

**The European
Activation
File: EAF-2007
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-2007, 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 2,004 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 the clearance index it may be possible to dispose of (or clear from regulatory control) the material with no special precautions.

Neutron-induced or charged particle-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-2007), the legal transport data (EAF_A2-2007) and the clearance values (EAF_CLEAR-2007) in the current release of EAF: EAF-2007.

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:

$$H^{ing} = \sum_i A_i e_i^{ing} \quad (1a)$$

$$H^{inh} = \sum_i A_i e_i^{inh} \quad (1b)$$

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 or charged particles 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 IAEA guidelines [6], is calculated from the clearance level value for each radioactive nuclide, and the radioactive inventory. EAF_CLEAR-2007 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 [7,16]. The National Radiological Protection Board (NRPB) also publishes data [8] for a range of nuclides using a similar computational method [9]. A few fusion specific nuclides not covered in existing ICRP or NRPB reports have been specially calculated with the NRPB methodology by Kendall [10]. Recently a further study of nuclides important for fusion applications was funded; data for these nuclides are available in a report [11]. 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 12 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:

$$e_i^{ing} = C^{ing} N_i^{ing} E_i \quad (2)$$

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:

$$E = 20E_\alpha + E_\beta + E_\gamma \quad (3)$$

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:

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

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

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_j^{ing} and C_j^{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:

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

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:

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

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 12, 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 [12].

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:

$$e_i^{ing} = K_j^{ing} E_i \quad (7)$$

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 SAFEP AQ-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-2007 library. The various data sources used in the library are listed in Table 1.

Table 1. References of data sources for EAF_HAZ-2007.

Data source	Reference
ICRP72	16
R245	8
KENDALL	10
NRPB-M	11
Calculated	Current approximate methodology

Transport data

Calculational method for transport data

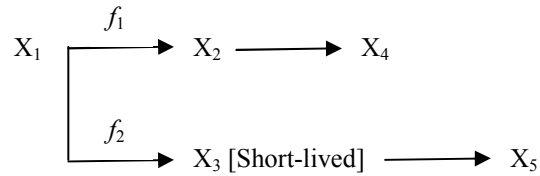
The IAEA regulations [5] give generic values of the A_2 coefficients that should be used for radionuclides not given individually. These values are shown in Table 2.

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	$9.0 \cdot 10^{-5}$

The SAFEPAQ-II processing system is used to compile the EAF_A2-2007 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_A2-2007 library. In the listing that follows an entry in the 'A₂ source' column of 'A₂ value' means that the IAEA regulations give individual data; 'BETA' and 'ALPHA' entries indicate that generic values are used.

The IAEA report notes that for a set of nuclides with short-lived decay daughters the A_2 value for the daughter is included in the parent value. Since the EAF_A2-2007 library actually contains data for these short lived nuclides it is necessary to adjust the IAEA values to avoid double counting. The method is shown in below for a general decay.



If the X₃ nuclide is short-lived then λ₃ >> λ₁ and it can be assumed that the two nuclides are in secular equilibrium. If the activity X₁ is A₁ then activity of X₃ is f₂A₁. The A₂ value for nuclide *i* is B_{*i*}, and if φ_{*i*} is the fraction of activity for nuclide *i* then for a mixture of nuclides the A₂ value is given by equation 8.

$$\frac{1}{B} = \sum_i \frac{\phi_i}{B_i} \tag{8}$$

In this case activity = A₁ + f₂A₁ and the activity fractions are given in equation 9.

$$\phi_1 = \frac{A_1}{A_1 + f_2 A_1} = \frac{1}{1 + f_2} \tag{9}$$

$$\phi_3 = \frac{f_2 A_1}{A_1 + f_2 A_1} = \frac{f_2}{1 + f_2}$$

Thus the A₂ value for these two nuclides is given by substituting equation 9 into equation 8 to give equation 10.

$$\frac{1}{B} = \frac{1}{B_1} + \frac{f_2}{B_3} \tag{10}$$

Since B and B₃ are given, this means that the corrected value of A₂ value for X₁ is given by equation 11.

$$\frac{1}{B_1} = \frac{1 + f_2}{B} - \frac{f_2}{B_3} \tag{11}$$

The nuclides that have been corrected are shown in Table 3, which contains the uncorrected and the corrected values.

Table 3. Uncorrected and corrected A₂ coefficients.

Nuclide	Uncorrected A ₂	Corrected A ₂
Ca-47	0.3	0.191
Ti-44	0.4	0.33
Sr-91	0.3	0.21
Zr-95	0.8	1.4
Mo-99	0.6	0.34
Ru-103	2.0	1.0
Ag-110m	0.4	0.53
Cd-115	0.4	0.25
Te-127m	0.5	0.39
Te-129m	0.4	0.32

Nuclide	Uncorrected A_2	Corrected A_2
Ba-140	0.3	0.24
Dy-166	0.3	0.24
W-188	0.3	0.24
Pb-210	0.05	0.026
Am-243	0.001	0.0005

Clearance data

The safe handling of radioactive waste is recognised as vital to ensure protection of human health and the environment. IAEA publish regulations on these issues, and reference 6 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 12, 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.

$$I_c = \frac{A_n}{L_n} \quad (12)$$

Most materials contain a mixture of radionuclides, and in this case the clearance index is calculated by equation 13. Again, clearance is possible if $I_c \leq 1$.

$$I_c = \sum_i \frac{A_i}{L_i} \quad (13)$$

In equations 12 and 13, activities and clearance levels have units of Bq kg^{-1} .

Reference 14 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 14,

$$L_i = \min \left\{ \frac{1000}{E_{\gamma,i} + 0.1 \times E_{\beta,i}}, \frac{D}{e_i^{inh}}, \frac{D}{e_i^{ing} \times 10^2} \right\} \quad (14)$$

where: $D = 20 \text{ mSv y}^{-1}$, i.e. the dose limit for radiation workers [14], and for the i^{th} 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-2007 and EAF_HAZ-2007 libraries.

Equation 14 was used to calculate L_i values for all nuclides not given explicitly in reference 6.

