
1806	Np-232	2.0396E+21	9.7000E-12	1.2000E-10	ICRP72	0.02000	BETA	8.11399E+02	Calculated
1807	Np-233	8.2468E+20	2.2000E-12	1.7000E-12	ICRP72	0.00002	ALPHA	7.90140E+03	Calculated
1808	Np-234	4.6935E+18	8.1000E-10	5.5000E-10	ICRP72	0.02000	BETA	9.08001E+02	Calculated
1809	Np-235	5.1893E+16	5.3000E-11	6.3000E-10	ICRP72	40.00000	A2 VALUE	1.34884E+05	Calculated
1810	Np-236	3.6866E+11	1.7000E-08	8.0000E-06	ICRP72	0.00100	A2 VALUE	5.65126E+03	Calculated
1811	Np-236m	2.1832E+19	1.9000E-10	9.0000E-09	ICRP72	0.02000	BETA	1.71601E+04	Calculated
1812	Np-237	2.6075E+10	1.1000E-07	5.0000E-05	ICRP72	0.00020	A2 VALUE	3.00000E+02	TECDOC-855
1813	Np-238	9.5867E+18	9.1000E-10	3.5000E-09	ICRP72	0.02000	BETA	1.49798E+03	Calculated
1814	Np-239	8.5818E+18	8.0000E-10	1.0000E-09	ICRP72	0.50000	A2 VALUE	4.79678E+03	Calculated
1815	Np-240	4.4586E+20	8.2000E-11	9.0000E-11	ICRP72	0.02000	BETA	7.73124E+02	Calculated
1816	Np-240m	3.9163E+21	8.4907E-12	3.6208E-10	Calculated	0.02000	BETA	2.46853E+03	Calculated
1817	Np-241	2.0763E+21	7.3944E-12	3.4742E-10	Calculated	0.02000	BETA	1.25303E+04	Calculated
1818	Np-242	5.2256E+21	1.1112E-11	4.7177E-10	Calculated	0.02000	BETA	1.01122E+03	Calculated
1819	Np-242m	1.3064E+22	2.8330E-12	1.2028E-10	Calculated	0.02000	BETA	2.92912E+03	Calculated
1820	Np-243	1.5471E+22	3.1272E-12	1.3205E-10	Calculated	0.02000	BETA	1.25565E+03	Calculated
1821	Np-244	1.2447E+22	6.6234E-12	2.8119E-10	Calculated	0.02000	BETA	7.06364E+02	Calculated
1822	Np-245	4.4356E+22	1.4420E-12	5.7820E-11	Calculated	0.02000	BETA	1.02145E+03	Calculated
1823	Np-246	1.0602E+23	9.1919E-13	3.9580E-11	Calculated	0.02000	BETA	6.00853E+02	Calculated
1824	Pu-232	8.7924E+20	3.0875E-08	3.6412E-08	Calculated	0.00002	ALPHA	2.17264E+03	Calculated
1825	Pu-233	1.4284E+21	3.8988E-10	4.5405E-10	Calculated	0.00002	ALPHA	3.02252E+02	Calculated
1826	Pu-234	5.6298E+19	1.6000E-10	2.4000E-08	ICRP72	0.00002	ALPHA	8.33333E+07	Calculated
1827	Pu-235	1.1699E+21	2.1000E-12	1.5000E-12	ICRP72	0.00002	ALPHA	9.93904E+03	Calculated
1828	Pu-236	1.9323E+16	8.7000E-08	4.0000E-05	ICRP72	0.00070	A2 VALUE	5.00000E+04	Calculated
1829	Pu-237	4.4991E+17	1.0000E-10	3.9000E-10	ICRP72	20.00000	A2 VALUE	1.75729E+04	Calculated
1830	Pu-237m	9.7829E+24	2.1449E-15	2.5469E-15	Calculated	0.02000	BETA	4.40529E+04	Calculated
1831	Pu-238	6.3358E+14	2.3000E-07	1.1000E-04	ICRP72	0.00020	A2 VALUE	1.81818E+04	Calculated
1832	Pu-239	2.2947E+12	2.5000E-07	1.2000E-04	ICRP72	0.00020	A2 VALUE	3.00000E+02	TECDOC-855
1833	Pu-240	8.3957E+12	2.5000E-07	1.2000E-04	ICRP72	0.00020	A2 VALUE	3.00000E+02	TECDOC-855
1834	Pu-241	3.8106E+15	4.8000E-09	2.3000E-06	ICRP72	0.01000	A2 VALUE	3.00000E+04	TECDOC-855