Contents of libraries

The contents of EAF_HAZ-2007, EAF_A2-2007 and EAF_CLEAR-2007 are listed below. The nuclides that have been added (+) or changed (>) since EAF-2005 are indicated. 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 A₂ value, column 8 is the source of the A₂ 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	1.00000E+05	IAEA-G-1.7
>	6 He-6	8.5821E+25	1.4674E-11	7.3370E-12	Calculated	0.02000	BETA	6.18142E+03	Calculated
>	7 Li-5	2.2563E+47	2.5763E-35	1.5608E-35	Calculated	0.02000	BETA	1.00000E+30	Calculated
>	10 Li-8	6.2090E+25	1.0201E-13	6.1799E-14	Calculated	0.00009	ALPHA	1.53035E+03	Calculated
>	11 Li-9	2.5935E+26	2.0951E-15	1.2693E-15	Calculated	0.02000	BETA	1.66800E+03	Calculated
>	12 Be-6	1.3914E+46	4.3705E-34	3.7753E-34	Calculated	0.02000	BETA	1.00000E+30	Calculated
	13 Be-7	1.2937E+19	2.8000E-11	5.5000E-11	ICRP72	20.00000	A2 VALUE	1.00000E+04	IAEA-G-1.7
>	14 Be-8	7.4490E+41	4.0981E-31	3.5400E-31	Calculated	0.00009	ALPHA	4.88028E+28	Calculated
	16 Be-10	8.2559E+11	1.1000E-09	3.5000E-08	ICRP72	0.60000	A2 VALUE	3.96493E+04	Calculated
>	17 Be-11	2.7424E+24	2.9875E-13	2.5807E-13	Calculated	0.00009	ALPHA	5.30923E+02	Calculated
>	18 Be-12	1.6295E+27	8.4269E-16	7.2793E-16	Calculated	0.02000	BETA	1.78094E+03	Calculated
>	19 Be-13	6.4218E+34	2.3021E-23	1.9886E-23	Calculated	0.02000	BETA	8.68774E+20	Calculated
>	20 B-8	6.7763E+25	2.1786E-12	1.0757E-12	Calculated	0.00009	ALPHA	2.01219E+02	Calculated
>	21 B-9	5.7975E+43	1.2613E-31	6.2277E-32	Calculated	0.02000	BETA	1.58566E+29	Calculated
	24 B-12	1.7200E+27	3.7726E-15	1.8627E-15	Calculated	0.00009	ALPHA	1.38618E+03	Calculated
>	25 B-13	1.8503E+27	3.3481E-15	1.6531E-15	Calculated	0.02000	BETA	1.06230E+03	Calculated
>	26 B-14	2.3810E+27	4.7982E-15	2.3691E-15	Calculated	0.02000	BETA	1.50495E+02	Calculated
>	27 B-15	2.8195E+27	1.0455E-16	5.1621E-17	Calculated	0.02000	BETA	1.98674E+02	Calculated
>	28 C-9	3.6664E+26	9.1947E-14	6.8960E-14	Calculated	0.02000	BETA	1.86011E+02	Calculated
>	29 C-10	2.1642E+24	6.8748E-13	5.1561E-13	Calculated	0.02000	BETA	5.47899E+02	Calculated
>	30 C-11	3.1016E+22	2.4000E-11	1.8000E-11	ICRP72	0.60000	A2 VALUE	9.45266E+02	Calculated
	33 C-14	1.6572E+14	5.8000E-10	5.8000E-09	ICRP72	3.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>	34 C-15	1.1355E+25	2.2187E-13	1.6641E-13	Calculated	0.02000	BETA	2.55923E+02	Calculated
>	35 C-16	3.4925E+25	3.0521E-13	2.2891E-13	Calculated	0.02000	BETA	6.45936E+02	Calculated
>	36 C-17	1.2722E+26	9.1472E-14	6.8604E-14	Calculated	0.02000	BETA	2.48390E+02	Calculated
>	37 N-11	6.4318E+46	2.3763E-34	1.7822E-34	Calculated	0.02000	BETA	1.00000E+30	Calculated
>	38 N-12	3.1574E+27	1.4480E-15	1.0860E-15	Calculated	0.02000	BETA	5.09302E+02	Calculated
>	39 N-13	5.3669E+22	1.2637E-11	9.4777E-12	Calculated	0.60000	A2 VALUE	9.35261E+02	Calculated
>	42 N-16	3.6576E+24	7.2809E-13	5.4606E-13	Calculated	0.00009	ALPHA	2.04522E+02	Calculated
>	43 N-17	5.8854E+24	1.1527E-12	8.6451E-13	Calculated	0.02000	BETA	4.66660E+03	Calculated
>	44 N-18	3.6781E+25	8.0470E-14	6.0352E-14	Calculated	0.02000	BETA	1.98954E+02	Calculated
>	45 N-19	8.1069E+25	6.1117E-14	4.5838E-14	Calculated	0.02000	BETA	2.96520E+02	Calculated
>	46 N-20	1.6055E+26	7.6229E-14	5.7172E-14	Calculated	0.02000	BETA	2.24306E+02	Calculated
>	47 O-14	4.2203E+23	4.0450E-12	3.0337E-12	Calculated	0.02000	BETA	2.94313E+02	Calculated
>	48 O-15	2.2720E+23	3.0083E-12	2.2562E-12	Calculated	0.02000	BETA	9.13755E+02	Calculated
>	52 O-19	8.1626E+23	1.0215E-12	7.6611E-13	Calculated	0.02000	BETA	8.50680E+02	Calculated
>	53 O-20	1.5446E+24	1.2030E-12	9.0223E-13	Calculated	0.02000	BETA	8.49487E+02	Calculated
>	54 O-21	5.8097E+24	3.9869E-13	2.9901E-13	Calculated	0.02000	BETA	3.13371E+02	Calculated
>	55 O-22	8.4328E+24	3.7355E-13	2.8017E-13	Calculated	0.02000	BETA	5.17788E+02	Calculated
>	56 F-15	6.7873E+46	8.3650E-35	1.0072E-34	Calculated	0.02000	BETA	1.00000E+30	Calculated
>	57 F-16	2.3717E+45	8.2837E-34	9.9743E-34	Calculated	0.02000	BETA	1.00000E+30	Calculated
>	58 F-17	3.8070E+23	6.8546E-13	8.2535E-13	Calculated	0.02000	BETA	9.13627E+02	Calculated
	59 F-18	3.5222E+21	4.9000E-11	5.9000E-11	ICRP72	0.60000	A2 VALUE	1.00000E+04	IAEA-G-1.7
>	61 F-20	1.8922E+24	2.7402E-13	3.2994E-13	Calculated	0.02000	BETA	5.28707E+02	Calculated
>	62 F-21	4.7805E+24	7.2819E-14	8.7681E-14	Calculated	0.02000	BETA	1.26414E+03	Calculated
>	63 F-22	4.4849E+24	2.0773E-13	2.5012E-13	Calculated	0.02000	BETA	1.67178E+02	Calculated
>	64 F-23	8.1372E+24	9.8559E-14	1.1867E-13	Calculated	0.02000	BETA	3.87751E+02	Calculated
>	65 F-24	4.3467E+25	3.4051E-14	4.1478E-14	Calculated	0.02000	BETA	3.85862E+02	Calculated
>	66 Ne-17	2.2486E+26	9.4808E-11	4.7404E-11	Calculated	0.02000	BETA	2.62766E+02	Calculated
>	67 Ne-18	1.3865E+25	7.4327E-11	3.7163E-11	Calculated	0.02000	BETA	7.96885E+02	Calculated
>	68 Ne-19	1.2757E+24	3.9575E-10	1.9788E-10	Calculated	0.02000	BETA	8.95044E+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
> 72	Ne-23	4.8799E+23	8.8928E-10	4.4464E-10	Calculated	0.02000	BETA	2.76397E+03	Calculated
> 73	Ne-24	8.5785E+22	1.3757E-08	7.0717E-09	Calculated	0.02000	BETA	1.60720E+03	Calculated
> 74	Ne-25	2.7738E+25	4.0165E-11	2.0083E-11	Calculated	0.02000	BETA	1.48368E+03	Calculated
> 75	Ne-26	8.1495E+25	1.2678E-11	6.3389E-12	Calculated	0.02000	BETA	1.57755E+09	Calculated
> 76	Ne-27	4.8313E+26	5.6671E-12	2.8336E-12	Calculated	0.02000	BETA	2.19531E+02	Calculated
> 77	Na-20	4.6779E+25	5.6160E-15	3.4023E-15	Calculated	0.02000	BETA	3.53732E+02	Calculated
> 78	Na-21	8.8392E+23	8.5144E-14	5.1583E-14	Calculated	0.02000	BETA	8.71689E+02	Calculated
> 79	Na-22	2.3107E+17	3.2000E-09	1.3000E-09	ICRP72	0.50000	A2 VALUE	1.00000E+02	IAEA-G-1.7
> 81	Na-24	3.2312E+20	4.3000E-10	2.7000E-10	ICRP72	0.20000	A2 VALUE	1.00000E+03	IAEA-G-1.7
> 82	Na-24m	8.6134E+26	8.6521E-20	5.2417E-20	Calculated	0.02000	BETA	2.12174E+03	Calculated
> 83	Na-25	2.8026E+23	2.0404E-13	1.2362E-13	Calculated	0.02000	BETA	1.70489E+03	Calculated
> 84	Na-26	1.4870E+25	1.0537E-14	6.3836E-15	Calculated	0.02000	BETA	3.97894E+02	Calculated
> 85	Na-27	5.1374E+25	3.4285E-15	2.0771E-15	Calculated	0.02000	BETA	6.54515E+02	Calculated
> 86	Na-28	4.8880E+26	4.7733E-16	2.9373E-16	Calculated	0.02000	BETA	5.70926E+02	Calculated
> 87	Na-29	3.2058E+26	2.0451E-15	1.2407E-15	Calculated	0.02000	BETA	2.32889E+02	Calculated
> 88	Na-30	2.8748E+26	3.0561E-15	1.8516E-15	Calculated	0.02000	BETA	1.89312E+02	Calculated
> 89	Mg-21	1.6284E+26	4.5764E-15	2.2756E-15	Calculated	0.02000	BETA	5.05051E+02	Calculated
> 90	Mg-22	4.9194E+24	2.4507E-13	1.2158E-13	Calculated	0.02000	BETA	5.37736E+02	Calculated
> 91	Mg-23	1.6041E+24	5.5278E-13	2.7487E-13	Calculated	0.02000	BETA	8.39691E+02	Calculated
> 95	Mg-27	2.7259E+22	1.8465E-11	9.1820E-12	Calculated	0.02000	BETA	1.03632E+03	Calculated
> 96	Mg-28	1.9825E+20	2.2000E-09	1.2000E-09	ICRP72	0.30000	A2 VALUE	7.14416E+02	Calculated
> 97	Mg-29	1.1077E+25	1.8246E-13	9.0729E-14	Calculated	0.02000	BETA	4.71340E+02	Calculated
> 98	Mg-30	4.1535E+25	7.1383E-14	3.5496E-14	Calculated	0.02000	BETA	3.91997E+02	Calculated
> 99	Mg-31	5.8545E+25	6.4296E-14	3.1972E-14	Calculated	0.02000	BETA	2.43019E+02	Calculated
> 100	Al-23	3.8615E+25	1.2535E-13	8.9531E-14	Calculated	0.02000	BETA	2.36248E+02	Calculated
> 101	Al-24	8.4718E+24	5.3889E-13	3.8492E-13	Calculated	0.02000	BETA	1.03078E+02	Calculated
> 102	Al-24m	1.3379E+26	3.4617E-14	2.4727E-14	Calculated	0.02000	BETA	1.71821E+03	Calculated
> 103	Al-25	2.3254E+24	4.0509E-13	2.8935E-13	Calculated	0.02000	BETA	8.47676E+02	Calculated
> 104	Al-26	7.0992E+11	3.5000E-09	2.0000E-08	ICRP72	0.10000	A2 VALUE	3.68354E+02	Calculated
> 105	Al-26m	2.5316E+24	3.5380E-13	2.5272E-13	Calculated	0.02000	BETA	8.55063E+02	Calculated
> 107	Al-28	1.1094E+23	9.2062E-12	6.5759E-12	Calculated	0.02000	BETA	5.24491E+02	Calculated
> 108	Al-29	3.6594E+22	2.1000E-11	1.5000E-11	NRPB-M	0.02000	BETA	6.76501E+02	Calculated
> 109	Al-30	3.8142E+24	4.8010E-13	3.4293E-13	Calculated	0.02000	BETA	2.67278E+02	Calculated
> 110	Al-31	2.0920E+25	6.9058E-14	4.9327E-14	Calculated	0.02000	BETA	9.51290E+02	Calculated
> 111	Al-32	3.9543E+26	4.8988E-15	3.5002E-15	Calculated	0.02000	BETA	8.80719E+02	Calculated
> 112	Al-33	3.0334E+26	1.3927E-14	9.9530E-15	Calculated	0.02000	BETA	2.38753E+02	Calculated
> 113	Al-34	2.1807E+26	2.7187E-14	1.9420E-14	Calculated	0.02000	BETA	1.72738E+02	Calculated
> 114	Si-25	7.5883E+25	3.6719E-14	1.8130E-14	Calculated	0.02000	BETA	7.98085E+02	Calculated
> 115	Si-26	7.1887E+24	3.3920E-13	1.6748E-13	Calculated	0.02000	BETA	7.05726E+02	Calculated
> 116	Si-27	3.7093E+24	3.2548E-13	1.6070E-13	Calculated	0.02000	BETA	8.34697E+02	Calculated
> 120	Si-31	1.4287E+21	1.6000E-10	7.9000E-11	ICRP72	0.60000	A2 VALUE	1.00000E+06	IAEA-G-1.7
> 121	Si-32	3.1340E+15	5.6000E-10	1.1000E-07	ICRP72	0.50000	A2 VALUE	1.54619E+05	Calculated
> 122	Si-33	2.0482E+24	7.5739E-13	3.7466E-13	Calculated	0.02000	BETA	4.00000E+02	Calculated
> 123	Si-34	4.4350E+24	3.8811E-13	1.9163E-13	Calculated	0.02000	BETA	6.02410E+02	Calculated
> 124	Si-35	1.5297E+25	2.1804E-13	1.0767E-13	Calculated	0.02000	BETA	2.11028E+02	Calculated
> 125	Si-36	2.5776E+25	1.6551E-13	8.1721E-14	Calculated	0.02000	BETA	5.05500E+02	Calculated
> 126	P-28	5.5169E+25	5.2626E-14	1.3102E-13	Calculated	0.02000	BETA	1.92781E+02	Calculated
> 127	P-29	3.4790E+24	3.5685E-13	8.8846E-13	Calculated	0.02000	BETA	3.88035E+02	Calculated
> 128	P-30	9.2902E+22	7.6120E-12	1.8952E-11	Calculated	0.02000	BETA	8.57862E+02	Calculated
> 130	P-32	1.0589E+19	2.4000E-09	3.4000E-09	ICRP72	0.50000	A2 VALUE	1.00000E+06	IAEA-G-1.7
> 131	P-33	5.7727E+18	2.4000E-10	1.5000E-09	ICRP72	1.00000	A2 VALUE	1.00000E+06	IAEA-G-1.7
> 132	P-34	9.9086E+23	6.7448E-13	1.6793E-12	Calculated	0.02000	BETA	1.73631E+03	Calculated
> 133	P-35	2.5234E+23	2.5807E-12	6.4287E-12	Calculated	0.02000	BETA	5.93507E+02	Calculated
> 134	P-36	2.0718E+24	9.4343E-13	2.3489E-12	Calculated	0.02000	BETA	1.54583E+02	Calculated
> 135	P-37	4.8839E+24	2.7849E-13	6.8044E-13	Calculated	0.02000	BETA	3.44947E+02	Calculated
> 136	P-38	1.7171E+25	1.0306E-13	2.4700E-13	Calculated	0.02000	BETA	3.11828E+02	Calculated
> 137	P-39	5.6332E+25	6.7430E-14	1.6580E-13	Calculated	0.02000	BETA	3.11015E+02	Calculated
> 138	P-40	6.9570E+25	6.8999E-14	1.7156E-13	Calculated	0.02000	BETA	2.05756E+02	Calculated
> 139	S-29	7.6982E+25	2.1515E-13	2.3114E-13	Calculated	0.02000	BETA	1.99258E+02	Calculated
> 140	S-30	1.1818E+25	6.4483E-13	6.9276E-13	Calculated	0.02000	BETA	5.50542E+02	Calculated
> 141	S-31	5.2388E+24	6.9470E-13	7.4633E-13	Calculated	0.02000	BETA	8.07957E+02	Calculated
> 145	S-35	1.5822E+18	7.7000E-10	1.9000E-09	ICRP72	3.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
> 147	S-37	3.7710E+22	1.5000E-11	1.3000E-11	NRPB-M	0.02000	BETA	3.31539E+02	Calculated
> 148	S-38	1.0759E+21	6.0000E-10	3.6000E-10	NRPB-M	0.02000	BETA	5.73331E+02	Calculated
> 149	S-39	9.3130E+23	4.7864E-12	4.9386E-12	Calculated	0.02000	BETA	4.97844E+02	Calculated
> 150	S-40	1.1866E+24	6.6707E-12	7.1665E-12	Calculated	0.02000	BETA	6.19059E+02	Calculated
> 151	S-41	5.1161E+24	1.9687E-12	2.1150E-12	Calculated	0.02000	BETA	3.28984E+02	Calculated
> 152	Cl-32	4.3793E+25	9.6823E-14	7.3865E-14	Calculated	0.02000	BETA	2.13174E+02	Calculated
> 153	Cl-33	5.0409E+24	3.1451E-13	2.3993E-13	Calculated	0.02000	BETA	7.96018E+02	Calculated
> 154	Cl-34	8.0515E+24	1.8764E-13	1.4315E-13	Calculated	0.02000	BETA	8.10651E+02	Calculated
> 155	Cl-34m	6.3793E+21	9.7000E-11	7.4000E-11	NRPB-M	0.02000	BETA	4.94254E+02	Calculated
> 157	Cl-36	1.2218E+12	9.3000E-10	7.3000E-09	ICRP72	0.60000	A2 VALUE	1.00000E+03	IAEA-G-1.7
> 159	Cl-38	4.9257E+21	1.2000E-10	4.5000E-11	ICRP72	0.20000	A2 VALUE	1.00000E+04	IAEA-G-1.7
> 160	Cl-38m	1.5376E+25	5.7659E-14	2.9076E-14	Calculated	0.02000	BETA	1.48955E+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
> 161	Cl-39	3.2110E+23	8.5000E-11	4.6000E-11	ICRP72	0.02000	BETA	6.50773E+02	Calculated
> 162	Cl-40	1.2893E+21	1.8149E-11	1.3846E-11	Calculated	0.02000	BETA	2.36268E+02	Calculated
> 163	Cl-41	2.6513E+23	8.5836E-12	6.5483E-12	Calculated	0.02000	BETA	4.73690E+02	Calculated
> 164	Cl-42	1.4616E+24	1.7257E-12	1.3218E-12	Calculated	0.02000	BETA	2.86689E+02	Calculated
> 165	Cl-43	3.1621E+24	1.0177E-12	8.0035E-13	Calculated	0.02000	BETA	3.47867E+02	Calculated
> 166	Cl-44	1.6941E+25	3.4720E-13	2.6523E-13	Calculated	0.02000	BETA	2.33696E+02	Calculated
> 167	Cl-45	2.3190E+25	3.4826E-13	2.7055E-13	Calculated	0.02000	BETA	2.78419E+02	Calculated
> 168	Ar-33	7.3139E+25	3.5526E-12	1.7763E-12	Calculated	0.02000	BETA	5.67215E+02	Calculated
> 169	Ar-34	1.4546E+25	6.3287E-11	3.1643E-11	Calculated	0.02000	BETA	7.49706E+02	Calculated
> 170	Ar-35	6.7238E+24	6.8188E-11	3.4094E-11	Calculated	0.02000	BETA	7.83657E+02	Calculated
> 172	Ar-37	3.7298E+24	9.8566E-09	3.8110E-08	Calculated	40.00000	A2 VALUE	2.02909E+06	Calculated
> 174	Ar-39	1.2620E+15	1.0622E-06	3.7870E-05	Calculated	20.00000	A2 VALUE	1.88286E+04	Calculated
> 176	Ar-41	1.5496E+21	1.3321E-07	6.6607E-08	Calculated	0.30000	A2 VALUE	7.51411E+02	Calculated
> 177	Ar-42	9.5519E+15	3.9708E-06	1.5703E-04	Calculated	0.02000	BETA	5.03677E+03	Calculated
> 178	Ar-43	3.0153E+22	1.1417E-08	6.1864E-09	Calculated	0.02000	BETA	6.14253E+02	Calculated
> 179	Ar-44	1.3335E+22	5.3693E-08	2.6846E-08	Calculated	0.02000	BETA	5.24659E+02	Calculated
> 180	Ar-45	4.3215E+23	2.0231E-09	1.0768E-09	Calculated	0.02000	BETA	3.14465E+02	Calculated
> 181	Ar-46	1.0810E+24	8.4284E-10	4.2142E-10	Calculated	0.02000	BETA	4.69484E+02	Calculated
> 182	Ar-47	1.5313E+25	7.4299E-11	3.7039E-11	Calculated	0.02000	BETA	2.81194E+02	Calculated
> 183	K-36	3.3921E+25	5.0735E-14	1.2080E-14	Calculated	0.02000	BETA	1.72529E+02	Calculated
> 184	K-37	9.2086E+24	6.9301E-14	1.6509E-14	Calculated	0.02000	BETA	7.65164E+02	Calculated
185	K-38	2.4077E+22	3.3146E-11	7.8918E-12	Calculated	0.02000	BETA	3.02057E+02	Calculated
186	K-38m	1.1898E+25	5.1057E-14	1.2157E-14	Calculated	0.02000	BETA	7.92480E+02	Calculated
188	K-40	2.6165E+08	6.2000E-09	2.1000E-09	ICRP72	0.90000	A2 VALUE	1.00000E+04	IAEA-G-1.7
190	K-42	2.2358E+20	4.3000E-10	1.2000E-10	ICRP72	0.20000	A2 VALUE	1.00000E+04	IAEA-G-1.7
191	K-43	1.2158E+20	2.5000E-10	1.4000E-10	ICRP72	0.60000	A2 VALUE	1.00289E+03	Calculated
192	K-44	7.1511E+21	8.4000E-11	2.0000E-11	ICRP72	0.02000	BETA	3.94496E+02	Calculated
> 193	K-45	8.9443E+21	5.4000E-11	1.5000E-11	ICRP72	0.02000	BETA	5.17358E+02	Calculated
> 194	K-46	8.6494E+22	8.6281E-12	2.0543E-12	Calculated	0.02000	BETA	3.46895E+02	Calculated
> 195	K-47	5.0792E+23	1.3051E-12	3.0845E-13	Calculated	0.02000	BETA	3.56552E+02	Calculated
> 196	K-48	1.2798E+24	1.0273E-12	2.4459E-13	Calculated	0.02000	BETA	1.48896E+02	Calculated
> 197	Ca-37	6.4492E+25	3.0368E-14	6.8401E-14	Calculated	0.02000	BETA	6.81663E+02	Calculated
> 198	Ca-38	2.4981E+25	1.6254E-13	3.6612E-13	Calculated	0.02000	BETA	6.18119E+02	Calculated
> 199	Ca-39	1.2461E+25	1.5869E-13	3.5744E-13	Calculated	0.02000	BETA	7.82336E+02	Calculated
201	Ca-41	3.1351E+12	1.9000E-10	1.8000E-10	ICRP72	-1.00000	A2 VALUE	1.38614E+06	Calculated
205	Ca-45	6.5930E+17	7.1000E-10	3.7000E-09	ICRP72	1.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
207	Ca-47	2.2674E+19	1.6000E-09	2.1000E-09	ICRP72	0.19000	A2 VALUE	1.00000E+04	IAEA-G-1.7
> 208	Ca-48	5.2046E-03	2.0657E-08	1.0860E-07	Calculated	0.02000	BETA	3.76811E+03	Calculated
> 209	Ca-49	1.6297E+22	1.0892E-10	2.4541E-10	Calculated	0.02000	BETA	3.07305E+02	Calculated
> 210	Sc-40	5.7276E+25	1.0094E-11	3.9117E-12	Calculated	0.02000	BETA	1.34069E+02	Calculated
> 211	Sc-41	1.7087E+25	1.1127E-11	4.3122E-12	Calculated	0.02000	BETA	7.83593E+02	Calculated
> 212	Sc-42	1.4610E+25	1.2581E-11	4.8756E-12	Calculated	0.02000	BETA	7.86219E+02	Calculated
> 213	Sc-42m	1.6043E+23	1.7727E-09	6.8698E-10	Calculated	0.02000	BETA	2.30958E+02	Calculated
> 214	Sc-43	6.9364E+20	1.9000E-10	1.1000E-10	ICRP72	0.02000	BETA	9.73904E+02	Calculated
> 215	Sc-44	6.6440E+20	3.5000E-10	1.8000E-10	ICRP72	0.50000	A2 VALUE	4.55503E+02	Calculated
216	Sc-44m	4.5012E+19	2.4000E-09	1.4000E-09	ICRP72	0.02000	BETA	3.58997E+03	Calculated
> 218	Sc-45m	2.9383E+25	1.5240E-14	5.9064E-15	Calculated	0.02000	BETA	6.80272E+05	Calculated
219	Sc-46	1.2547E+18	1.5000E-09	6.8000E-09	ICRP72	0.50000	A2 VALUE	1.00000E+02	IAEA-G-1.7
> 220	Sc-46m	4.8574E+23	1.3895E-11	5.4011E-12	Calculated	0.02000	BETA	1.12551E+04	Calculated
221	Sc-47	3.0706E+19	5.4000E-10	7.3000E-10	ICRP72	0.70000	A2 VALUE	1.00000E+05	IAEA-G-1.7
222	Sc-48	5.5371E+19	1.7000E-09	1.1000E-09	ICRP72	0.30000	A2 VALUE	1.00000E+03	IAEA-G-1.7
223	Sc-49	2.4847E+21	8.2000E-11	4.0000E-11	ICRP72	0.02000	BETA	1.17195E+04	Calculated
> 224	Sc-50	8.1526E+22	2.5884E-09	1.0031E-09	Calculated	0.02000	BETA	2.97574E+02	Calculated
> 225	Sc-50m	2.3876E+25	9.2870E-12	3.5991E-12	Calculated	0.02000	BETA	3.72478E+03	Calculated
> 226	Sc-51	6.6066E+23	3.5225E-10	1.3651E-10	Calculated	0.02000	BETA	3.94608E+02	Calculated
> 227	Sc-52	9.7976E+23	3.9339E-10	1.4842E-10	Calculated	0.02000	BETA	3.14687E+02	Calculated
228	Ti-41	1.2732E+26	1.2718E-17	9.3265E-18	Calculated	0.02000	BETA	6.94927E+02	Calculated
> 229	Ti-42	4.9975E+25	5.2648E-14	3.8609E-14	Calculated	0.02000	BETA	6.06683E+02	Calculated
> 230	Ti-43	1.9086E+25	6.8327E-14	5.0123E-14	Calculated	0.02000	BETA	6.82239E+02	Calculated
> 231	Ti-44	5.0150E+15	5.8000E-09	1.2000E-07	ICRP72	0.33000	A2 VALUE	7.17748E+03	Calculated
232	Ti-45	8.3736E+20	1.5000E-10	9.3000E-11	ICRP72	0.02000	BETA	1.09989E+03	Calculated
238	Ti-51	2.3544E+22	1.5000E-11	1.1000E-11	NRPB-M	0.02000	BETA	2.21509E+03	Calculated
> 239	Ti-52	7.8780E+22	1.2103E-11	8.2420E-12	Calculated	0.02000	BETA	4.90484E+03	Calculated
240	Ti-53	2.4108E+23	6.2010E-12	4.5474E-12	Calculated	0.02000	BETA	4.73709E+02	Calculated
> 241	Ti-54	5.1534E+24	4.3623E-13	3.1990E-13	Calculated	0.02000	BETA	6.34101E+02	Calculated
> 242	Ti-55	1.5489E+25	1.5683E-13	1.1501E-13	Calculated	0.02000	BETA	3.64609E+02	Calculated
> 243	V-44	8.5518E+25	2.4592E-14	1.7892E-14	Calculated	0.02000	BETA	2.01571E+02	Calculated
> 244	V-45	1.7223E+25	5.7255E-14	4.1062E-14	Calculated	0.02000	BETA	7.64670E+02	Calculated
> 245	V-46	2.1496E+25	4.0186E-14	2.9229E-14	Calculated	0.02000	BETA	7.67458E+02	Calculated
> 246	V-47	4.5449E+21	6.3000E-11	2.9000E-11	ICRP72	0.02000	BETA	9.29919E+02	Calculated
247	V-48	6.3073E+18	2.0000E-09	2.4000E-09	ICRP72	0.40000	A2 VALUE	1.00000E+03	IAEA-G-1.7
248	V-49	2.9909E+17	1.8000E-11	3.4000E-11	ICRP72	40.00000	A2 VALUE	7.66129E+05	Calculated
> 249	V-50	1.8917E+00	6.4115E-09	1.0881E-08	Calculated	0.02000	BETA	7.01726E+02	Calculated
251	V-52	3.5763E+22	1.4000E-11	9.2000E-12	NRPB-M	0.02000	BETA	6.43172E+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
252	V-53	8.1113E+23	4.9329E-12	3.5879E-12	Calculated	0.02000	BETA	8.75579E+02	Calculated
253	V-54	1.5538E+22	6.7362E-12	4.8995E-12	Calculated	0.02000	BETA	2.36223E+02	Calculated
> 254	V-55	1.1616E+24	6.7662E-13	4.9213E-13	Calculated	0.02000	BETA	1.07825E+03	Calculated
> 255	V-56	3.4509E+25	4.5833E-14	3.4291E-14	Calculated	0.02000	BETA	2.96404E+02	Calculated
> 256	V-57	2.0923E+25	7.9938E-14	5.8148E-14	Calculated	0.02000	BETA	3.28199E+02	Calculated
> 257	V-58	3.7680E+25	1.1590E-13	8.4302E-14	Calculated	0.02000	BETA	5.60051E+02	Calculated
> 258	Cr-46	3.4926E+25	1.2507E-14	5.4813E-15	Calculated	0.02000	BETA	7.51371E+02	Calculated
> 259	Cr-47	1.7777E+25	1.6171E-14	6.4561E-15	Calculated	0.02000	BETA	7.53872E+02	Calculated
> 260	Cr-48	1.1215E+20	2.0000E-10	2.2000E-10	ICRP72	0.02000	BETA	2.30477E+03	Calculated
261	Cr-49	3.3919E+21	6.1000E-11	3.5000E-11	ICRP72	0.02000	BETA	9.03433E+02	Calculated
> 262	Cr-50	1.4713E+00	1.2657E-09	1.2942E-09	Calculated	0.02000	BETA	8.56751E+03	Calculated
263	Cr-51	3.4232E+18	3.8000E-11	3.7000E-11	ICRP72	30.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
> 267	Cr-55	3.5771E+22	1.4111E-12	6.1841E-13	Calculated	0.02000	BETA	8.78011E+03	Calculated
> 268	Cr-56	2.0937E+22	5.2126E-12	2.5155E-12	Calculated	0.02000	BETA	6.56363E+03	Calculated
> 269	Cr-57	3.4742E+23	4.6042E-13	2.0178E-13	Calculated	0.02000	BETA	1.52175E+03	Calculated
> 270	Cr-58	1.0281E+24	2.8787E-13	1.2616E-13	Calculated	0.02000	BETA	6.68449E+02	Calculated
> 271	Cr-59	1.5380E+25	2.1426E-14	9.4817E-15	Calculated	0.02000	BETA	3.59324E+02	Calculated
> 272	Mn-48	5.5005E+25	2.3382E-14	1.0492E-14	Calculated	0.02000	BETA	2.02433E+02	Calculated
> 273	Mn-49	2.2319E+25	4.9083E-14	2.3741E-14	Calculated	0.02000	BETA	7.11809E+02	Calculated
> 274	Mn-50	2.9435E+25	1.8334E-14	7.7056E-15	Calculated	0.02000	BETA	7.51328E+02	Calculated
> 275	Mn-50m	7.9582E+22	1.0542E-11	4.4306E-12	Calculated	0.02000	BETA	2.02184E+02	Calculated
276	Mn-51	2.9557E+21	9.3000E-11	4.1000E-11	ICRP72	0.02000	BETA	1.00000E+04	IAEA-G-1.7
277	Mn-52	1.6623E+19	1.8000E-09	1.4000E-09	ICRP72	0.30000	A2 VALUE	1.00000E+03	IAEA-G-1.7
278	Mn-52m	6.3174E+21	6.9000E-11	2.9000E-11	ICRP72	0.02000	BETA	1.00000E+04	IAEA-G-1.7
279	Mn-53	6.7894E+10	3.0000E-11	5.4000E-11	ICRP72	-1.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
280	Mn-54	2.8695E+17	7.1000E-10	1.5000E-09	ICRP72	1.00000	A2 VALUE	1.00000E+02	IAEA-G-1.7
282	Mn-56	8.0267E+20	2.5000E-10	1.2000E-10	ICRP72	0.30000	A2 VALUE	1.00000E+04	IAEA-G-1.7
> 283	Mn-57	8.5845E+22	1.6028E-12	6.7365E-13	Calculated	0.02000	BETA	4.76062E+03	Calculated
> 284	Mn-58	1.1050E+23	4.1610E-12	1.7488E-12	Calculated	0.02000	BETA	3.91645E+02	Calculated
> 285	Mn-58m	2.6683E+24	1.2411E-13	5.2161E-14	Calculated	0.02000	BETA	2.48196E+03	Calculated
> 286	Mn-59	1.5429E+24	1.9015E-13	8.2187E-14	Calculated	0.02000	BETA	1.34433E+03	Calculated
> 287	Mn-60	1.3654E+23	3.0724E-12	1.2913E-12	Calculated	0.02000	BETA	2.60417E+03	Calculated
> 288	Mn-60m	3.8903E+24	1.5097E-13	6.3451E-14	Calculated	0.02000	BETA	3.37610E+02	Calculated
> 289	Mn-61	1.0223E+25	6.0921E-14	2.5604E-14	Calculated	0.02000	BETA	2.19368E+03	Calculated
> 290	Mn-62	7.6571E+24	1.4476E-13	6.0840E-14	Calculated	0.02000	BETA	3.95599E+02	Calculated
> 291	Mn-63	2.4094E+25	4.6164E-14	1.9402E-14	Calculated	0.02000	BETA	2.96442E+02	Calculated
> 292	Mn-64	7.3449E+25	1.8953E-14	7.9658E-15	Calculated	0.02000	BETA	2.24467E+02	Calculated
> 294	Fe-50	5.3861E+25	1.1640E-14	1.1431E-14	Calculated	0.02000	BETA	3.34766E+02	Calculated
> 295	Fe-51	4.4763E+20	9.3408E-10	9.3228E-10	Calculated	0.02000	BETA	7.19804E+02	Calculated
296	Fe-52	2.6973E+20	1.4000E-09	6.3000E-10	ICRP72	0.30000	A2 VALUE	1.00000E+04	IAEA-G-1.7
> 297	Fe-52m	1.7506E+23	2.5585E-12	2.5846E-12	Calculated	0.02000	BETA	1.96685E+02	Calculated
> 298	Fe-53	1.5441E+22	9.1763E-12	9.0122E-12	Calculated	0.02000	BETA	7.72232E+02	Calculated
> 299	Fe-53m	5.0930E+22	6.4667E-12	6.3511E-12	Calculated	0.02000	BETA	3.29524E+02	Calculated
301	Fe-55	8.8034E+16	3.3000E-10	7.7000E-10	ICRP72	40.00000	A2 VALUE	1.00000E+06	IAEA-G-1.7
305	Fe-59	1.8424E+18	1.8000E-09	4.0000E-09	ICRP72	0.90000	A2 VALUE	1.00000E+03	IAEA-G-1.7
306	Fe-60	1.4713E+11	1.1000E-07	2.8000E-07	ICRP72	0.20000	A2 VALUE	1.14067E+05	Calculated
> 307	Fe-61	1.9092E+22	6.8852E-12	6.7618E-12	Calculated	0.02000	BETA	6.68235E+02	Calculated
> 308	Fe-62	9.9110E+22	2.4375E-12	2.3939E-12	Calculated	0.02000	BETA	1.69924E+03	Calculated
> 309	Fe-63	1.0872E+24	2.2174E-13	2.1778E-13	Calculated	0.02000	BETA	1.72964E+03	Calculated
> 310	Fe-64	3.2641E+24	8.7704E-14	8.6136E-14	Calculated	0.02000	BETA	4.42312E+03	Calculated
> 311	Fe-65	4.9399E+24	9.6725E-14	9.4996E-14	Calculated	0.02000	BETA	3.28984E+02	Calculated
> 312	Co-52	6.9803E+25	2.7670E-11	2.0290E-11	Calculated	0.02000	BETA	2.47776E+02	Calculated
> 313	Co-53	3.2845E+25	2.8315E-11	2.3318E-11	Calculated	0.02000	BETA	6.96324E+02	Calculated
> 314	Co-54	4.0043E+25	1.4878E-11	1.2252E-11	Calculated	0.02000	BETA	7.34799E+02	Calculated
> 315	Co-54m	8.7133E+22	9.1972E-09	7.5742E-09	Calculated	0.02000	BETA	2.41821E+02	Calculated
316	Co-55	1.2039E+20	1.0000E-09	5.3000E-10	ICRP72	0.50000	A2 VALUE	1.00000E+04	IAEA-G-1.7
317	Co-56	1.1171E+18	2.5000E-09	6.7000E-09	ICRP72	0.30000	A2 VALUE	1.00000E+02	IAEA-G-1.7
318	Co-57	3.1219E+17	2.1000E-10	1.0000E-09	ICRP72	10.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
319	Co-58	1.1768E+18	7.4000E-10	2.1000E-09	ICRP72	1.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
320	Co-58m	2.2487E+20	2.4000E-11	1.7000E-11	ICRP72	40.00000	A2 VALUE	1.00000E+07	IAEA-G-1.7
322	Co-60	4.1871E+16	3.4000E-09	3.1000E-08	ICRP72	0.40000	A2 VALUE	1.00000E+02	IAEA-G-1.7
323	Co-60m	1.1087E+22	1.7000E-12	1.4000E-12	ICRP72	0.02000	BETA	1.00000E+06	IAEA-G-1.7
324	Co-61	1.1533E+21	7.4000E-11	5.1000E-11	ICRP72	0.02000	BETA	1.00000E+05	IAEA-G-1.7
> 325	Co-62	7.4887E+22	5.0522E-09	4.1606E-09	Calculated	0.02000	BETA	5.66820E+02	Calculated
326	Co-62m	8.0755E+21	4.7000E-11	2.1000E-11	ICRP72	0.02000	BETA	1.00000E+04	IAEA-G-1.7
> 327	Co-63	2.4207E+23	8.1296E-10	6.6951E-10	Calculated	0.02000	BETA	3.32316E+03	Calculated
> 328	Co-64	2.1763E+25	1.8036E-11	1.4853E-11	Calculated	0.02000	BETA	1.96067E+03	Calculated
> 329	Co-65	5.3568E+24	8.2318E-11	6.7792E-11	Calculated	0.02000	BETA	2.62314E+03	Calculated
> 330	Co-66	2.7169E+25	2.8438E-11	2.4025E-11	Calculated	0.02000	BETA	3.23637E+02	Calculated
> 331	Co-67	1.4672E+25	3.7226E-11	3.1044E-11	Calculated	0.02000	BETA	1.03144E+03	Calculated
> 332	Co-68	3.0872E+25	3.8684E-11	3.1857E-11	Calculated	0.02000	BETA	2.61212E+02	Calculated
> 333	Co-68m	3.8366E+24	3.2504E-10	2.6768E-10	Calculated	0.02000	BETA	4.30410E+02	Calculated
> 334	Co-69	2.6650E+25	4.7553E-11	3.9161E-11	Calculated	0.02000	BETA	2.74936E+02	Calculated
> 335	Ni-53	1.7512E+26	6.7585E-15	3.3792E-15	Calculated	0.02000	BETA	1.59770E+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
> 336	Ni-54	7.4327E+25	1.8035E-14	9.0176E-15	Calculated	0.02000	BETA	3.09935E+02	Calculated
> 337	Ni-55	3.7236E+25	1.5932E-14	7.9652E-15	Calculated	0.02000	BETA	7.26306E+02	Calculated
> 338	Ni-56	1.4216E+19	8.6000E-10	1.0000E-09	ICRP72	0.02000	BETA	5.80934E+02	Calculated
> 339	Ni-57	5.6723E+19	8.7000E-10	5.3000E-10	ICRP72	0.02000	BETA	5.11084E+02	Calculated
> 340	Ni-58	3.2616E-04	5.8193E-09	6.7892E-09	Calculated	0.02000	BETA	5.19292E+03	Calculated
341	Ni-59	2.9532E+12	6.3000E-11	4.4000E-10	ICRP72	-1.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
345	Ni-63	2.0894E+15	1.5000E-10	1.3000E-09	ICRP72	30.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
347	Ni-65	7.0864E+20	1.8000E-10	9.0000E-11	ICRP72	0.40000	A2 VALUE	1.00000E+04	IAEA-G-1.7
348	Ni-66	3.2329E+19	3.0000E-09	1.8000E-09	ICRP72	0.02000	BETA	1.53282E+05	Calculated
349	Ni-67	2.9698E+23	5.6766E-13	2.9511E-13	Calculated	0.02000	BETA	4.93643E+03	Calculated
> 350	Ni-68	2.1167E+23	1.9046E-12	9.5228E-13	Calculated	0.02000	BETA	1.29673E+03	Calculated
> 351	Ni-69	5.3116E+23	1.0011E-12	5.0056E-13	Calculated	0.02000	BETA	3.63270E+02	Calculated
+ 352	Ni-69m	1.7285E+24	3.2166E-13	1.6083E-13	Calculated	0.02000	BETA	4.48697E+02	Calculated
> 353	Ni-70	9.9386E+23	6.9816E-13	3.4908E-13	Calculated	0.02000	BETA	7.60937E+02	Calculated
> 354	Ni-71	2.2966E+24	3.9066E-13	1.9533E-13	Calculated	0.02000	BETA	3.63099E+02	Calculated
> 355	Cu-56	8.0150E+25	4.4041E-14	2.7586E-14	Calculated	0.02000	BETA	1.78636E+02	Calculated
> 356	Cu-57	3.7339E+25	4.6002E-14	2.8945E-14	Calculated	0.02000	BETA	6.66744E+02	Calculated
> 357	Cu-58	2.2484E+24	7.0633E-13	4.3704E-13	Calculated	0.02000	BETA	5.34494E+02	Calculated
> 358	Cu-59	8.6898E+22	1.0841E-11	6.7077E-12	Calculated	0.02000	BETA	6.27975E+02	Calculated
> 359	Cu-60	4.8975E+21	7.0000E-11	3.4000E-11	ICRP72	0.02000	BETA	2.49842E+02	Calculated
> 360	Cu-61	5.7093E+20	1.2000E-10	7.8000E-11	ICRP72	0.02000	BETA	1.17041E+03	Calculated