1835	Pu-242	1.4631E+11	2.4000E-07	1.1000E-04	ICRP72	0.00020	A2 VALUE	1.81818E+04	Calculated
1836	Pu-243	9.6255E+19	8.5000E-11	8.6000E-11	ICRP72	0.02000	BETA	2.35582E+04	Calculated
1837	Pu-244	6.7745E+08	2.4000E-07	1.1000E-04	ICRP72	0.00020	A2 VALUE	1.81818E+04	Calculated
1838	Pu-245	4.5061E+19	7.2000E-10	4.3000E-10	ICRP72	0.02000	BETA	2.31630E+03	Calculated
1839	Pu-246	1.8096E+18	3.3000E-09	8.0000E-09	ICRP72	0.02000	BETA	7.39251E+03	Calculated
1840	Pu-247	8.6141E+18	2.3262E-08	4.0413E-08	Calculated	0.02000	BETA	1.15075E+03	Calculated
1841	Am-237	4.0203E+20	1.8000E-11	2.6000E-11	ICRP72	0.00002	ALPHA	2.42994E+03	Calculated
1842	Am-238	2.9821E+20	3.2000E-11	1.9000E-10	ICRP72	0.00002	ALPHA	1.10699E+03	Calculated
1843	Am-239	4.0760E+19	2.4000E-10	2.4000E-10	ICRP72	0.00002	ALPHA	3.56631E+03	Calculated
1844	Am-240	9.5082E+18	5.8000E-10	4.3000E-10	ICRP72	0.00002	ALPHA	9.61941E+02	Calculated
1845	Am-241	1.2681E+14	2.0000E-07	9.6000E-05	ICRP72	0.00020	A2 VALUE	3.00000E+02	TECDOC-855
1846	Am-242	2.9901E+19	3.0000E-10	2.0000E-08	ICRP72	0.02000	BETA	2.82506E+04	Calculated
1847	Am-242m	3.8755E+14	1.9000E-07	9.2000E-05	ICRP72	0.00020	A2 VALUE	2.17391E+04	Calculated
1848	Am-243	7.3892E+12	2.0000E-07	9.6000E-05	ICRP72	0.00020	A2 VALUE	1.68468E+04	Calculated
1849	Am-244	4.7038E+19	4.6000E-10	3.7000E-09	ICRP72	0.02000	BETA	1.14389E+03	Calculated
1850	Am-244m	1.0963E+21	2.9000E-11	1.6000E-10	ICRP72	0.02000	BETA	1.59163E+04	Calculated
1851	Am-245	2.3080E+20	6.2000E-11	5.6000E-11	ICRP72	0.02000	BETA	1.77881E+04	Calculated
1852	Am-246	7.2494E+20	5.8000E-11	6.9000E-11	ICRP72	0.02000	BETA	1.18101E+03	Calculated
1853	Am-246m	1.1309E+21	3.4000E-11	2.3000E-11	ICRP72	0.02000	BETA	9.39347E+02	Calculated
1854	Am-247	1.2799E+21	3.6016E-11	1.7533E-09	Calculated	0.02000	BETA	4.23625E+03	Calculated
1855	Am-248	3.9314E+21	3.2884E-11	1.6010E-09	Calculated	0.02000	BETA	8.52006E+02	Calculated
1856	Am-249	1.1687E+21	1.0722E-10	4.6837E-09	Calculated	0.02000	BETA	1.02529E+03	Calculated
1857	Am-250	5.4547E+21	3.0561E-11	1.5261E-09	Calculated	0.02000	BETA	6.55594E+02	Calculated
1858	Cm-238	2.0295E+20	8.0000E-11	4.9000E-09	ICRP72	0.00002	ALPHA	2.50000E+08	Calculated
1859	Cm-239	1.6168E+20	4.3523E-10	1.6988E-09	Calculated	0.02000	BETA	8.16163E+02	Calculated
1860	Cm-240	7.4540E+17	7.6000E-09	3.5000E-06	ICRP72	0.02000	A2 VALUE	5.71429E+05	Calculated
1861	Cm-241	6.1104E+17	9.1000E-10	3.7000E-08	ICRP72	0.90000	A2 VALUE	1.95755E+03	Calculated
1862	Cm-242	1.2249E+17	1.2000E-08	5.9000E-06	ICRP72	0.01000	A2 VALUE	3.38983E+05	Calculated
1863	Cm-243	1.8140E+15	1.5000E-07	6.9000E-05	ICRP72	0.00030	A2 VALUE	6.79861E+03	Calculated
1864	Cm-244	2.9943E+15	1.2000E-07	5.7000E-05	ICRP72	0.00040	A2 VALUE	3.00000E+02	TECDOC-855