361	Cu-62	1.1521E+22	6.0900E-11	3.7682E-11	Calculated	0.02000	BETA	8.77208E+02	Calculated
363	Cu-64	1.4280E+20	1.2000E-10	1.2000E-10	ICRP72	1.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
365	Cu-66	2.0691E+22	1.6000E-11	9.9000E-12	NRPB-M	0.02000	BETA	5.29314E+03	Calculated
366	Cu-67	2.7988E+19	3.4000E-10	6.1000E-10	ICRP72	0.70000	A2 VALUE	7.63506E+03	Calculated
> 367	Cu-68	1.9759E+23	3.5308E-12	2.1847E-12	Calculated	0.02000	BETA	8.55368E+02	Calculated
> 368	Cu-68m	2.7311E+22	3.4769E-11	2.1513E-11	Calculated	0.02000	BETA	8.92538E+02	Calculated
> 369	Cu-69	3.5414E+22	1.0952E-11	6.7768E-12	Calculated	0.02000	BETA	1.62960E+03	Calculated
> 370	Cu-70	1.3264E+24	6.6557E-13	4.1182E-13	Calculated	0.02000	BETA	1.32272E+03	Calculated
> 371	Cu-70m	1.8070E+23	5.8545E-12	3.6225E-12	Calculated	0.02000	BETA	7.83139E+02	Calculated
+ 372	Cu-70n	9.0351E+23	1.3560E-12	8.3903E-13	Calculated	0.02000	BETA	4.19052E+02	Calculated
> 373	Cu-71	3.0178E+23	3.5966E-12	2.2254E-12	Calculated	0.02000	BETA	7.19373E+02	Calculated
> 374	Cu-72	8.7920E+23	1.3622E-12	8.4287E-13	Calculated	0.02000	BETA	5.74557E+02	Calculated
> 375	Cu-73	1.3626E+24	4.3186E-13	2.6721E-13	Calculated	0.02000	BETA	3.27215E+03	Calculated
> 376	Cu-74	3.5388E+24	8.3627E-13	5.1744E-13	Calculated	0.02000	BETA	2.81046E+02	Calculated
> 377	Cu-75	4.5471E+24	6.4388E-13	3.9840E-13	Calculated	0.02000	BETA	3.34631E+02	Calculated
> 378	Zn-58	8.5678E+25	4.6986E-11	3.7432E-11	Calculated	0.02000	BETA	2.95564E+02	Calculated
> 379	Zn-59	3.8907E+25	6.7147E-11	5.3481E-11	Calculated	0.02000	BETA	6.96069E+02	Calculated
> 380	Zn-60	4.8766E+22	2.5007E-08	1.8665E-08	Calculated	0.02000	BETA	6.17908E+02	Calculated
> 381	Zn-61	7.6878E+22	1.5142E-08	1.2098E-08	Calculated	0.02000	BETA	5.84646E+02	Calculated
> 382	Zn-62	2.0218E+20	9.4000E-10	5.5000E-10	ICRP72	0.02000	BETA	2.23998E+03	Calculated
383	Zn-63	2.8788E+21	7.9000E-11	3.7000E-11	ICRP72	0.02000	BETA	8.36188E+02	Calculated
> 384	Zn-64	8.9959E-02	9.2917E-06	1.7268E-05	Calculated	0.02000	BETA	2.15246E+03	Calculated
385	Zn-65	3.0476E+17	3.9000E-09	2.2000E-09	ICRP72	2.00000	A2 VALUE	1.00000E+02	IAEA-G-1.7
389	Zn-69	1.7896E+21	3.1000E-11	2.8000E-11	ICRP72	0.60000	A2 VALUE	1.00000E+06	IAEA-G-1.7
390	Zn-69m	1.2208E+20	3.3000E-10	2.7000E-10	ICRP72	0.60000	A2 VALUE	1.00000E+04	IAEA-G-1.7
> 392	Zn-71	4.0035E+22	9.4574E-09	7.5326E-09	Calculated	0.02000	BETA	2.38248E+03	Calculated
> 393	Zn-71m	4.1282E+20	2.4000E-10	1.6000E-10	ICRP72	0.02000	BETA	6.19823E+02	Calculated
> 394	Zn-72	3.4668E+19	1.4000E-09	1.3000E-09	ICRP72	0.02000	BETA	6.14316E+03	Calculated
> 395	Zn-73	2.4356E+23	2.1749E-09	1.7322E-09	Calculated	0.02000	BETA	3.45655E+03	Calculated
> 396	Zn-73m	4.3986E+23	1.3231E-09	1.0538E-09	Calculated	0.02000	BETA	5.11509E+03	Calculated
+ 397	Zn-73n	9.8588E+23	7.1559E-10	5.6995E-10	Calculated	0.02000	BETA	1.17511E+03	Calculated
> 398	Zn-74	5.9061E+22	2.2988E-08	1.8309E-08	Calculated	0.02000	BETA	2.63158E+03	Calculated
> 399	Zn-75	5.4614E+23	2.6778E-09	2.1328E-09	Calculated	0.02000	BETA	5.24307E+02	Calculated
> 400	Zn-76	9.6443E+23	1.7822E-09	1.4194E-09	Calculated	0.02000	BETA	1.46729E+03	Calculated
> 401	Ga-63	2.0470E+23	1.3588E-10	7.3158E-11	Calculated	0.02000	BETA	6.40254E+02	Calculated
> 402	Ga-64	4.1420E+22	1.0231E-09	5.5090E-10	Calculated	0.02000	BETA	2.83918E+02	Calculated
> 403	Ga-65	7.0488E+21	3.7000E-11	1.7000E-11	ICRP72	0.02000	BETA	7.99899E+02	Calculated
> 404	Ga-66	1.8532E+20	1.2000E-09	4.4000E-10	ICRP72	0.02000	BETA	3.91197E+02	Calculated
> 405	Ga-67	2.2135E+19	1.9000E-10	2.4000E-10	ICRP72	3.00000	A2 VALUE	6.13114E+03	Calculated
> 406	Ga-68	1.5139E+21	1.0000E-10	4.9000E-11	ICRP72	0.50000	A2 VALUE	9.75585E+02	Calculated
> 408	Ga-70	4.7063E+21	3.1000E-11	1.6000E-11	ICRP72	0.02000	BETA	1.39487E+04	Calculated
410	Ga-72	1.1433E+20	1.1000E-09	5.3000E-10	ICRP72	0.40000	A2 VALUE	1.00000E+04	IAEA-G-1.7
+ 411	Ga-72m	1.4611E+26	6.9616E-15	3.6998E-15	Calculated	0.02000	BETA	8.35701E+03	Calculated
> 412	Ga-73	3.2716E+20	2.6000E-10	1.4000E-10	ICRP72	0.02000	BETA	2.59317E+03	Calculated
> 413	Ga-74	1.1590E+22	2.5009E-09	1.3466E-09	Calculated	0.02000	BETA	3.22065E+02	Calculated
> 414	Ga-74m	5.9436E+23	4.9496E-11	2.6651E-11	Calculated	0.02000	BETA	2.23968E+04	Calculated
> 415	Ga-75	4.2789E+22	3.1940E-10	1.7198E-10	Calculated	0.02000	BETA	4.86347E+03	Calculated
> 416	Ga-76	1.6864E+23	1.8917E-10	1.0186E-10	Calculated	0.02000	BETA	3.45467E+02	Calculated
> 417	Ga-77	4.1739E+23	6.3497E-11	3.4047E-11	Calculated	0.02000	BETA	1.49658E+03	Calculated
> 418	Ga-78	1.0523E+24	4.0697E-11	2.1958E-11	Calculated	0.02000	BETA	3.62270E+02	Calculated
> 419	Ga-79	1.7628E+24	4.8368E-11	2.6044E-11	Calculated	0.02000	BETA	4.84731E+02	Calculated
> 420	Ge-64	1.0248E+23	9.5099E-12	7.4426E-12	Calculated	0.02000	BETA	7.57002E+02	Calculated
> 421	Ge-65	2.0802E+23	2.4519E-12	1.9166E-12	Calculated	0.02000	BETA	5.08680E+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
> 422	Ge-66	7.7814E+20	1.0000E-10	9.1000E-11	ICRP72	0.02000	BETA	1.46146E+03	Calculated
> 423	Ge-67	5.4995E+21	6.5000E-11	2.5000E-11	ICRP72	0.02000	BETA	6.64264E+02	Calculated
> 424	Ge-68	2.6250E+17	1.3000E-09	1.4000E-08	ICRP72	0.50000	A2 VALUE	2.16566E+05	Calculated
> 425	Ge-69	4.3078E+19	2.4000E-10	2.9000E-10	ICRP72	0.02000	BETA	1.03893E+03	Calculated
427	Ge-71	5.9596E+18	1.2000E-11	1.1000E-11	ICRP72	40.00000	A2 VALUE	1.00000E+07	IAEA-G-1.7
> 430	Ge-73m	1.1471E+25	6.5379E-16	5.1166E-16	Calculated	0.02000	BETA	6.12914E+04	Calculated
> 432	Ge-75	1.1217E+21	4.6000E-11	3.6000E-11	ICRP72	0.02000	BETA	1.29414E+04	Calculated
> 433	Ge-75m	1.1680E+23	5.7646E-13	4.5114E-13	Calculated	0.02000	BETA	1.51774E+04	Calculated
> 434	Ge-76	1.1027E-04	7.4472E-09	1.3599E-08	Calculated	0.02000	BETA	4.90412E+03	Calculated
> 435	Ge-77	1.3339E+20	3.3000E-10	3.7000E-10	ICRP72	0.30000	A2 VALUE	8.75129E+02	Calculated
> 436	Ge-77m	1.0258E+23	1.3250E-12	1.0236E-12	Calculated	0.02000	BETA	5.86132E+03	Calculated
> 437	Ge-78	1.0146E+21	1.2000E-10	9.5000E-11	ICRP72	0.02000	BETA	3.32524E+03	Calculated
> 438	Ge-79	2.7865E+23	1.0983E-12	8.5957E-13	Calculated	0.02000	BETA	2.31991E+03	Calculated
> 439	Ge-79m	1.3561E+23	2.7270E-12	2.1341E-12	Calculated	0.02000	BETA	7.54551E+02	Calculated
> 440	Ge-80	1.9343E+23	2.2074E-12	1.7275E-12	Calculated	0.02000	BETA	2.28482E+03	Calculated
> 441	Ge-81	6.7867E+23	9.4477E-13	7.3938E-13	Calculated	0.02000	BETA	3.56276E+02	Calculated
> 442	Ge-81m	6.7867E+23	9.0799E-13	7.1059E-13	Calculated	0.02000	BETA	5.73779E+02	Calculated
> 443	As-67	1.4673E+23	5.3791E-12	6.9837E-12	Calculated	0.02000	BETA	5.98576E+02	Calculated
> 444	As-68	4.0530E+22	1.7268E-11	2.9132E-11	Calculated	0.02000	BETA	2.56738E+02	Calculated
> 445	As-69	6.6268E+21	5.7000E-11	2.1000E-11	ICRP72	0.02000	BETA	7.95808E+02	Calculated
> 446	As-70	1.8913E+21	1.3000E-10	6.7000E-11	ICRP72	0.02000	BETA	2.45016E+02	Calculated
> 447	As-71	2.5043E+19	4.6000E-10	4.0000E-10	ICRP72	0.02000	BETA	1.70453E+03	Calculated
> 448	As-72	6.2003E+19	1.8000E-09	9.0000E-10	ICRP72	0.30000	A2 VALUE	5.30636E+02	Calculated
449	As-73	8.2503E+17	2.6000E-10	1.0000E-09	ICRP72	40.00000	A2 VALUE	1.00000E+06	IAEA-G-1.7
450	As-74	3.6758E+18	1.3000E-09	2.1000E-09	ICRP72	0.90000	A2 VALUE	1.00000E+04	IAEA-G-1.7
452	As-76	5.8202E+19	1.6000E-09	7.4000E-10	ICRP72	0.30000	A2 VALUE	1.00000E+04	IAEA-G-1.7
453	As-77	3.8821E+19	4.0000E-10	3.9000E-10	ICRP72	0.70000	A2 VALUE	1.00000E+06	IAEA-G-1.7
> 454	As-78	9.8437E+20	2.1000E-10	8.9000E-11	ICRP72	0.02000	BETA	7.01672E+02	Calculated
> 455	As-79	9.7838E+21	9.4048E-12	1.5770E-11	Calculated	0.02000	BETA	8.49590E+03	Calculated
> 456	As-80	3.4361E+23	8.2680E-13	1.3864E-12	Calculated	0.02000	BETA	1.25487E+03	Calculated
> 457	As-81	1.5490E+23	1.1981E-12	2.0090E-12	Calculated	0.02000	BETA	2.57868E+03	Calculated
> 458	As-82	2.6677E+23	1.3793E-12	2.3129E-12	Calculated	0.02000	BETA	1.52216E+03	Calculated
459	As-82m	3.7465E+23	1.3568E-12	2.2752E-12	Calculated	0.02000	BETA	3.15127E+02	Calculated
> 460	As-83	3.7565E+23	1.3247E-12	2.2213E-12	Calculated	0.02000	BETA	4.63607E+02	Calculated
> 461	As-84	9.0428E+23	9.0838E-13	1.5229E-12	Calculated	0.02000	BETA	1.80505E+02	Calculated
+ 462	As-84m	7.6451E+24	9.7563E-14	1.6356E-13	Calculated	0.02000	BETA	2.76263E+02	Calculated
> 463	Se-68	1.7292E+23	9.0654E-08	8.7577E-08	Calculated	0.02000	BETA	5.81509E+02	Calculated
> 464	Se-69	2.2098E+23	5.7754E-08	3.6977E-08	Calculated	0.02000	BETA	4.77221E+02	Calculated
> 465	Se-70	2.4205E+21	1.2000E-10	7.6000E-11	ICRP72	0.02000	BETA	9.60388E+02	Calculated
> 466	Se-71	2.0692E+22	2.5287E-07	2.3959E-07	Calculated	0.02000	BETA	5.80208E+02	Calculated
> 467	Se-72	7.9963E+18	5.0000E-09	4.3000E-09	KENDALL	0.02000	BETA	2.73310E+04	Calculated
> 468	Se-73	2.2237E+20	2.1000E-10	2.1000E-10	ICRP72	0.02000	BETA	8.86042E+02	Calculated
> 469	Se-73m	2.3969E+21	2.8000E-11	2.2000E-11	ICRP72	0.02000	BETA	3.57828E+03	Calculated
471	Se-75	5.3898E+17	2.6000E-09	1.3000E-09	ICRP72	3.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
> 474	Se-77m	3.1260E+23	8.1083E-10	7.8023E-10	Calculated	0.02000	BETA	1.04055E+04	Calculated
> 476	Se-79	1.5237E+11	2.9000E-09	6.8000E-09	ICRP72	2.00000	A2 VALUE	1.79211E+05	Calculated
> 477	Se-79m	2.2604E+22	3.6262E-12	3.4893E-12	Calculated	0.02000	BETA	4.51514E+04	Calculated
> 479	Se-81	4.6600E+21	2.7000E-11	1.5000E-11	ICRP72	0.02000	BETA	1.44798E+04	Calculated
> 480	Se-81m	1.5010E+21	5.3000E-11	5.1000E-11	ICRP72	0.02000	BETA	3.74574E+04	Calculated
> 481	Se-82	1.3345E-03	1.5539E-04	3.4889E-04	Calculated	0.02000	BETA	1.28711E+02	Calculated
482	Se-83	3.7568E+21	4.7000E-11	3.4000E-11	ICRP72	0.02000	BETA	4.04858E+02	Calculated
> 483	Se-83m	7.1813E+22	4.5433E-08	4.3719E-08	Calculated	0.02000	BETA	9.10124E+02	Calculated
> 484	Se-84	2.6743E+22	5.1096E-08	4.9080E-08	Calculated	0.02000	BETA	2.16339E+03	Calculated
> 485	Se-85	1.5506E+23	4.9667E-08	4.7793E-08	Calculated	0.02000	BETA	3.93391E+02	Calculated
> 486	Br-71	2.7496E+23	1.9250E-09	2.1298E-09	Calculated	0.02000	BETA	1.09890E+03	Calculated
> 487	Br-72	7.3825E+22	7.4671E-09	8.3353E-09	Calculated	0.02000	BETA	3.13134E+02	Calculated
> 488	Br-72m	5.4742E+23	1.0250E-09	1.1442E-09	Calculated	0.02000	BETA	1.81518E+04	Calculated
> 489	Br-73	2.8056E+22	9.5469E-09	1.0657E-08	Calculated	0.02000	BETA	6.44116E+02	Calculated
> 490	Br-74	3.7049E+21	8.4000E-11	3.8000E-11	ICRP72	0.02000	BETA	2.24083E+02	Calculated
> 491	Br-74m	2.0457E+21	1.4000E-10	6.2000E-11	ICRP72	0.02000	BETA	2.55153E+02	Calculated
> 492	Br-75	9.6021E+20	7.9000E-11	5.3000E-11	ICRP72	0.02000	BETA	8.02120E+02	Calculated
> 493	Br-76	9.4271E+19	4.6000E-10	4.1000E-10	ICRP72	0.40000	A2 VALUE	3.59611E+02	Calculated
> 494	Br-76m	4.1968E+24	7.6070E-13	8.4684E-13	Calculated	0.02000	BETA	2.94118E+04	Calculated
> 495	Br-77	2.6429E+19	9.6000E-11	8.4000E-11	ICRP72	3.00000	A2 VALUE	3.11110E+03	Calculated
> 496	Br-77m	2.1132E+22	4.5164E-10	5.0413E-10	Calculated	0.02000	BETA	3.56526E+04	Calculated
> 497	Br-78	1.3821E+22	1.3437E-08	1.5000E-08	Calculated	0.02000	BETA	8.80063E+02	Calculated
> 499	Br-79m	1.0874E+24	1.6951E-11	1.8922E-11	Calculated	0.02000	BETA	6.07768E+03	Calculated
500	Br-80	4.9461E+21	3.1000E-11	9.4000E-12	ICRP72	0.02000	BETA	6.69305E+03	Calculated
501	Br-80m	3.2899E+20	1.1000E-10	7.6000E-11	ICRP72	0.02000	BETA	3.28568E+04	Calculated
503	Br-82	4.0076E+19	5.4000E-10	6.3000E-10	ICRP72	0.40000	A2 VALUE	1.00000E+03	IAEA-G-1.7
> 504	Br-82m	1.3946E+22	4.8335E-10	5.3963E-10	Calculated	0.02000	BETA	6.58336E+04	Calculated
> 505	Br-83	5.8268E+20	4.3000E-11	4.8000E-11	ICRP72	0.02000	BETA	2.53820E+04	Calculated
> 506	Br-84	2.6071E+21	8.8000E-11	3.7000E-11	ICRP72	0.02000	BETA	5.31527E+02	Calculated
> 507	Br-84m	1.3817E+22	2.2310E-08	2.4905E-08	Calculated	0.02000	BETA	3.49722E+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
> 508	Br-85	2.8251E+22	4.1794E-09	4.6654E-09	Calculated	0.02000	BETA	6.04425E+03	Calculated
> 509	Br-86	8.8333E+22	4.8186E-09	5.3789E-09	Calculated	0.02000	BETA	2.91630E+02	Calculated
> 510	Br-87	8.6218E+22	1.1169E-10	1.2467E-10	Calculated	0.02000	BETA	3.07984E+02	Calculated
> 511	Br-88	2.8773E+23	2.4745E-09	2.7980E-09	Calculated	0.02000	BETA	2.98371E+02	Calculated
> 512	Kr-72	3.3734E+23	1.6860E-09	8.4301E-10	Calculated	0.02000	BETA	6.93001E+02	Calculated
> 513	Kr-73	2.0963E+23	2.1750E-09	1.0875E-09	Calculated	0.02000	BETA	5.74618E+02	Calculated
> 514	Kr-74	8.1825E+21	1.4587E-08	7.2857E-09	Calculated	0.02000	BETA	8.39870E+02	Calculated
> 515	Kr-75	2.1642E+22	8.5221E-09	4.2606E-09	Calculated	0.02000	BETA	6.95229E+02	Calculated
> 516	Kr-76	1.0315E+20	2.6603E-07	1.3304E-07	Calculated	0.02000	BETA	2.34996E+03	Calculated
> 517	Kr-77	1.2156E+21	8.8824E-08	4.4412E-08	Calculated	0.02000	BETA	9.03931E+02	Calculated
> 518	Kr-78	1.5432E-03	1.3828E-05	4.9386E-04	Calculated	0.02000	BETA	1.44633E+03	Calculated
> 519	Kr-79	4.1930E+19	3.9795E-07	2.0641E-07	Calculated	0.02000	BETA	3.84268E+03	Calculated
> 520	Kr-79m	1.0578E+23	2.3298E-10	1.1944E-10	Calculated	0.02000	BETA	2.04889E+04	Calculated
> 522	Kr-81	7.7842E+11	6.1960E-08	2.2128E-06	Calculated	40.00000	A2 VALUE	1.26464E+05	Calculated
> 523	Kr-81m	3.9081E+23	2.9139E-11	1.4570E-11	Calculated	0.02000	BETA	7.26750E+03	Calculated
> 526	Kr-83m	7.6418E+20	3.1961E-09	1.5980E-09	Calculated	0.02000	BETA	1.49781E+05	Calculated
> 528	Kr-85	1.4488E+16	1.1184E-06	3.8255E-05	Calculated	10.00000	A2 VALUE	1.78825E+04	Calculated
> 529	Kr-85m	3.0481E+20	6.0470E-08	3.0235E-08	Calculated	3.00000	A2 VALUE	5.46968E+03	Calculated
> 531	Kr-87	1.0491E+21	1.1237E-07	5.6183E-08	Calculated	0.20000	A2 VALUE	1.08590E+03	Calculated
> 532	Kr-88	4.6440E+20	3.9272E-07	2.0366E-07	Calculated	0.02000	BETA	5.03287E+02	Calculated
> 533	Kr-89	2.4839E+22	8.3509E-09	4.7556E-09	Calculated	0.02000	BETA	5.06719E+02	Calculated
> 534	Kr-90	1.4363E+23	2.4912E-09	1.2464E-09	Calculated	0.02000	BETA	7.31797E+02	Calculated
> 535	Rb-77	2.3988E+22	9.4414E-11	1.4931E-11	Calculated	0.02000	BETA	5.93479E+02	Calculated
> 536	Rb-78	5.0552E+21	4.7415E-10	7.4984E-11	Calculated	0.02000	BETA	2.39184E+02	Calculated
> 537	Rb-78m	1.5553E+22	1.5157E-10	2.3971E-11	Calculated	0.02000	BETA	2.97927E+02	Calculated
> 538	Rb-79	3.8493E+21	5.0000E-11	1.6000E-11	ICRP72	0.02000	BETA	6.74293E+02	Calculated
> 539	Rb-80	1.5361E+23	9.2794E-12	1.4675E-12	Calculated	0.02000	BETA	7.20885E+02	Calculated
> 540	Rb-81	3.1313E+20	5.4000E-11	3.4000E-11	ICRP72	0.80000	A2 VALUE	1.50466E+03	Calculated
> 541	Rb-81m	2.8422E+21	9.7000E-12	7.0000E-12	ICRP72	0.02000	BETA	2.79769E+04	Calculated
> 542	Rb-82	6.6714E+22	1.6327E-11	2.5820E-12	Calculated	0.02000	BETA	8.00351E+02	Calculated
> 543	Rb-82m	2.1870E+20	1.3000E-10	1.1000E-10	ICRP72	0.02000	BETA	3.43388E+02	Calculated
> 544	Rb-83	6.7596E+17	1.9000E-09	6.9000E-10	ICRP72	2.00000	A2 VALUE	2.01234E+03	Calculated
> 545	Rb-84	1.7186E+18	2.8000E-09	1.0000E-09	ICRP72	1.00000	A2 VALUE	1.10910E+03	Calculated
> 546	Rb-84m	4.0640E+21	4.9264E-11	8.0265E-12	Calculated	0.02000	BETA	2.55818E+03	Calculated
> 548	Rb-86	3.0169E+18	2.8000E-09	9.3000E-10	ICRP72	0.50000	A2 VALUE	1.00000E+05	IAEA-G-1.7
> 549	Rb-86m	7.9652E+22	2.9830E-12	4.9020E-13	Calculated	0.02000	BETA	1.82809E+03	Calculated
> 550	Rb-87	3.2041E+06	1.5000E-09	5.0000E-10	ICRP72	-1.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
> 551	Rb-88	4.4459E+21	9.0000E-11	1.6000E-11	ICRP72	0.02000	BETA	1.14567E+03	Calculated
> 552	Rb-89	5.0809E+21	4.7000E-11	1.4000E-11	ICRP72	0.02000	BETA	4.29713E+02	Calculated
> 553	Rb-90	2.9382E+22	5.4039E-11	8.5555E-12	Calculated	0.02000	BETA	4.57284E+02	Calculated
> 554	Rb-90m	1.7994E+22	1.0394E-10	1.6453E-11	Calculated	0.02000	BETA	2.95777E+02	Calculated
> 555	Rb-91	7.8618E+22	2.1124E-11	3.3091E-12	Calculated	0.02000	BETA	4.11435E+02	Calculated
> 556	Rb-92	1.0109E+24	2.1051E-12	3.1983E-13	Calculated	0.02000	BETA	4.90883E+02	Calculated
> 557	Rb-93	7.7451E+23	3.9239E-12	6.2024E-13	Calculated	0.02000	BETA	3.55350E+02	Calculated
> 558	Rb-94	1.6448E+24	1.9280E-12	3.0483E-13	Calculated	0.02000	BETA	3.27056E+02	Calculated
> 559	Sr-78	3.3658E+22	6.0601E-11	4.2718E-11	Calculated	0.02000	BETA	7.24953E+02	Calculated
> 560	Sr-79	3.9174E+22	2.3308E-11	1.8476E-11	Calculated	0.02000	BETA	7.18760E+02	Calculated
> 561	Sr-80	8.1886E+20	3.4000E-10	1.4000E-10	ICRP72	0.02000	BETA	2.02964E+03	Calculated
> 562	Sr-81	3.8552E+21	7.7000E-11	3.7000E-11	ICRP72	0.02000	BETA	6.79029E+02	Calculated
> 563	Sr-82	2.3083E+18	6.1000E-09	1.1000E-08	ICRP72	0.20000	A2 VALUE	1.19625E+05	Calculated
> 564	Sr-83	4.3147E+19	4.9000E-10	3.4000E-10	ICRP72	0.02000	BETA	1.26404E+03	Calculated
> 565	Sr-83m	1.0170E+24	8.3633E-14	5.8725E-14	Calculated	0.02000	BETA	4.32514E+03	Calculated
> 567	Sr-85	8.7738E+17	5.6000E-10	8.1000E-10	ICRP72	2.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
> 568	Sr-85m	1.2118E+21	6.1000E-12	4.3000E-12	ICRP72	5.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
> 571	Sr-87m	4.7598E+20	3.0000E-11	2.1000E-11	ICRP72	3.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
> 573	Sr-89	1.0746E+18	2.6000E-09	7.9000E-09	ICRP72	0.60000	A2 VALUE	1.00000E+06	IAEA-G-1.7
> 574	Sr-90	5.1103E+15	2.8000E-08	1.6000E-07	ICRP72	0.30000	A2 VALUE	1.00000E+03	IAEA-G-1.7
> 575	Sr-91	1.3244E+20	6.5000E-10	4.1000E-10	ICRP72	0.20000	A2 VALUE	1.00000E+04	IAEA-G-1.7
> 576	Sr-92	4.6552E+20	4.3000E-10	2.3000E-10	ICRP72	0.30000	A2 VALUE	1.00000E+04	IAEA-G-1.7
> 577	Sr-93	1.0087E+22	6.9892E-11	4.9255E-11	Calculated	0.02000	BETA	4.35209E+02	Calculated
> 578	Sr-94	5.9026E+22	8.3583E-12	5.8869E-12	Calculated	0.02000	BETA	6.61972E+02	Calculated
> 579	Sr-95	1.8400E+23	3.9003E-12	2.7478E-12	Calculated	0.02000	BETA	7.46883E+02	Calculated
> 580	Sr-96	4.1054E+24	3.2089E-13	2.2620E-13	Calculated	0.02000	BETA	8.91165E+02	Calculated
> 581	Y-81	7.3265E+22	3.5326E-09	1.6137E-09	Calculated	0.02000	BETA	7.27507E+02	Calculated
> 582	Y-82	5.3632E+23	4.8621E-10	2.4794E-10	Calculated	0.02000	BETA	6.36943E+02	Calculated
> 583	Y-83	1.1844E+22	1.4213E-08	7.1031E-09	Calculated	0.02000	BETA	6.45578E+02	Calculated
> 584	Y-83m	2.9438E+22	5.1637E-09	2.5805E-09	Calculated	0.02000	BETA	7.66284E+02	Calculated
> 585	Y-84	1.0813E+24	1.9383E-10	9.6916E-11	Calculated	0.02000	BETA	6.60100E+02	Calculated
> 586	Y-84m	2.0725E+21	1.4449E-07	7.2245E-08	Calculated	0.02000	BETA	2.44186E+02	Calculated
> 587	Y-85	5.0940E+20	1.5000E-10	1.4000E-10	NRPB-M	0.02000	BETA	7.54318E+02	Calculated
> 588	Y-85m	2.8090E+20	3.2000E-10	2.5000E-10	NRPB-M	0.02000	BETA	7.08617E+02	Calculated
> 589	Y-86	9.1560E+19	9.6000E-10	4.7000E-10	ICRP72	0.02000	BETA	2.78406E+02	Calculated
> 590	Y-86m	1.6870E+21	5.6000E-11	2.8000E-11	ICRP72	0.02000	BETA	4.49614E+03	Calculated
> 591	Y-87	1.6613E+19	5.5000E-10	3.9000E-10	ICRP72	1.00000	A2 VALUE	2.18019E+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
> 592	Y-87m	9.9786E+19	2.1000E-10	1.9000E-10	NRPB-M	0.02000	BETA	3.17836E+03	Calculated
> 593	Y-88	5.1541E+19	1.3000E-09	4.4000E-09	ICRP72	0.40000	A2 VALUE	3.70941E+02	Calculated
> 595	Y-89m	2.9976E+23	1.6493E-10	8.2465E-11	Calculated	0.02000	BETA	1.10849E+03	Calculated
596	Y-90	2.0120E+19	2.7000E-09	1.5000E-09	ICRP72	0.30000	A2 VALUE	1.00000E+06	IAEA-G-1.7
> 597	Y-90m	4.0429E+20	1.7000E-10	1.0000E-10	ICRP72	0.02000	BETA	1.56290E+03	Calculated
598	Y-91	9.0831E+17	2.4000E-09	8.9000E-09	ICRP72	0.60000	A2 VALUE	1.00000E+05	IAEA-G-1.7
599	Y-91m	1.5395E+21	1.1000E-11	1.1000E-11	ICRP72	2.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
600	Y-92	3.5638E+20	4.9000E-10	1.8000E-10	ICRP72	0.20000	A2 VALUE	1.00000E+05	IAEA-G-1.7
601	Y-93	1.2259E+20	1.2000E-09	4.2000E-10	ICRP72	0.30000	A2 VALUE	1.00000E+05	IAEA-G-1.7
> 602	Y-93m	5.4790E+24	7.1983E-12	3.5951E-12	Calculated	0.02000	BETA	1.45536E+03	Calculated
> 603	Y-94	3.9615E+21	8.1000E-11	2.8000E-11	ICRP72	0.02000	BETA	1.05746E+03	Calculated
> 604	Y-95	7.1164E+21	4.6000E-11	1.6000E-11	ICRP72	0.02000	BETA	8.09325E+02	Calculated
> 605	Y-96	8.1498E+23	2.0327E-10	1.0164E-10	Calculated	0.02000	BETA	2.49649E+03	Calculated
> 606	Y-96m	4.5239E+23	7.0653E-10	3.5326E-10	Calculated	0.02000	BETA	2.14061E+02	Calculated
> 607	Y-97	1.1485E+24	2.0545E-10	1.0143E-10	Calculated	0.02000	BETA	4.85556E+02	Calculated
> 608	Y-97m	3.6812E+24	7.0548E-11	3.4871E-11	Calculated	0.02000	BETA	4.26916E+02	Calculated
+ 609	Y-97n	3.0331E+25	1.3263E-11	6.5828E-12	Calculated	0.02000	BETA	3.54670E+02	Calculated
> 610	Y-98	7.2251E+24	5.8849E-11	2.9424E-11	Calculated	0.02000	BETA	3.45859E+02	Calculated
> 611	Y-98m	2.1314E+24	2.2048E-10	1.1022E-10	Calculated	0.02000	BETA	2.79857E+02	Calculated
> 612	Zr-82	1.5908E+23	1.0603E-11	5.1110E-12	Calculated	0.02000	BETA	6.81820E+02	Calculated
> 613	Zr-83	1.2100E+23	1.1491E-11	5.4698E-12	Calculated	0.02000	BETA	7.15531E+02	Calculated
> 614	Zr-84	3.2089E+21	3.9875E-10	1.8986E-10	Calculated	0.02000	BETA	9.77200E+02	Calculated
> 615	Zr-85	1.0423E+22	6.1388E-11	2.9240E-11	Calculated	0.02000	BETA	6.29364E+02	Calculated
> 616	Zr-85m	4.5095E+23	1.5678E-12	7.4676E-13	Calculated	0.02000	BETA	3.42231E+03	Calculated
617	Zr-86	8.1793E+19	8.6000E-10	4.3000E-10	ICRP72	0.02000	BETA	3.35537E+03	Calculated
> 618	Zr-87	7.9409E+20	3.1000E-11	2.8000E-11	NRPB-M	0.02000	BETA	9.76848E+02	Calculated
> 619	Zr-87m	3.4305E+23	2.9153E-13	1.6945E-13	Calculated	0.02000	BETA	4.04523E+03	Calculated
> 620	Zr-88	6.6213E+17	4.5000E-10	3.6000E-09	ICRP72	3.00000	A2 VALUE	2.54253E+03	Calculated
621	Zr-89	1.6635E+19	7.9000E-10	5.5000E-10	ICRP72	0.02000	BETA	3.80005E+03	Calculated
622	Zr-89m	1.8720E+22	8.5249E-12	4.2031E-12	Calculated	0.02000	BETA	1.55931E+03	Calculated
> 624	Zr-90m	5.7377E+24	8.7779E-14	4.1793E-14	Calculated	0.02000	BETA	4.33858E+02	Calculated
627	Zr-93	9.3056E+10	1.1000E-09	2.5000E-08	ICRP72	-1.00000	A2 VALUE	1.00000E+04	IAEA-G-1.7
> 628	Zr-94	2.3476E+01	9.6114E-09	1.0678E-08	Calculated	0.02000	BETA	8.74432E+03	Calculated
629	Zr-95	7.9499E+17	9.5000E-10	5.9000E-09	ICRP72	1.40000	A2 VALUE	1.00000E+03	IAEA-G-1.7
> 630	Zr-96	3.5363E-03	2.8158E-08	3.1282E-08	Calculated	0.02000	BETA	2.98481E+03	Calculated
631	Zr-97	7.1456E+19	2.1000E-09	9.2000E-10	ICRP72	0.40000	A2 VALUE	1.00000E+04	IAEA-G-1.7
> 632	Zr-98	1.3887E+23	4.5952E-12	2.1879E-12	Calculated	0.02000	BETA	1.09890E+04	Calculated
> 633	Zr-99	1.9182E+24	4.4524E-13	2.1835E-13	Calculated	0.02000	BETA	1.00472E+03	Calculated
> 634	Nb-86	5.5204E+22	5.9671E-10	9.5739E-10	Calculated	0.02000	BETA	2.56476E+02	Calculated
+ 635	Nb-86m	8.6674E+22	3.6643E-10	5.8798E-10	Calculated	0.02000	BETA	3.31785E+02	Calculated
> 636	Nb-87	2.1344E+22	7.8935E-10	1.3032E-09	Calculated	0.02000	BETA	7.15413E+02	Calculated
> 637	Nb-87m	3.0784E+22	5.7588E-10	9.4932E-10	Calculated	0.02000	BETA	5.24634E+02	Calculated
638	Nb-88	5.4573E+21	6.3000E-11	2.8000E-11	ICRP72	0.02000	BETA	2.27273E+02	Calculated
> 639	Nb-88m	1.0171E+22	2.8773E-09	4.6224E-09	Calculated	0.02000	BETA	2.38105E+02	Calculated
> 640	Nb-89	6.4241E+20	2.7000E-10	1.2000E-10	ICRP72	0.02000	BETA	6.77916E+02	Calculated
> 641	Nb-89m	1.1855E+21	1.4000E-10	7.1000E-11	ICRP72	0.02000	BETA	5.13896E+02	Calculated
642	Nb-90	8.8330E+19	1.2000E-09	6.6000E-10	ICRP72	0.02000	BETA	2.35571E+02	Calculated
> 643	Nb-90m	2.4668E+23	3.0205E-12	4.3824E-12	Calculated	0.02000	BETA	1.15821E+04	Calculated
644	Nb-91	2.1398E+14	6.4000E-11	4.1000E-09	R245	0.02000	BETA	7.60230E+04	Calculated
645	Nb-91m	8.7266E+17	6.3000E-10	2.3000E-09	R245	0.02000	BETA	2.11065E+04	Calculated
646	Nb-92	4.1120E+09	1.1000E-09	3.8000E-08	KENDALL	0.02000	BETA	6.64848E+02	Calculated
647	Nb-92m	5.1790E+18	6.0000E-10	5.9000E-10	R245	0.02000	BETA	1.02984E+03	Calculated
649	Nb-93m	8.8288E+15	1.2000E-10	1.8000E-09	ICRP72	30.00000	A2 VALUE	1.00000E+04	IAEA-G-1.7
650	Nb-94	7.0476E+12	1.7000E-09	4.9000E-08	ICRP72	0.70000	A2 VALUE	1.00000E+02	IAEA-G-1.7
> 651	Nb-94m	1.1835E+22	2.0105E-11	3.2174E-11	Calculated	0.02000	BETA	6.33737E+04	Calculated
652	Nb-95	1.4548E+18	5.8000E-10	1.8000E-09	ICRP72	1.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
> 653	Nb-95m	1.4108E+19	5.6000E-10	8.8000E-10	ICRP72	0.02000	BETA	1.12919E+04	Calculated
> 654	Nb-96	5.1776E+19	1.1000E-09	6.6000E-10	ICRP72	0.02000	BETA	4.04733E+02	Calculated
655	Nb-97	9.9570E+20	6.8000E-11	4.5000E-11	ICRP72	0.60000	A2 VALUE	1.00000E+04	IAEA-G-1.7
> 656	Nb-97m	8.1734E+22	4.5049E-11	7.1314E-11	Calculated	0.02000	BETA	1.37090E+03	Calculated
> 657	Nb-98	1.4907E+24	7.4014E-12	1.1844E-11	Calculated	0.02000	BETA	1.00000E+04	IAEA-G-1.7
> 658	Nb-98m	1.3851E+21	1.1000E-10	5.8000E-11	ICRP72	0.02000	BETA	3.49745E+02	Calculated
> 659	Nb-99	2.8134E+23	3.0422E-11	5.2210E-11	Calculated	0.02000	BETA	3.07007E+03	Calculated
> 660	Nb-99m	2.7052E+22	3.8896E-10	6.5910E-10	Calculated	0.02000	BETA	1.26269E+03	Calculated
> 661	Nb-100	2.7852E+24	5.4272E-12	8.6852E-12	Calculated	0.02000	BETA	1.04438E+03	Calculated
> 662	Nb-100m	1.4406E+24	1.3477E-11	2.1567E-11	Calculated	0.02000	BETA	4.40692E+02	Calculated
> 663	Nb-101	5.8259E+23	3.2704E-11	4.8645E-11	Calculated	0.02000	BETA	2.32070E+03	Calculated
> 664	Nb-102	3.1480E+24	1.0576E-11	1.6925E-11	Calculated	0.02000	BETA	3.78420E+02	Calculated
> 665	Nb-102m	9.5248E+23	3.2865E-11	5.2594E-11	Calculated	0.02000	BETA	4.30836E+02	Calculated
> 666	Nb-103	2.7039E+24	1.0254E-11	1.6489E-11	Calculated	0.02000	BETA	1.02491E+03	Calculated
> 667	Nb-104	8.1912E+23	3.5792E-11	5.7277E-11	Calculated	0.02000	BETA	3.36476E+02	Calculated
+ 668	Nb-104m	4.2699E+24	7.0227E-12	1.1238E-11	Calculated	0.02000	BETA	3.27555E+02	Calculated
> 669	Mo-88	9.8910E+21	1.7911E-11	1.2910E-11	Calculated	0.02000	BETA	2.34908E+03	Calculated
> 670	Mo-89	3.7080E+22	9.6725E-12	7.1306E-12	Calculated	0.02000	BETA	7.03383E+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
> 671	Mo-90	2.3194E+20	2.2000E-10	3.6000E-10	ICRP72	0.02000	BETA	1.00000E+04	IAEA-G-1.7
> 672	Mo-91	4.9403E+21	5.3662E-11	3.9852E-11	Calculated	0.02000	BETA	8.90671E+02	Calculated
> 673	Mo-91m	7.1076E+22	4.8486E-12	3.6009E-12	Calculated	0.02000	BETA	6.93339E+02	Calculated
> 674	Mo-92	7.5748E-04	7.0422E-09	1.2203E-08	Calculated	0.02000	BETA	6.06465E+03	Calculated
> 675	Mo-93	3.5594E+13	3.1000E-09	2.3000E-09	ICRP72	20.00000	A2 VALUE	1.00000E+04	IAEA-G-1.7
> 676	Mo-93m	1.8219E+20	1.1000E-10	1.7000E-10	ICRP72	0.02000	BETA	4.29511E+02	Calculated
> 681	Mo-98	1.3510E+03	4.7833E-10	8.2888E-10	Calculated	0.02000	BETA	8.92857E+04	Calculated
> 682	Mo-99	1.7778E+19	6.0000E-10	9.9000E-10	ICRP72	0.34000	A2 VALUE	1.00000E+04	IAEA-G-1.7
> 683	Mo-100	1.3373E-02	1.2958E-08	2.2454E-08	Calculated	0.02000	BETA	3.29598E+03	Calculated
> 684	Mo-101	4.7189E+21	4.1000E-11	2.6000E-11	ICRP72	0.02000	BETA	1.00000E+04	IAEA-G-1.7
> 685	Mo-102	6.0413E+21	3.8572E-11	2.8646E-11	Calculated	0.02000	BETA	1.87405E+04	Calculated
> 686	Mo-103	5.9736E+22	5.1419E-12	3.8534E-12	Calculated	0.02000	BETA	1.30237E+03	Calculated
> 687	Mo-104	6.6950E+22	1.5067E-12	1.1187E-12	Calculated	0.02000	BETA	3.78788E+03	Calculated
> 688	Mo-105	1.1176E+23	4.0059E-12	3.0599E-12	Calculated	0.02000	BETA	1.34464E+03	Calculated
> 689	Tc-90	5.3356E+23	9.3653E-09	9.3633E-09	Calculated	0.02000	BETA	4.79333E+02	Calculated
> 690	Tc-90m	9.4269E+22	6.3229E-08	6.2282E-08	Calculated	0.02000	BETA	2.94299E+02	Calculated
> 691	Tc-91	2.4369E+22	2.3512E-07	2.1369E-07	Calculated	0.02000	BETA	4.06589E+02	Calculated
> 692	Tc-91m	2.3188E+22	2.2566E-07	2.0510E-07	Calculated	0.02000	BETA	5.95948E+02	Calculated
> 693	Tc-92	1.7202E+22	2.9072E-07	2.6422E-07	Calculated	0.02000	BETA	2.43546E+02	Calculated
> 694	Tc-93	4.5381E+20	5.5000E-11	3.5000E-11	ICRP72	0.02000	BETA	6.35817E+02	Calculated
> 695	Tc-93m	1.7214E+21	2.5000E-11	1.7000E-11	ICRP72	0.02000	BETA	1.22429E+03	Calculated