1865	Cm-245	6.3500E+12	2.1000E-07	9.9000E-05	ICRP72	0.00020	A2 VALUE	9.81069E+03	Calculated
1866	Cm-246	1.1365E+13	2.1000E-07	9.8000E-05	ICRP72	0.00020	A2 VALUE	2.04082E+04	Calculated
1867	Cm-247	3.3460E+09	1.9000E-07	9.0000E-05	ICRP72	0.00020	A2 VALUE	3.27830E+03	Calculated
1868	Cm-248	1.5682E+11	7.7000E-07	3.6000E-04	ICRP72	0.00005	A2 VALUE	1.72485E+03	Calculated
1869	Cm-249	4.3541E+20	3.1000E-11	4.0000E-11	ICRP72	0.02000	BETA	2.08130E+04	Calculated
1870	Cm-250	6.6116E+12	4.4000E-06	2.1000E-03	ICRP72	0.00002	ALPHA	2.04082E+02	Calculated
1871	Cm-251	1.6493E+21	3.4957E-11	1.5163E-10	Calculated	0.02000	BETA	6.45578E+03	Calculated

ID	Nuclide	Act. (Bq/kg)	e^{ing} (Sv/Bq)	e^{inh} (Sv/Bq)	Haz. source	A_2 (TBq)	A_2 source	C (Bq/kg)	Clear source
1872	Bk-243	1.0601E+20	9.6953E-10	1.8132E-07	Calculated	0.00002	ALPHA	5.65911E+03	Calculated
1873	Bk-244	1.0921E+20	4.1359E-08	3.0857E-06	Calculated	0.00002	ALPHA	4.46309E+02	Calculated
1874	Bk-245	3.9907E+18	5.7000E-10	2.1000E-09	ICRP72	0.00002	ALPHA	3.19453E+03	Calculated
1875	Bk-246	1.0908E+19	4.8000E-10	3.3000E-10	ICRP72	0.02000	BETA	1.04456E+03	Calculated
1876	Bk-247	3.8821E+13	3.5000E-07	6.9000E-05	ICRP72	0.00020	A2 VALUE	8.69709E+03	Calculated
1877	Bk-248	5.9245E+15	3.2650E-06	5.3929E-04	Calculated	0.00002	ALPHA	3.70855E+03	Calculated
1878	Bk-248m	1.9722E+19	3.2775E-09	2.5362E-07	Calculated	0.02000	BETA	1.18871E+04	Calculated
1879	Bk-249	6.0615E+16	9.7000E-10	1.6000E-07	ICRP72	0.08000	A2 VALUE	2.99822E+05	Calculated
1880	Bk-250	1.4413E+20	1.4000E-10	1.0000E-09	ICRP72	0.02000	BETA	1.06938E+03	Calculated
1881	Bk-251	4.9835E+20	3.8973E-10	2.7656E-08	Calculated	0.02000	BETA	2.43509E+03	Calculated
1882	Bk-252	7.8181E+20	6.8413E-10	4.7896E-08	Calculated	0.02000	BETA	9.06071E+02	Calculated
1883	Bk-253	2.8456E+19	1.3701E-09	1.3948E-07	Calculated	0.02000	BETA	1.68350E+04	Calculated
1884	Bk-254	1.4564E+21	1.1454E-09	4.0960E-08	Calculated	0.02000	BETA	8.04505E+02	Calculated
1885	Cf-244	1.4693E+21	7.0000E-11	1.4000E-08	ICRP72	0.00002	ALPHA	1.42857E+08	Calculated
1886	Cf-245	6.5111E+20	2.4032E-09	1.0317E-06	Calculated	0.00002	ALPHA	1.93855E+06	Calculated
1887	Cf-246	1.3199E+19	3.3000E-09	4.5000E-07	ICRP72	0.00002	ALPHA	3.16610E+05	Calculated
1888	Cf-247	1.5085E+20	1.4051E-09	6.0292E-07	Calculated	0.00002	ALPHA	3.20513E+02	Calculated
1889	Cf-248	5.8398E+16	2.8000E-08	8.8000E-06	ICRP72	0.00300	A2 VALUE	2.27273E+05	Calculated
1890	Cf-249	1.5130E+14	3.5000E-07	7.0000E-05	ICRP72	0.00020	A2 VALUE	3.01043E+03	Calculated
1891	Cf-250	4.0438E+15	1.6000E-07	3.4000E-05	ICRP72	0.00050	A2 VALUE	5.88235E+04	Calculated
1892	Cf-251	5.8666E+13	3.6000E-07	7.1000E-05	ICRP72	0.00020	A2 VALUE	7.22392E+03	Calculated