> 696	Tc-94	2.5284E+20	2.0000E-10	1.3000E-10	ICRP72	0.02000	BETA	3.76950E+02	Calculated
> 697	Tc-94m	1.4247E+21	1.0000E-10	4.6000E-11	ICRP72	0.02000	BETA	4.98653E+02	Calculated
> 698	Tc-95	6.1086E+19	1.8000E-10	1.1000E-10	ICRP72	0.02000	BETA	1.25457E+03	Calculated
> 699	Tc-95m	8.3451E+17	5.6000E-10	1.2000E-09	ICRP72	2.00000	A2 VALUE	1.44942E+03	Calculated
700	Tc-96	1.1770E+19	1.1000E-09	7.0000E-10	ICRP72	0.40000	A2 VALUE	1.00000E+03	IAEA-G-1.7
701	Tc-96m	1.4085E+21	1.2000E-11	7.5000E-12	ICRP72	0.40000	A2 VALUE	1.00000E+06	IAEA-G-1.7
702	Tc-97	5.2498E+10	6.8000E-11	1.8000E-09	ICRP72	-1.00000	A2 VALUE	1.00000E+04	IAEA-G-1.7
703	Tc-97m	5.5272E+17	5.5000E-10	4.1000E-09	ICRP72	10.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
> 704	Tc-98	3.2168E+10	2.0000E-09	4.5000E-08	ICRP72	0.70000	A2 VALUE	7.02015E+02	Calculated
705	Tc-99	6.2495E+11	6.4000E-10	1.3000E-08	ICRP72	0.90000	A2 VALUE	1.00000E+03	IAEA-G-1.7
706	Tc-99m	1.9506E+20	2.2000E-11	2.0000E-11	ICRP72	4.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
> 707	Tc-100	2.6444E+23	4.2733E-09	3.8838E-09	Calculated	0.02000	BETA	4.66855E+03	Calculated
> 708	Tc-101	4.8553E+21	1.9000E-11	1.2000E-11	ICRP72	0.02000	BETA	2.60562E+03	Calculated
> 709	Tc-102	7.7576E+23	2.0700E-09	1.8814E-09	Calculated	0.02000	BETA	3.63294E+03	Calculated
> 710	Tc-102m	1.5694E+22	1.6621E-07	1.5107E-07	Calculated	0.02000	BETA	3.86284E+02	Calculated
> 711	Tc-103	7.4838E+22	1.2935E-08	1.2033E-08	Calculated	0.02000	BETA	2.88559E+03	Calculated
> 712	Tc-104	3.6586E+21	8.0000E-11	2.9000E-11	ICRP72	0.02000	BETA	4.87926E+02	Calculated
> 713	Tc-105	8.7255E+21	1.9946E-07	1.9212E-07	Calculated	0.02000	BETA	1.25097E+03	Calculated
> 714	Tc-106	1.0948E+23	2.8826E-08	2.6656E-08	Calculated	0.02000	BETA	4.19301E+02	Calculated
> 715	Tc-107	1.8416E+23	1.8923E-08	1.6715E-08	Calculated	0.02000	BETA	1.38821E+03	Calculated
> 716	Tc-108	7.4815E+23	6.4373E-09	5.8507E-09	Calculated	0.02000	BETA	5.82751E+02	Calculated
> 717	Tc-109	4.4530E+24	1.3923E-09	1.2534E-09	Calculated	0.02000	BETA	4.32517E+02	Calculated
> 718	Ru-92	2.0736E+22	1.0640E-10	4.9802E-11	Calculated	0.02000	BETA	4.57697E+02	Calculated
> 719	Ru-93	7.5250E+22	1.1949E-11	5.5930E-12	Calculated	0.02000	BETA	7.32508E+02	Calculated
> 720	Ru-93m	4.1597E+23	2.6844E-12	1.2565E-12	Calculated	0.02000	BETA	4.66200E+02	Calculated
> 721	Ru-94	1.4301E+21	9.4000E-11	4.4000E-11	ICRP72	0.02000	BETA	1.92298E+03	Calculated
> 722	Ru-95	7.4357E+20	5.7000E-11	8.2000E-11	NRPB-M	0.02000	BETA	8.02341E+02	Calculated
> 723	Ru-96	2.0585E+00	2.8162E-08	3.0759E-08	Calculated	0.02000	BETA	3.67850E+03	Calculated
724	Ru-97	1.7191E+19	1.5000E-10	1.1000E-10	ICRP72	5.00000	A2 VALUE	1.00000E+04	IAEA-G-1.7
730	Ru-103	1.1958E+18	7.3000E-10	3.0000E-09	ICRP72	1.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
732	Ru-105	2.4893E+20	2.6000E-10	1.8000E-10	ICRP72	0.60000	A2 VALUE	1.00000E+04	IAEA-G-1.7
733	Ru-106	1.2243E+17	7.0000E-09	6.6000E-08	ICRP72	0.20000	A2 VALUE	1.00000E+02	IAEA-G-1.7
> 734	Ru-107	1.7353E+22	2.6486E-11	1.1610E-11	Calculated	0.02000	BETA	2.20410E+03	Calculated
> 735	Ru-108	1.4327E+22	4.1780E-11	1.9557E-11	Calculated	0.02000	BETA	1.07673E+04	Calculated
> 736	Ru-109	1.1109E+23	8.2719E-12	3.7983E-12	Calculated	0.02000	BETA	5.65365E+02	Calculated
> 737	Ru-110	3.2739E+23	3.2959E-12	1.5428E-12	Calculated	0.02000	BETA	6.64729E+03	Calculated
> 738	Ru-111	1.7739E+24	8.0264E-13	3.8097E-13	Calculated	0.02000	BETA	4.79562E+02	Calculated
> 739	Rh-95	1.4611E+22	3.1959E-11	3.1540E-11	Calculated	0.02000	BETA	3.90778E+02	Calculated
> 740	Rh-95m	3.7396E+22	1.4882E-11	1.4476E-11	Calculated	0.02000	BETA	1.10011E+03	Calculated
> 741	Rh-96	7.3266E+21	8.6544E-11	7.7770E-11	Calculated	0.02000	BETA	2.45399E+02	Calculated
> 742	Rh-96m	4.8036E+22	1.2884E-11	1.1578E-11	Calculated	0.02000	BETA	7.81250E+02	Calculated
> 743	Rh-97	2.3384E+21	1.0457E-10	9.4260E-11	Calculated	0.02000	BETA	7.10840E+02	Calculated
> 744	Rh-97m	1.5538E+21	1.9976E-10	1.7995E-10	Calculated	0.02000	BETA	4.73809E+02	Calculated
> 745	Rh-98	8.1485E+21	4.8743E-11	4.3801E-11	Calculated	0.02000	BETA	5.24753E+02	Calculated
> 746	Rh-98m	2.0301E+22	2.1051E-11	1.8917E-11	Calculated	0.02000	BETA	4.10004E+02	Calculated
747	Rh-99	3.0340E+18	5.1000E-10	8.7000E-10	ICRP72	2.00000	A2 VALUE	1.96928E+03	Calculated
748	Rh-99m	2.4972E+20	6.6000E-11	4.0000E-11	ICRP72	0.02000	BETA	1.54914E+03	Calculated
> 749	Rh-100	5.5797E+19	7.1000E-10	3.5000E-10	ICRP72	0.02000	BETA	3.64117E+02	Calculated
> 750	Rh-100m	1.5138E+22	2.9813E-12	1.6355E-12	Calculated	0.02000	BETA	2.14638E+04	Calculated
> 751	Rh-101	3.9724E+16	5.5000E-10	5.4000E-09	ICRP72	3.00000	A2 VALUE	3.44467E+03	Calculated
752	Rh-101m	1.1031E+19	2.2000E-10	2.1000E-10	ICRP72	0.02000	BETA	3.26819E+03	Calculated
753	Rh-102	4.4725E+16	2.6000E-09	1.7000E-08	ICRP72	0.50000	A2 VALUE	4.70973E+02	Calculated
754	Rh-102m	2.2793E+17	1.2000E-09	7.1000E-09	ICRP72	2.00000	A2 VALUE	1.95877E+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
> 756	Rh-103m	1.2048E+21	3.8000E-12	2.7000E-12	ICRP72	40.00000	A2 VALUE	1.00000E+07	IAEA-G-1.7
> 757	Rh-104	9.4971E+22	1.2676E-12	1.1391E-12	Calculated	0.02000	BETA	8.84393E+03	Calculated
> 758	Rh-104m	1.5427E+22	8.8261E-12	7.9312E-12	Calculated	0.02000	BETA	1.84697E+04	Calculated
> 759	Rh-105	3.1258E+19	3.7000E-10	3.5000E-10	ICRP72	0.80000	A2 VALUE	1.00000E+05	IAEA-G-1.7
> 760	Rh-105m	9.9476E+22	2.6920E-13	2.4741E-13	Calculated	0.02000	BETA	2.28152E+04	Calculated
> 761	Rh-106	1.3138E+23	1.4591E-12	1.3112E-12	Calculated	0.02000	BETA	2.89495E+03	Calculated
> 762	Rh-106m	4.9765E+20	1.6000E-10	1.1000E-10	ICRP72	0.02000	BETA	3.58245E+02	Calculated
> 763	Rh-107	2.9989E+21	2.4000E-11	1.7000E-11	ICRP72	0.02000	BETA	2.81639E+03	Calculated
> 764	Rh-108	2.3026E+23	1.0977E-12	9.8643E-13	Calculated	0.02000	BETA	1.99030E+03	Calculated
> 765	Rh-108m	1.0745E+22	3.5984E-11	3.2335E-11	Calculated	0.02000	BETA	3.62732E+02	Calculated
> 766	Rh-109	4.7910E+22	3.4910E-12	2.9660E-12	Calculated	0.02000	BETA	2.54701E+03	Calculated
> 767	Rh-110	1.3326E+23	3.2050E-12	2.8801E-12	Calculated	0.02000	BETA	3.74276E+02	Calculated
> 768	Rh-110m	1.1868E+24	2.5067E-13	2.2525E-13	Calculated	0.02000	BETA	1.77751E+03	Calculated
> 769	Rh-111	3.1363E+23	1.0023E-12	9.3058E-13	Calculated	0.02000	BETA	2.01618E+03	Calculated
> 770	Rh-112	1.7761E+24	2.9555E-13	2.3794E-13	Calculated	0.02000	BETA	2.08486E+03	Calculated
> 771	Rh-112m	5.4851E+23	1.1831E-12	9.7360E-13	Calculated	0.02000	BETA	4.07852E+02	Calculated
> 772	Rh-113	1.3193E+24	4.8793E-13	4.3866E-13	Calculated	0.02000	BETA	5.44366E+02	Calculated
> 773	Rh-114	1.9807E+24	2.9687E-13	2.6678E-13	Calculated	0.02000	BETA	1.65968E+03	Calculated
> 774	Rh-114m	1.9807E+24	4.1837E-13	3.7595E-13	Calculated	0.02000	BETA	3.67820E+02	Calculated
> 775	Pd-96	3.5671E+22	4.2545E-11	4.6729E-11	Calculated	0.02000	BETA	6.85751E+02	Calculated
> 776	Pd-97	2.3156E+22	4.9494E-11	5.4427E-11	Calculated	0.02000	BETA	4.38222E+02	Calculated
> 777	Pd-98	4.0143E+21	2.0629E-10	2.2658E-10	Calculated	0.02000	BETA	2.37890E+03	Calculated
> 778	Pd-99	3.2867E+21	1.2708E-10	1.3644E-10	Calculated	0.02000	BETA	7.67523E+02	Calculated
> 779	Pd-100	1.3322E+19	9.4000E-10	8.5000E-10	ICRP72	0.02000	BETA	7.86644E+03	Calculated
> 780	Pd-101	1.3566E+20	9.4000E-11	6.2000E-11	ICRP72	0.02000	BETA	2.82447E+03	Calculated
> 782	Pd-103	2.7649E+18	1.9000E-10	4.5000E-10	ICRP72	40.00000	A2 VALUE	1.00000E+06	IAEA-G-1.7
> 786	Pd-107	1.9035E+10	3.7000E-11	5.9000E-10	ICRP72	-1.00000	A2 VALUE	1.07527E+06	Calculated
> 787	Pd-107m	1.8331E+23	2.4972E-13	2.7427E-13	Calculated	0.02000	BETA	6.32445E+03	Calculated
> 789	Pd-109	7.7708E+19	5.5000E-10	3.7000E-10	ICRP72	0.50000	A2 VALUE	1.00000E+05	IAEA-G-1.7
> 790	Pd-109m	1.3621E+22	6.0213E-12	5.2779E-12	Calculated	0.02000	BETA	8.40952E+03	Calculated
> 791	Pd-110	2.0059E-01	1.9636E-08	5.0324E-08	Calculated	0.02000	BETA	5.00000E+03	Calculated
> 792	Pd-111	2.6807E+21	7.8895E-11	9.4407E-11	Calculated	0.02000	BETA	7.72572E+03	Calculated
> 793	Pd-111m	1.9009E+20	5.2000E-10	4.8000E-10	NRPB-M	0.02000	BETA	2.49836E+03	Calculated
> 794	Pd-112	5.1041E+19	6.4296E-09	4.9271E-09	Calculated	0.02000	BETA	7.02347E+04	Calculated
> 795	Pd-113	4.0625E+22	1.2178E-11	1.3390E-11	Calculated	0.02000	BETA	3.83781E+03	Calculated
> 796	Pd-113m	1.2323E+25	4.1472E-14	4.5597E-14	Calculated	0.02000	BETA	3.65699E+04	Calculated
> 797	Pd-114	2.5237E+22	2.3540E-11	2.5855E-11	Calculated	0.02000	BETA	1.26325E+04	Calculated
> 798	Pd-115	1.4519E+23	7.0164E-12	7.0718E-12	Calculated	0.02000	BETA	5.95617E+02	Calculated
> 799	Pd-115m	7.2595E+22	1.3479E-11	1.4330E-11	Calculated	0.02000	BETA	6.36257E+02	Calculated
> 800	Pd-116	3.0518E+23	3.2276E-12	3.5449E-12	Calculated	0.02000	BETA	3.88423E+03	Calculated
> 801	Pd-117	8.2970E+23	1.4985E-12	1.6085E-12	Calculated	0.02000	BETA	4.76320E+02	Calculated
> 802	Pd-118	1.8631E+24	7.8948E-13	8.6711E-13	Calculated	0.02000	BETA	1.74782E+03	Calculated
> 803	Ag-100	3.4527E+22	1.3654E-11	8.6964E-12	Calculated	0.02000	BETA	2.81215E+02	Calculated
> 804	Ag-100m	3.1177E+22	1.2695E-11	8.0828E-12	Calculated	0.02000	BETA	3.66300E+02	Calculated
> 805	Ag-101	6.2109E+21	3.7115E-11	2.3466E-11	Calculated	0.02000	BETA	6.14733E+02	Calculated
> 806	Ag-101m	1.3343E+24	1.9197E-13	1.2149E-13	Calculated	0.02000	BETA	5.99272E+03	Calculated
> 807	Ag-102	5.2919E+21	4.0000E-11	1.8000E-11	ICRP72	0.02000	BETA	3.24989E+02	Calculated
> 808	Ag-102m	8.9042E+21	3.7577E-11	2.1789E-11	Calculated	0.02000	BETA	4.90918E+02	Calculated
> 809	Ag-103	1.0290E+21	4.3000E-11	2.7000E-11	ICRP72	0.02000	BETA	1.16984E+03	Calculated
> 810	Ag-103m	7.1162E+23	7.9508E-14	5.0101E-14	Calculated	0.02000	BETA	2.11864E+04	Calculated
> 811	Ag-104	9.6800E+20	6.0000E-11	3.7000E-11	ICRP72	0.02000	BETA	3.67782E+02	Calculated
> 812	Ag-104m	1.9986E+21	5.4000E-11	2.6000E-11	ICRP72	0.02000	BETA	7.74593E+02	Calculated
> 813	Ag-105	1.1151E+18	4.7000E-10	8.1000E-10	ICRP72	2.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
> 814	Ag-105m	9.1724E+21	3.2094E-13	2.6661E-13	Calculated	0.02000	BETA	2.66325E+05	Calculated
> 815	Ag-106	2.7371E+21	3.2000E-11	1.6000E-11	ICRP72	0.02000	BETA	1.32218E+03	Calculated
> 816	Ag-106m	5.3922E+18	1.5000E-09	1.1000E-09	ICRP72	0.02000	BETA	3.62888E+02	Calculated
> 818	Ag-107m	8.8140E+22	9.3290E-14	5.9534E-14	Calculated	0.02000	BETA	4.84364E+04	Calculated
> 819	Ag-108	2.6864E+22	6.0124E-14	3.8369E-14	Calculated	0.02000	BETA	1.19935E+04	Calculated
> 820	Ag-108m	9.9326E+14	2.3000E-09	3.7000E-08	ICRP72	0.70000	A2 VALUE	6.12871E+02	Calculated
> 822	Ag-109m	6.6791E+22	7.8934E-14	5.0373E-14	Calculated	0.02000	BETA	5.31436E+04	Calculated
> 823	Ag-110	1.5464E+23	6.8032E-13	4.3415E-13	Calculated	0.02000	BETA	6.69074E+03	Calculated
> 824	Ag-110m	1.7599E+17	2.8000E-09	1.2000E-08	ICRP72	0.54000	A2 VALUE	1.00000E+02	IAEA-G-1.7
> 825	Ag-111	5.8473E+18	1.3000E-09	1.7000E-09	ICRP72	0.60000	A2 VALUE	1.00000E+05	IAEA-G-1.7
> 826	Ag-111m	5.8083E+22	2.2359E-13	2.2987E-13	Calculated	0.02000	BETA	8.01345E+04	Calculated
> 827	Ag-112	3.3103E+20	4.3000E-10	1.7000E-10	ICRP72	0.02000	BETA	1.21133E+03	Calculated
> 828	Ag-113	1.9124E+20	3.9000E-10	2.5000E-10	NRPB-M	0.02000	BETA	6.77195E+03	Calculated
> 829	Ag-113m	5.3814E+22	1.5693E-12	1.0040E-12	Calculated	0.02000	BETA	4.26579E+03	Calculated
> 830	Ag-114	7.9664E+23	2.5381E-13	1.6197E-13	Calculated	0.02000	BETA	2.11385E+03	Calculated
> 831	Ag-114m	2.4430E+27	8.9603E-17	5.7181E-17	Calculated	0.02000	BETA	9.31932E+03	Calculated
> 832	Ag-115	3.0272E+21	6.0000E-11	2.9000E-11	ICRP72	0.02000	BETA	1.79300E+03	Calculated
> 833	Ag-115m	1.9530E+23	7.7378E-13	4.5708E-13	Calculated	0.02000	BETA	1.85393E+03	Calculated
> 834	Ag-116	2.2396E+22	1.4165E-11	9.0398E-12	Calculated	0.02000	BETA	4.40740E+02	Calculated
> 835	Ag-116m	4.1875E+23	7.0547E-13	4.5021E-13	Calculated	0.02000	BETA	5.39270E+02	Calculated
> 836	Ag-117	4.9044E+22	4.5246E-12	2.7090E-12	Calculated	0.02000	BETA	8.17638E+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
> 837	Ag-117m	6.6862E+23	2.9452E-13	1.7847E-13	Calculated	0.02000	BETA	1.25809E+03	Calculated
> 838	Ag-118	9.5677E+23	4.6789E-13	2.9859E-13	Calculated	0.02000	BETA	8.74493E+02	Calculated
> 839	Ag-118m	1.7700E+24	2.8699E-13	1.8315E-13	Calculated	0.02000	BETA	6.15385E+02	Calculated
> 840	Ag-119	1.6715E+24	2.8939E-13	1.8326E-13	Calculated	0.02000	BETA	6.60595E+02	Calculated
> 841	Ag-119m	5.8462E+23	9.5040E-13	6.0394E-13	Calculated	0.02000	BETA	5.16849E+02	Calculated
> 842	Ag-120	2.9751E+24	1.7519E-13	1.1180E-13	Calculated	0.02000	BETA	7.66295E+02	Calculated
> 843	Ag-121	4.4257E+24	1.4648E-13	9.3478E-14	Calculated	0.02000	BETA	7.15792E+02	Calculated
> 844	Ag-122	7.1326E+24	9.9645E-14	6.3590E-14	Calculated	0.02000	BETA	6.95722E+02	Calculated
+ 845	Ag-122m	2.2810E+24	3.7117E-13	2.3687E-13	Calculated	0.02000	BETA	2.84684E+02	Calculated
> 846	Cd-102	1.2412E+22	1.3917E-10	1.7156E-10	Calculated	0.02000	BETA	1.19645E+03	Calculated
> 847	Cd-103	9.2604E+21	1.2183E-10	1.6259E-10	Calculated	0.02000	BETA	4.73037E+02	Calculated
853	Cd-104	1.1610E+21	5.4000E-11	3.5000E-11	ICRP72	0.02000	BETA	5.28312E+03	Calculated
> 849	Cd-105	1.1949E+21	4.7358E-10	6.3787E-10	Calculated	0.02000	BETA	7.80336E+02	Calculated
> 850	Cd-106	1.8924E-02	4.7798E-08	1.4923E-07	Calculated	0.02000	BETA	3.61011E+03	Calculated
851	Cd-107	1.6635E+20	6.2000E-11	8.3000E-11	ICRP72	0.02000	BETA	4.57272E+04	Calculated
> 852	Cd-108	2.9899E-01	4.6935E-09	1.4654E-08	Calculated	0.02000	BETA	3.67652E+04	Calculated
853	Cd-109	9.5898E+16	2.0000E-09	8.1000E-09	ICRP72	2.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
> 856	Cd-111m	1.2923E+21	1.0898E-10	1.4582E-10	Calculated	0.02000	BETA	3.39291E+03	Calculated
858	Cd-113	1.5215E+01	2.5000E-08	1.2000E-07	ICRP72	0.02000	BETA	1.00000E+03	IAEA-G-1.7