1893	Cf-252	1.9838E+16	9.0000E-08	2.0000E-05	ICRP72	0.00100	A2 VALUE	4.58754E+03	Calculated
1894	Cf-253	1.0718E+18	1.4000E-09	1.3000E-06	ICRP72	0.06000	A2 VALUE	1.23009E+05	Calculated
1895	Cf-254	3.1428E+17	4.0000E-07	4.1000E-05	ICRP72	0.00060	A2 VALUE	4.87805E+04	Calculated
1896	Cf-255	3.2086E+20	3.6430E-10	2.0768E-07	Calculated	0.02000	BETA	3.40468E+03	Calculated
1897	Es-249	2.7330E+20	2.4605E-10	2.0860E-08	Calculated	0.00002	ALPHA	3.28149E+03	Calculated
1898	Es-250	5.3914E+19	1.6825E-09	1.4216E-07	Calculated	0.02000	BETA	8.03361E+02	Calculated
1899	Es-250m	2.0885E+20	2.1000E-11	6.3000E-10	ICRP72	0.02000	BETA	6.82776E+03	Calculated
1900	Es-251	1.3994E+19	1.7000E-10	2.1000E-09	ICRP72	0.00002	ALPHA	1.17647E+08	Calculated
1901	Es-252	4.0631E+16	6.7777E-07	1.3389E-04	Calculated	0.00002	ALPHA	1.44424E+03	Calculated
1902	Es-253	9.3256E+17	6.1000E-09	2.7000E-06	ICRP72	0.00002	ALPHA	6.52926E+05	Calculated
1903	Es-254	6.9018E+16	2.8000E-08	8.6000E-06	ICRP72	0.00002	ALPHA	5.90573E+02	Calculated
1904	Es-254m	1.1610E+19	4.2000E-09	4.7000E-07	ICRP72	0.00002	ALPHA	2.02840E+03	Calculated
1905	Es-255	4.7587E+17	4.3216E-07	5.0614E-05	Calculated	0.00002	ALPHA	3.95150E+04	Calculated
1906	Es-256	1.2348E+21	1.7017E-07	1.4439E-05	Calculated	0.02000	BETA	1.59684E+03	Calculated
1907	Es-256m	5.9575E+19	3.5213E-06	2.9922E-04	Calculated	0.02000	BETA	5.67964E+03	Calculated
1908	Es-257	8.1180E+23	2.6315E-13	4.6463E-11	Calculated	0.02000	BETA	2.99700E+03	Calculated
1909	Fm-250	9.2731E+20	1.4364E-10	2.9352E-08	Calculated	0.00002	ALPHA	6.81383E+07	Calculated
1910	Fm-251	8.7042E+19	3.1086E-11	6.3191E-09	Calculated	0.00002	ALPHA	6.04705E+03	Calculated
1911	Fm-252	1.8116E+19	2.7000E-09	3.2000E-07	ICRP72	0.00002	ALPHA	6.25000E+06	Calculated
1912	Fm-253	6.3632E+18	9.1000E-10	4.0000E-07	ICRP72	0.00002	ALPHA	1.07052E+04	Calculated
1913	Fm-254	1.4085E+20	4.4000E-10	6.1000E-08	ICRP72	0.00002	ALPHA	3.30424E+05	Calculated
1914	Fm-255	2.2682E+19	2.5000E-09	2.7000E-07	ICRP72	0.00002	ALPHA	3.32351E+04	Calculated
1915	Fm-256	1.7237E+20	1.9267E-08	3.9623E-06	Calculated	0.00002	ALPHA	5.04753E+05	Calculated
1916	Fm-257	1.8698E+17	1.5000E-08	7.1000E-06	ICRP72	0.00002	ALPHA	6.68662E+03	Calculated
1917	Fm-258	4.3711E+27	1.9797E-08	4.0714E-06	Calculated	0.02000	BETA	4.91235E+05	Calculated

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Disclaimer

Neither the authors nor UKAEA accept responsibility for consequences arising from any errors either in the present documentation, or in the EASY-2001 system.

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Feedback on the use of EAF is welcomed. Please contact RA Forrest with comments or in case of problems.

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