> 859	Cd-113m	8.3089E+15	2.3000E-08	1.1000E-07	ICRP72	0.50000	A2 VALUE	5.36650E+04	Calculated
> 860	Cd-114	1.9355E-01	9.2490E-09	2.8877E-08	Calculated	0.02000	BETA	1.86567E+04	Calculated
861	Cd-115	1.8876E+19	1.4000E-09	1.1000E-09	ICRP72	0.25000	A2 VALUE	1.00000E+04	IAEA-G-1.7
862	Cd-115m	9.4273E+17	3.3000E-09	7.7000E-09	ICRP72	0.50000	A2 VALUE	1.00000E+05	IAEA-G-1.7
> 863	Cd-116	3.3565E-03	4.8385E-08	1.5107E-07	Calculated	0.02000	BETA	3.56633E+03	Calculated
> 864	Cd-117	3.9832E+20	2.8000E-10	1.7000E-10	ICRP72	0.02000	BETA	8.91620E+02	Calculated
> 865	Cd-117m	2.9518E+20	2.8000E-10	2.1000E-10	ICRP72	0.02000	BETA	4.86562E+02	Calculated
> 866	Cd-118	1.1731E+21	6.1399E-10	8.2156E-10	Calculated	0.02000	BETA	6.21118E+04	Calculated
> 867	Cd-119	2.1750E+22	3.9582E-11	5.1748E-11	Calculated	0.02000	BETA	6.38618E+02	Calculated
> 868	Cd-119m	2.6594E+22	5.3718E-11	7.1876E-11	Calculated	0.02000	BETA	4.48018E+02	Calculated
> 869	Cd-120	6.8526E+22	1.5488E-11	2.0724E-11	Calculated	0.02000	BETA	1.41243E+04	Calculated
> 870	Cd-121	2.5572E+23	6.0555E-12	8.1028E-12	Calculated	0.02000	BETA	5.40828E+02	Calculated
> 871	Cd-121m	4.1594E+23	4.1629E-12	5.5703E-12	Calculated	0.02000	BETA	4.45820E+02	Calculated
> 872	Cd-122	6.5342E+23	2.2208E-12	2.9715E-12	Calculated	0.02000	BETA	8.01925E+03	Calculated
> 873	Cd-123	1.6171E+24	1.1734E-12	1.5702E-12	Calculated	0.02000	BETA	4.86286E+02	Calculated
> 874	Cd-123m	1.8659E+24	1.1165E-12	1.4940E-12	Calculated	0.02000	BETA	4.01362E+02	Calculated
> 875	Cd-124	3.3686E+24	6.5982E-13	8.8289E-13	Calculated	0.02000	BETA	3.08150E+03	Calculated
> 876	Cd-125	5.1408E+24	4.9489E-13	6.6320E-13	Calculated	0.02000	BETA	4.80322E+02	Calculated
> 877	In-106	1.0594E+22	5.2829E-10	3.6242E-10	Calculated	0.02000	BETA	2.73823E+02	Calculated
> 878	In-106m	1.2632E+22	4.4506E-10	3.0532E-10	Calculated	0.02000	BETA	3.22061E+02	Calculated
> 879	In-107	2.0084E+21	1.1539E-09	7.9160E-10	Calculated	0.02000	BETA	6.52469E+02	Calculated
> 880	In-107m	7.7469E+22	4.0748E-11	2.7955E-11	Calculated	0.02000	BETA	1.55168E+03	Calculated
> 881	In-108	1.1116E+21	3.7473E-09	2.5708E-09	Calculated	0.02000	BETA	3.08005E+02	Calculated
> 882	In-108m	1.6253E+21	2.6172E-09	1.7955E-09	Calculated	0.02000	BETA	3.53245E+02	Calculated
> 883	In-109	2.5349E+20	6.6000E-11	4.2000E-11	ICRP72	0.02000	BETA	1.57066E+03	Calculated
> 884	In-109m	4.7672E+22	1.6839E-11	1.1535E-11	Calculated	0.02000	BETA	1.62876E+03	Calculated
> 885	In-109n	1.8339E+25	1.4020E-13	9.6139E-14	Calculated	0.02000	BETA	4.79128E+02	Calculated
> 886	In-110	2.1530E+20	2.4000E-10	1.3000E-10	ICRP72	0.02000	BETA	3.24668E+02	Calculated
> 887	In-110m	9.1605E+20	1.0000E-10	4.7000E-11	ICRP72	0.02000	BETA	6.10745E+02	Calculated
888	In-111	1.5532E+19	2.9000E-10	2.3000E-10	ICRP72	3.00000	A2 VALUE	1.00000E+04	IAEA-G-1.7
> 889	In-111m	7.9405E+21	8.1325E-11	5.5852E-11	Calculated	0.02000	BETA	2.09899E+03	Calculated
890	In-112	4.2292E+21	1.0000E-11	7.4000E-12	ICRP72	0.02000	BETA	3.17754E+03	Calculated
> 891	In-112m	3.0033E+21	7.5802E-11	5.2763E-11	Calculated	0.02000	BETA	2.13746E+04	Calculated
893	In-113m	6.1945E+20	2.8000E-11	2.0000E-11	ICRP72	2.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
> 894	In-114	5.0969E+22	1.7632E-11	1.2096E-11	Calculated	0.02000	BETA	1.23012E+04	Calculated
895	In-114m	8.4830E+17	4.1000E-09	9.3000E-09	ICRP72	0.50000	A2 VALUE	1.00000E+04	IAEA-G-1.7
896	In-115	2.6103E+02	3.2000E-08	3.9000E-07	ICRP72	0.02000	BETA	1.00000E+03	IAEA-G-1.7
897	In-115m	2.2495E+20	8.6000E-11	5.9000E-11	ICRP72	1.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
> 898	In-116	2.5362E+23	6.1304E-12	4.2057E-12	Calculated	0.02000	BETA	7.09572E+03	Calculated
899	In-116m	1.0993E+21	6.4000E-11	4.5000E-11	ICRP72	0.02000	BETA	3.96504E+02	Calculated
> 900	In-116n	1.6596E+24	1.5403E-13	1.0639E-13	Calculated	0.02000	BETA	1.28895E+04	Calculated
> 901	In-117	1.3776E+21	3.1000E-11	2.9000E-11	ICRP72	0.02000	BETA	1.38769E+03	Calculated
> 902	In-117m	5.1214E+20	1.2000E-10	7.2000E-11	ICRP72	0.02000	BETA	7.44655E+03	Calculated
> 903	In-118	7.0806E+23	3.1021E-12	2.1282E-12	Calculated	0.02000	BETA	3.76274E+03	Calculated
> 904	In-118m	1.3260E+22	2.8544E-10	1.9582E-10	Calculated	0.02000	BETA	3.53766E+02	Calculated
> 905	In-118n	4.1651E+23	9.4512E-12	6.4839E-12	Calculated	0.02000	BETA	1.16014E+04	Calculated
> 906	In-119	2.4379E+22	6.2888E-11	4.3144E-11	Calculated	0.02000	BETA	1.20849E+03	Calculated
907	In-119m	3.2505E+21	4.7000E-11	1.7000E-11	ICRP72	0.02000	BETA	8.62679E+03	Calculated
> 908	In-120	1.1303E+24	2.4081E-12	1.6520E-12	Calculated	0.02000	BETA	2.09401E+03	Calculated
> 909	In-120m	7.5350E+22	6.0754E-11	4.1680E-11	Calculated	0.02000	BETA	3.36777E+02	Calculated
> 910	In-120n	7.5350E+22	6.0630E-11	4.1595E-11	Calculated	0.02000	BETA	3.36700E+02	Calculated
> 911	In-121	1.4945E+23	1.3968E-11	9.5826E-12	Calculated	0.02000	BETA	9.79090E+02	Calculated
> 912	In-121m	1.4830E+22	1.1831E-10	8.1164E-11	Calculated	0.02000	BETA	4.63723E+03	Calculated
> 913	In-122	2.2827E+24	1.5052E-12	1.0326E-12	Calculated	0.02000	BETA	1.13054E+03	Calculated
> 914	In-122m	3.1704E+23	1.6514E-11	1.1329E-11	Calculated	0.02000	BETA	2.78035E+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
> 915	In-122n	3.1704E+23	1.6514E-11	1.1329E-11	Calculated	0.02000	BETA	2.78035E+02	Calculated
> 916	In-123	5.6792E+23	4.6485E-12	3.1891E-12	Calculated	0.02000	BETA	8.42535E+02	Calculated
> 917	In-123m	7.1049E+22	3.1731E-11	2.1769E-11	Calculated	0.02000	BETA	3.76411E+03	Calculated
> 918	In-124	1.0832E+24	4.6362E-12	3.1806E-12	Calculated	0.02000	BETA	3.50190E+02	Calculated
> 919	In-124m	9.1045E+23	6.0454E-12	4.1473E-12	Calculated	0.02000	BETA	2.70737E+02	Calculated
> 920	In-125	1.4160E+24	2.9701E-12	2.0432E-12	Calculated	0.02000	BETA	7.22836E+02	Calculated
> 921	In-125m	2.7391E+23	1.4465E-11	9.9585E-12	Calculated	0.02000	BETA	2.43891E+03	Calculated
> 922	In-126	2.0719E+24	2.6186E-12	1.7965E-12	Calculated	0.02000	BETA	3.32912E+02	Calculated
> 923	In-126m	2.2863E+24	2.8478E-12	1.9537E-12	Calculated	0.02000	BETA	2.22097E+02	Calculated
> 924	In-127	3.0174E+24	1.6152E-12	1.1523E-12	Calculated	0.02000	BETA	7.25886E+02	Calculated
> 925	In-127m	8.8890E+23	7.4569E-12	5.2381E-12	Calculated	0.02000	BETA	1.28966E+03	Calculated
> 926	In-128	3.8847E+24	1.5071E-12	1.0339E-12	Calculated	0.02000	BETA	3.04753E+02	Calculated
+ 927	In-128m	3.2611E+26	1.8728E-14	1.2848E-14	Calculated	0.02000	BETA	4.03437E+03	Calculated
+ 928	In-128n	4.5293E+24	1.5731E-12	1.0792E-12	Calculated	0.02000	BETA	3.78603E+02	Calculated
> 929	Sn-107	2.2438E+22	1.2739E-06	2.0436E-06	Calculated	0.02000	BETA	5.34766E+02	Calculated
> 930	Sn-108	6.2592E+21	3.5796E-06	5.7426E-06	Calculated	0.02000	BETA	1.48212E+03	Calculated
> 931	Sn-109	3.5488E+21	3.7236E-06	5.9712E-06	Calculated	0.02000	BETA	4.28230E+02	Calculated
932	Sn-110	2.5731E+20	3.5000E-10	1.6000E-10	ICRP72	0.02000	BETA	3.42641E+03	Calculated
> 933	Sn-111	1.7770E+21	2.3000E-11	1.3000E-11	ICRP72	0.02000	BETA	1.92927E+03	Calculated
935	Sn-113	3.7180E+17	7.3000E-10	2.7000E-09	ICRP72	2.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
> 936	Sn-113m	2.9483E+21	1.2722E-07	2.0409E-07	Calculated	0.02000	BETA	4.91623E+04	Calculated
> 941	Sn-117m	3.0388E+18	7.1000E-10	2.4000E-09	ICRP72	0.40000	A2 VALUE	5.77671E+03	Calculated
944	Sn-119m	1.3868E+17	3.4000E-10	2.2000E-09	ICRP72	30.00000	A2 VALUE	5.21186E+04	Calculated
> 946	Sn-121	3.5441E+19	2.3000E-10	2.3000E-10	ICRP72	0.02000	BETA	8.68056E+04	Calculated
947	Sn-121m	1.9891E+15	3.8000E-10	4.5000E-09	ICRP72	0.90000	A2 VALUE	1.15899E+05	Calculated
> 949	Sn-123	3.0425E+17	2.1000E-09	8.1000E-09	ICRP72	0.60000	A2 VALUE	1.69008E+04	Calculated
> 950	Sn-123m	1.4130E+21	3.8000E-11	2.7000E-11	ICRP72	0.02000	BETA	5.30485E+03	Calculated
> 951	Sn-124	1.0675E+00	5.7069E-04	2.1362E-03	Calculated	0.02000	BETA	3.50455E+01	Calculated
952	Sn-125	4.0123E+18	3.1000E-09	3.1000E-09	ICRP72	0.40000	A2 VALUE	1.00000E+04	IAEA-G-1.7
> 953	Sn-125m	5.8506E+21	9.1450E-07	1.4838E-06	Calculated	0.02000	BETA	2.34380E+03	Calculated
> 954	Sn-126	4.5677E+11	4.7000E-09	2.8000E-08	ICRP72	0.40000	A2 VALUE	1.45220E+04	Calculated
955	Sn-127	4.3507E+20	2.0000E-10	1.3000E-10	ICRP72	0.02000	BETA	5.24592E+02	Calculated
> 956	Sn-127m	1.3273E+22	6.3184E-07	1.1822E-06	Calculated	0.02000	BETA	1.49593E+03	Calculated
> 957	Sn-128	9.2030E+20	1.5000E-10	9.2000E-11	ICRP72	0.02000	BETA	1.59130E+03	Calculated
> 958	Sn-128m	5.0206E+23	1.8866E-08	3.0266E-08	Calculated	0.02000	BETA	4.95177E+02	Calculated
> 959	Sn-129	2.4200E+22	7.1452E-07	1.2052E-06	Calculated	0.02000	BETA	6.85040E+02	Calculated
> 960	Sn-129m	7.4954E+21	2.5258E-06	4.1923E-06	Calculated	0.02000	BETA	5.62426E+02	Calculated
> 961	Sn-130	1.4357E+22	1.5189E-06	2.4367E-06	Calculated	0.02000	BETA	1.01650E+03	Calculated
> 962	Sn-130m	3.1501E+22	6.2955E-07	1.0547E-06	Calculated	0.02000	BETA	1.05055E+03	Calculated
> 963	Sn-131	8.1755E+22	3.8025E-07	5.5870E-07	Calculated	0.02000	BETA	4.08497E+02	Calculated
> 964	Sn-131m	5.2099E+22	6.1785E-07	9.1068E-07	Calculated	0.02000	BETA	3.99872E+02	Calculated
> 965	Sb-112	7.2566E+22	4.4355E-12	2.3128E-12	Calculated	0.02000	BETA	3.41233E+02	Calculated
> 966	Sb-113	9.2425E+21	1.5464E-11	8.0632E-12	Calculated	0.02000	BETA	7.33676E+02	Calculated
> 967	Sb-114	1.7500E+22	1.5165E-11	7.9075E-12	Calculated	0.02000	BETA	3.64002E+02	Calculated
> 968	Sb-115	1.8862E+21	2.4000E-11	1.4000E-11	ICRP72	0.02000	BETA	1.09795E+03	Calculated
> 969	Sb-116	3.7989E+21	2.6000E-11	1.3000E-11	ICRP72	0.02000	BETA	4.27456E+02	Calculated
> 970	Sb-116m	9.9540E+20	6.7000E-11	4.9000E-11	ICRP72	0.02000	BETA	3.11684E+02	Calculated
> 971	Sb-117	3.5423E+20	1.8000E-11	1.7000E-11	ICRP72	0.02000	BETA	5.33029E+03	Calculated
> 972	Sb-118	1.6390E+22	6.9333E-12	3.6152E-12	Calculated	0.02000	BETA	1.12185E+03	Calculated
> 973	Sb-118m	1.9668E+20	2.1000E-10	1.2000E-10	ICRP72	0.02000	BETA	3.84314E+02	Calculated
974	Sb-119	2.5461E+19	8.0000E-11	3.6000E-11	ICRP72	0.02000	BETA	3.84387E+04	Calculated
+ 975	Sb-119m	4.1268E+24	4.6888E-14	2.4414E-14	Calculated	0.02000	BETA	3.50631E+02	Calculated
976	Sb-120	3.6491E+21	1.4000E-11	7.3000E-12	ICRP72	0.02000	BETA	2.03788E+03	Calculated
977	Sb-120m	6.9952E+18	1.2000E-09	1.1000E-09	ICRP72	0.02000	BETA	4.05389E+02	Calculated
979	Sb-122	1.4678E+19	1.7000E-09	1.1000E-09	ICRP72	0.40000	A2 VALUE	1.00000E+04	IAEA-G-1.7
> 980	Sb-122m	1.3620E+22	2.6191E-12	1.5958E-12	Calculated	0.02000	BETA	1.25264E+04	Calculated
982	Sb-124	6.4770E+17	2.5000E-09	8.6000E-09	ICRP72	0.60000	A2 VALUE	1.00000E+03	IAEA-G-1.7
> 983	Sb-124m	3.6224E+22	1.0153E-12	6.2726E-13	Calculated	0.02000	BETA	2.22743E+03	Calculated
984	Sb-124n	2.7796E+21	8.0000E-12	5.9000E-12	ICRP72	0.02000	BETA	3.43036E+05	Calculated
985	Sb-125	3.8390E+16	1.1000E-09	1.2000E-08	ICRP72	1.00000	A2 VALUE	1.00000E+02	IAEA-G-1.7
> 986	Sb-126	3.0945E+18	2.4000E-09	3.2000E-09	ICRP72	0.40000	A2 VALUE	3.55770E+02	Calculated
987	Sb-126m	2.8929E+21	3.6000E-11	2.0000E-11	ICRP72	0.02000	BETA	6.10330E+02	Calculated
988	Sb-126n	3.0139E+23	3.5035E-13	1.9448E-13	Calculated	0.02000	BETA	3.81376E+05	Calculated
> 989	Sb-127	9.8882E+18	1.7000E-09	1.9000E-09	ICRP72	0.02000	BETA	1.38244E+03	Calculated
> 990	Sb-128	1.0061E+20	7.6000E-10	4.2000E-10	ICRP72	0.02000	BETA	3.22897E+02	Calculated
> 991	Sb-128m	5.2299E+21	3.3000E-11	1.5000E-11	ICRP72	0.02000	BETA	5.06068E+02	Calculated
992	Sb-129	2.0630E+20	4.2000E-10	2.5000E-10	ICRP72	0.02000	BETA	7.06428E+02	Calculated
> 993	Sb-129m	3.0491E+21	5.4608E-11	2.8789E-11	Calculated	0.02000	BETA	6.33767E+02	Calculated
> 994	Sb-130	1.3557E+21	9.1000E-11	5.3000E-11	ICRP72	0.02000	BETA	3.12772E+02	Calculated
995	Sb-130m	8.5003E+21	2.5233E-11	1.3157E-11	Calculated	0.02000	BETA	3.86038E+02	Calculated
> 996	Sb-131	2.3076E+21	1.0000E-10	4.4000E-11	ICRP72	0.02000	BETA	5.57648E+02	Calculated
> 997	Sb-132	1.8903E+22	1.2023E-11	6.2660E-12	Calculated	0.02000	BETA	3.81512E+02	Calculated
> 998	Sb-132m	1.2863E+22	1.7356E-11	9.0458E-12	Calculated	0.02000	BETA	3.94375E+02	Calculated
> 999	Sb-133	2.0937E+22	8.2020E-12	4.2559E-12	Calculated	0.02000	BETA	4.44583E+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
>1000	Te-113	3.6243E+22	3.2764E-09	6.0591E-09	Calculated	0.02000	BETA	4.86427E+02	Calculated
>1001	Te-114	4.0180E+21	2.6461E-08	4.8935E-08	Calculated	0.02000	BETA	9.05606E+02	Calculated
>1002	Te-115	1.0438E+22	6.6181E-09	1.2525E-08	Calculated	0.02000	BETA	4.80063E+02	Calculated
>1003	Te-115m	9.0362E+21	7.4886E-09	1.4179E-08	Calculated	0.02000	BETA	4.67674E+02	Calculated
>1004	Te-116	4.0175E+20	1.7000E-10	1.1000E-10	ICRP72	0.02000	BETA	8.42788E+03	Calculated
>1005	Te-117	9.5982E+20	4.6000E-11	7.4000E-11	NRPB-M	0.02000	BETA	6.40376E+02	Calculated
>1006	Te-117m	3.4665E+25	1.7839E-13	3.2959E-13	Calculated	0.02000	BETA	3.72487E+03	Calculated
>1007	Te-118	6.8293E+18	2.7000E-09	2.2000E-09	NRPB-M	0.02000	BETA	4.90742E+04	Calculated
>1008	Te-119	6.0757E+19	1.7000E-10	1.7000E-10	NRPB-M	0.02000	BETA	1.30179E+03	Calculated
>1009	Te-119m	8.6449E+18	8.3000E-10	6.3000E-10	R245	0.02000	BETA	6.66856E+02	Calculated
1011	Te-121	2.0856E+18	4.3000E-10	4.1000E-10	ICRP72	2.00000	A2 VALUE	1.72876E+03	Calculated
1012	Te-121m	2.5948E+17	2.3000E-09	5.7000E-09	ICRP72	3.00000	A2 VALUE	4.44529E+03	Calculated
1014	Te-123	1.1698E+00	4.4000E-09	3.9000E-09	ICRP72	0.02000	BETA	1.00000E+03	IAEA-G-1.7
1015	Te-123m	3.2895E+17	1.4000E-09	5.1000E-09	ICRP72	1.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
1018	Te-125m	6.7387E+17	8.7000E-10	4.2000E-09	ICRP72	0.90000	A2 VALUE	1.00000E+06	IAEA-G-1.7
1020	Te-127	9.7720E+19	1.7000E-10	1.4000E-10	ICRP72	0.70000	A2 VALUE	1.00000E+06	IAEA-G-1.7
1021	Te-127m	3.4927E+17	2.3000E-09	9.8000E-09	ICRP72	0.39000	A2 VALUE	1.00000E+04	IAEA-G-1.7
>1022	Te-128	4.7007E-08	8.9526E-07	3.8631E-06	Calculated	0.02000	BETA	1.00000E+03	IAEA-G-1.7
1023	Te-129	7.7543E+20	6.3000E-11	3.9000E-11	ICRP72	0.60000	A2 VALUE	1.00000E+05	IAEA-G-1.7
1024	Te-129m	1.1154E+18	3.0000E-09	7.9000E-09	ICRP72	0.33000	A2 VALUE	1.00000E+04	IAEA-G-1.7
>1025	Te-130	1.2889E-07	2.6099E-06	1.1262E-05	Calculated	0.02000	BETA	1.00000E+03	IAEA-G-1.7
1026	Te-131	2.1258E+21	8.7000E-11	2.8000E-11	ICRP72	0.02000	BETA	1.00000E+05	IAEA-G-1.7
1027	Te-131m	2.9525E+19	1.9000E-09	9.4000E-10	ICRP72	0.50000	A2 VALUE	1.00000E+04	IAEA-G-1.7
1028	Te-132	1.1431E+19	3.8000E-09	2.0000E-09	ICRP72	0.40000	A2 VALUE	1.00000E+03	IAEA-G-1.7
1029	Te-133	4.2043E+21	7.2000E-11	2.0000E-11	ICRP72	0.02000	BETA	1.00000E+04	IAEA-G-1.7
1030	Te-133m	9.4483E+20	2.8000E-10	8.7000E-10	ICRP72	0.02000	BETA	1.00000E+04	IAEA-G-1.7
1031	Te-134	1.2429E+21	1.1000E-10	6.8000E-11	ICRP72	0.02000	BETA	1.00000E+04	IAEA-G-1.7
>1032	Te-135	1.6284E+23	3.1153E-10	5.8175E-10	Calculated	0.02000	BETA	1.59087E+03	Calculated
>1033	I-116	1.2375E+24	1.7172E-11	2.9164E-12	Calculated	0.02000	BETA	7.36811E+02	Calculated
>1034	I-117	2.5872E+22	3.1989E-10	5.4348E-11	Calculated	0.02000	BETA	9.43396E+02	Calculated
>1035	I-118	4.3067E+21	4.8387E-09	8.2212E-10	Calculated	0.02000	BETA	4.60511E+02	Calculated
>1036	I-118m	6.9414E+21	3.5788E-09	6.0806E-10	Calculated	0.02000	BETA	2.62078E+02	Calculated
>1037	I-119	3.0632E+21	2.2573E-09	3.8351E-10	Calculated	0.02000	BETA	1.07954E+03	Calculated
>1038	I-120	7.1102E+20	3.4000E-10	1.0000E-10	ICRP72	0.02000	BETA	4.51281E+02	Calculated
1039	I-120m	1.0947E+21	2.1000E-10	8.8000E-11	ICRP72	0.02000	BETA	1.92311E+02	Calculated
>1040	I-121	4.5236E+20	8.2000E-11	2.7000E-11	ICRP72	0.02000	BETA	2.47942E+03	Calculated
>1041	I-122	1.5721E+22	6.5172E-10	1.1075E-10	Calculated	0.02000	BETA	9.32622E+02	Calculated
1042	I-123	7.1344E+19	2.1000E-10	7.4000E-11	ICRP72	3.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
>1043	I-124	9.3370E+18	1.3000E-08	4.4000E-09	ICRP72	1.00000	A2 VALUE	8.84672E+02	Calculated
1044	I-125	6.5110E+17	1.5000E-08	5.1000E-09	ICRP72	3.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
1045	I-126	2.9563E+18	2.9000E-08	9.8000E-09	ICRP72	1.00000	A2 VALUE	1.00000E+04	IAEA-G-1.7
>1047	I-128	2.1765E+21	4.6000E-11	2.0000E-11	ICRP72	0.02000	BETA	6.24590E+03	Calculated
1048	I-129	6.3736E+09	1.1000E-07	3.6000E-08	ICRP72	-1.00000	A2 VALUE	1.00000E+01	IAEA-G-1.7
1049	I-130	7.2214E+19	2.0000E-09	6.7000E-10	ICRP72	0.02000	BETA	1.00000E+04	IAEA-G-1.7
>1050	I-130m	5.9505E+21	2.6184E-10	4.7831E-11	Calculated	0.02000	BETA	7.24359E+03	Calculated
1051	I-131	4.5999E+18	2.2000E-08	7.4000E-09	ICRP72	0.70000	A2 VALUE	1.00000E+04	IAEA-G-1.7
1052	I-132	3.8302E+20	2.9000E-10	1.1000E-10	ICRP72	0.40000	A2 VALUE	1.00000E+04	IAEA-G-1.7
1053	I-132m	6.3544E+20	2.2000E-10	8.7000E-11	ICRP72	0.02000	BETA	2.76936E+03	Calculated
1054	I-133	4.1943E+19	4.3000E-09	1.5000E-09	ICRP72	0.60000	A2 VALUE	1.00000E+04	IAEA-G-1.7
>1055	I-133m	3.4897E+23	2.1748E-11	3.7880E-12	Calculated	0.02000	BETA	6.30402E+02	Calculated
1056	I-134	9.8958E+20	1.1000E-10	5.5000E-11	ICRP72	0.30000	A2 VALUE	1.00000E+04	IAEA-G-1.7
>1057	I-134m	1.4431E+22	1.2442E-10	2.3575E-11	Calculated	0.02000	BETA	3.98095E+03	Calculated
1058	I-135	1.3082E+20	9.3000E-10	3.2000E-10	ICRP72	0.60000	A2 VALUE	1.00000E+04	IAEA-G-1.7
>1059	I-136	3.6825E+22	5.2315E-10	8.8897E-11	Calculated	0.02000	BETA	3.92474E+02	Calculated
>1060	I-136m	6.8249E+22	3.0731E-10	5.2219E-11	Calculated	0.02000	BETA	3.66166E+02	Calculated
>1061	I-137	1.2439E+23	1.9974E-10	3.3963E-11	Calculated	0.02000	BETA	7.11327E+02	Calculated
>1062	Xe-117	5.8527E+22	1.3502E-09	6.7501E-10	Calculated	0.02000	BETA	3.37507E+03	Calculated
>1063	Xe-118	9.8333E+21	2.3801E-08	1.1900E-08	Calculated	0.02000	BETA	1.47783E+03	Calculated
>1064	Xe-119	1.0087E+22	1.7481E-08	8.7401E-09	Calculated	0.02000	BETA	6.77354E+02	Calculated
>1065	Xe-120	1.4504E+21	1.4539E-08	7.7571E-09	Calculated	0.02000	BETA	2.33127E+03	Calculated
>1066	Xe-121	1.4349E+21	5.4397E-08	2.7296E-08	Calculated	0.02000	BETA	6.87526E+02	Calculated
>1067	Xe-122	4.7320E+19	1.7933E-06	8.9937E-07	Calculated	0.40000	A2 VALUE	1.11529E+04	Calculated
>1068	Xe-123	4.5355E+20	7.1360E-08	3.5822E-08	Calculated	0.70000	A2 VALUE	1.52586E+03	Calculated
>1069	Xe-124	5.3376E+02	1.3916E-05	4.9698E-04	Calculated	0.02000	BETA	1.43724E+03	Calculated
>1070	Xe-125	5.4929E+19	2.1627E-07	1.0896E-07	Calculated	0.02000	BETA	3.64994E+03	Calculated
>1071	Xe-125m	5.9677E+22	3.6289E-10	1.8220E-10	Calculated	0.02000	BETA	7.71023E+03	Calculated
>1073	Xe-127	1.0459E+18	1.4120E-06	5.6568E-06	Calculated	2.00000	A2 VALUE	3.52652E+03	Calculated
>1074	Xe-127m	4.7259E+22	2.7097E-10	2.4505E-10	Calculated	0.02000	BETA	5.51418E+03	Calculated
>1077	Xe-129m	4.2207E+18	8.7075E-07	1.0342E-06	Calculated	0.02000	BETA	1.44170E+04	Calculated
>1080	Xe-131m	3.0936E+18	6.4839E-07	9.7017E-07	Calculated	40.00000	A2 VALUE	2.91451E+04	Calculated
>1082	Xe-133	6.9320E+18	5.6915E-07	4.7149E-07	Calculated	10.00000	A2 VALUE	1.68147E+04	Calculated
>1083	Xe-133m	1.6614E+19	6.6270E-07	4.4982E-07	Calculated	0.02000	BETA	1.65151E+04	Calculated
>1084	Xe-134	8.9801E+00	4.0322E-06	1.4401E-04	Calculated	0.02000	BETA	4.96005E+03	Calculated
>1085	Xe-134m	1.0749E+25	6.6200E-12	3.3100E-12	Calculated	0.02000	BETA	5.24215E+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
>1086	Xe-135	9.4036E+19	2.1476E-07	1.0738E-07	Calculated	2.00000	A2 VALUE	3.57494E+03	Calculated
>1087	Xe-135m	3.3727E+21	1.1472E-08	5.7360E-09	Calculated	0.02000	BETA	2.29926E+03	Calculated
>1088	Xe-136	4.6346E-04	1.1985E-05	4.2803E-04	Calculated	0.02000	BETA	1.66876E+03	Calculated
>1089	Xe-137	1.3309E+22	5.0074E-09	2.5088E-09	Calculated	0.02000	BETA	2.77812E+03	Calculated
>1090	Xe-138	3.5827E+21	4.2300E-08	2.0334E-08	Calculated	0.02000	BETA	8.41717E+02	Calculated
>1091	Xe-139	7.5726E+22	2.1888E-09	1.0944E-09	Calculated	0.02000	BETA	8.70099E+02	Calculated
>1092	Xe-122	1.6150E+23	2.2675E-12	1.1350E-12	Calculated	0.02000	BETA	6.45330E+02	Calculated
>1093	Cs-122m	1.2681E+22	3.2628E-11	1.6330E-11	Calculated	0.02000	BETA	3.05335E+02	Calculated
>1094	Cs-122n	9.5107E+24	3.8553E-14	1.9297E-14	Calculated	0.02000	BETA	2.70270E+05	Calculated
>1095	Cs-123	9.5772E+21	1.8040E-11	9.0307E-12	Calculated	0.02000	BETA	8.60752E+02	Calculated
>1096	Cs-123m	1.9977E+24	9.1260E-14	4.5680E-14	Calculated	0.02000	BETA	1.80695E+04	Calculated
>1097	Cs-124	1.0937E+23	1.6763E-12	8.3817E-13	Calculated	0.02000	BETA	7.66065E+02	Calculated
>1098	Cs-124m	5.3471E+23	3.8906E-13	1.9453E-13	Calculated	0.02000	BETA	3.18066E+03	Calculated
>1099	Cs-125	1.1926E+21	3.5000E-11	2.3000E-11	ICRP72	0.02000	BETA	1.38159E+03	Calculated
+1100	Cs-125m	3.7104E+24	1.5552E-14	9.5425E-15	Calculated	0.02000	BETA	3.75094E+03	Calculated
>1101	Cs-126	3.3692E+22	4.3446E-12	2.1723E-12	Calculated	0.02000	BETA	7.86078E+02	Calculated
>1102	Cs-127	1.4619E+20	2.4000E-11	3.8000E-11	ICRP72	0.02000	BETA	2.30418E+03	Calculated
>1103	Cs-128	1.5025E+22	6.8918E-12	3.4459E-12	Calculated	0.02000	BETA	1.02128E+03	Calculated
1104	Cs-129	2.7935E+19	6.0000E-11	7.7000E-11	ICRP72	4.00000	A2 VALUE	1.00000E+04	IAEA-G-1.7
>1105	Cs-130	1.8334E+21	2.8000E-11	1.4000E-11	ICRP72	0.02000	BETA	1.84694E+03	Calculated
>1106	Cs-130m	1.5467E+22	9.9247E-16	4.9623E-16	Calculated	0.02000	BETA	6.06672E+03	Calculated
1107	Cs-131	3.8087E+18	5.8000E-11	4.7000E-11	ICRP72	30.00000	A2 VALUE	1.00000E+06	IAEA-G-1.7
1108	Cs-132	5.6090E+18	5.0000E-10	3.0000E-10	ICRP72	1.00000	A2 VALUE	1.00000E+04	IAEA-G-1.7
1110	Cs-134	4.7834E+16	1.9000E-08	2.0000E-08	ICRP72	0.70000	A2 VALUE	1.00000E+02	IAEA-G-1.7
1111	Cs-134m	2.9777E+20	2.0000E-11	6.0000E-11	ICRP72	0.60000	A2 VALUE	1.00000E+06	IAEA-G-1.7
1112	Cs-135	4.2631E+10	2.0000E-09	8.6000E-09	ICRP72	1.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
>1113	Cs-135m	9.7301E+20	1.9000E-11	1.6000E-11	ICRP72	0.02000	BETA	6.23500E+02	Calculated
1114	Cs-136	2.7282E+18	3.0000E-09	2.8000E-09	ICRP72	0.50000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>1115	Cs-136m	1.6165E+23	4.4623E-13	2.3409E-13	Calculated	0.02000	BETA	1.47420E+03	Calculated
1116	Cs-137	3.2162E+15	1.3000E-08	3.9000E-08	ICRP72	0.60000	A2 VALUE	1.00000E+02	IAEA-G-1.7
1117	Cs-138	1.5099E+21	9.2000E-11	4.3000E-11	ICRP72	0.02000	BETA	1.00000E+04	IAEA-G-1.7
>1118	Cs-138m	1.7335E+22	8.8017E-12	4.1892E-12	Calculated	0.02000	BETA	2.23986E+03	Calculated
>1119	Cs-139	5.4026E+21	1.9827E-11	9.9133E-12	Calculated	0.02000	BETA	1.96639E+03	Calculated
>1120	Cs-140	4.6835E+22	4.1638E-12	2.0819E-12	Calculated	0.02000	BETA	5.34246E+02	Calculated
>1121	Cs-141	1.1877E+23	1.2119E-12	6.0591E-13	Calculated	0.02000	BETA	1.03827E+03	Calculated
>1122	Ba-123	2.0962E+22	1.5107E-07	9.8582E-08	Calculated	0.02000	BETA	1.77201E+03	Calculated
>1123	Ba-124	5.1040E+21	4.5639E-07	2.9762E-07	Calculated	0.02000	BETA	1.76600E+03	Calculated
>1124	Ba-125	1.5913E+22	9.8489E-08	6.9757E-08	Calculated	0.02000	BETA	2.13372E+03	Calculated
1125	Ba-126	5.5253E+20	2.6000E-10	1.1000E-10	ICRP72	0.02000	BETA	1.76389E+03	Calculated
>1126	Ba-127	4.3164E+21	1.9212E-07	1.3710E-07	Calculated	0.02000	BETA	1.29604E+03	Calculated
>1127	Ba-127m	1.7299E+24	5.0725E-10	3.6024E-10	Calculated	0.02000	BETA	1.24486E+04	Calculated
>1128	Ba-128	1.5544E+19	2.7000E-09	1.4000E-09	ICRP72	0.02000	BETA	1.49938E+04	Calculated
>1129	Ba-129	3.7793E+20	9.8567E-07	6.8938E-07	Calculated	0.02000	BETA	2.08681E+03	Calculated
>1130	Ba-129m	4.2032E+20	1.8583E-06	1.2538E-06	Calculated	0.02000	BETA	8.23472E+02	Calculated
1132	Ba-131	3.1954E+18	4.5000E-10	8.7000E-10	ICRP72	2.00000	A2 VALUE	1.00000E+04	IAEA-G-1.7
1133	Ba-131m	3.6401E+21	4.9000E-12	7.8000E-12	ICRP72	0.02000	BETA	1.13435E+04	Calculated
>1135	Ba-133	9.4427E+15	1.5000E-09	1.0000E-08	ICRP72	3.00000	A2 VALUE	2.45693E+03	Calculated
1136	Ba-133m	2.2838E+19	5.4000E-10	4.6000E-10	ICRP72	0.60000	A2 VALUE	1.12270E+04	Calculated
>1139	Ba-135m	2.9948E+19	4.3000E-10	3.6000E-10	ICRP72	0.02000	BETA	1.22441E+04	Calculated
>1141	Ba-136m	9.9593E+24	1.1561E-10	7.5392E-11	Calculated	0.02000	BETA	5.16282E+02	Calculated
>1143	Ba-137m	1.9912E+22	1.8649E-08	1.2162E-08	Calculated	0.02000	BETA	1.65435E+03	Calculated
>1145	Ba-139	6.0298E+20	1.2000E-10	5.9000E-11	ICRP72	0.02000	BETA	7.38646E+03	Calculated
1146	Ba-140	2.7051E+18	2.6000E-09	5.8000E-09	ICRP72	0.24000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>1147	Ba-141	2.7023E+21	7.0000E-11	3.4000E-11	ICRP72	0.02000	BETA	1.03548E+03	Calculated
>1148	Ba-142	4.6247E+21	3.5000E-11	2.2000E-11	ICRP72	0.02000	BETA	9.21758E+02	Calculated
>1149	Ba-143	2.0142E+23	2.1918E-08	1.2956E-08	Calculated	0.02000	BETA	8.08933E+02	Calculated
>1150	La-128	1.0878E+22	1.7365E-11	7.4961E-12	Calculated	0.02000	BETA	3.20410E+02	Calculated
+1151	La-128m	3.8823E+22	4.3593E-12	1.8818E-12	Calculated	0.02000	BETA	3.96867E+02	Calculated
>1152	La-129	4.6523E+21	1.7471E-11	7.6952E-12	Calculated	0.02000	BETA	1.01644E+03	Calculated
>1153	La-129m	5.7822E+24	1.5068E-14	6.6280E-15	Calculated	0.02000	BETA	1.68067E+04	Calculated
>1154	La-130	6.1554E+21	1.9589E-11	8.4558E-12	Calculated	0.02000	BETA	4.32754E+02	Calculated
>1155	La-131	9.0074E+20	3.5000E-11	2.3000E-11	ICRP72	0.02000	BETA	1.47115E+03	Calculated
>1156	La-132	1.8313E+20	3.9000E-10	1.6000E-10	ICRP72	0.02000	BETA	5.00011E+02	Calculated
>1157	La-132m	2.1704E+21	3.3118E-11	1.3760E-11	Calculated	0.02000	BETA	2.03666E+03	Calculated
>1158	La-133	2.2301E+20	9.9000E-12	1.1000E-11	NRPB-M	0.02000	BETA	7.62024E+03	Calculated
>1159	La-134	8.0548E+21	6.4622E-12	2.7895E-12	Calculated	0.02000	BETA	1.26280E+03	Calculated
>1160	La-135	4.4076E+19	3.0000E-11	1.4000E-11	ICRP72	0.02000	BETA	2.75844E+04	Calculated
>1161	La-136	5.1864E+21	4.8133E-12	2.0777E-12	Calculated	0.02000	BETA	2.24793E+03	Calculated
>1162	La-136m	2.6942E+25	1.1745E-15	5.0700E-16	Calculated	0.02000	BETA	6.48508E+03	Calculated
1163	La-137	1.6103E+12	8.1000E-11	8.7000E-09	ICRP72	6.00000	A2 VALUE	3.81018E+04	Calculated
1164	La-138	9.4036E+05	1.1000E-09	1.5000E-07	ICRP72	0.02000	BETA	1.00000E+03	IAEA-G-1.7
1166	La-140	2.0572E+19	2.0000E-09	1.1000E-09	ICRP72	0.40000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>1167	La-141	2.0992E+20	3.6000E-10	1.5000E-10	ICRP72	0.02000	BETA	8.12796E+03	Calculated
>1168	La-142	5.3812E+20	1.8000E-10	8.9000E-11	ICRP72	0.02000	BETA	4.14678E+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
>1169	La-143	3.4427E+21	5.6000E-11	2.1000E-11	ICRP72	0.02000	BETA	2.65972E+03	Calculated
>1170	La-144	7.1088E+22	1.7215E-12	7.5137E-13	Calculated	0.02000	BETA	4.05171E+02	Calculated
>1171	La-145	1.1614E+23	1.1693E-12	4.6701E-13	Calculated	0.02000	BETA	1.29235E+03	Calculated
>1172	La-146	4.5622E+23	4.5486E-13	1.9635E-13	Calculated	0.02000	BETA	6.99687E+02	Calculated
>1173	La-146m	2.8605E+23	7.2068E-13	3.1109E-13	Calculated	0.02000	BETA	6.48845E+02	Calculated
>1174	La-147	7.0760E+23	2.3686E-13	9.2616E-14	Calculated	0.02000	BETA	2.56681E+03	Calculated
>1175	Ce-129	1.5409E+22	1.9581E-11	4.7212E-11	Calculated	0.02000	BETA	5.50637E+02	Calculated
>1176	Ce-130	2.3385E+21	8.7681E-11	2.0973E-10	Calculated	0.02000	BETA	2.01856E+03	Calculated
>1177	Ce-131	5.3142E+21	1.6202E-11	4.9651E-11	Calculated	0.02000	BETA	1.35221E+03	Calculated
>1178	Ce-131m	1.0628E+22	1.1980E-11	3.4104E-11	Calculated	0.02000	BETA	3.14218E+03	Calculated
>1179	Ce-132	2.5043E+20	3.1000E-10	2.2000E-10	NRPB-M	0.02000	BETA	3.65386E+03	Calculated
>1180	Ce-133	5.3962E+20	1.0000E-10	1.1000E-10	NRPB-M	0.02000	BETA	2.03635E+03	Calculated
>1181	Ce-133m	1.7804E+20	5.2729E-10	1.3299E-09	Calculated	0.02000	BETA	5.96239E+02	Calculated
>1182	Ce-134	1.1417E+19	2.5000E-09	1.3000E-09	ICRP72	0.02000	BETA	3.50601E+04	Calculated
>1183	Ce-135	4.8558E+19	7.9000E-10	5.0000E-10	ICRP72	0.02000	BETA	1.21260E+03	Calculated
>1184	Ce-135m	1.5471E+23	3.9737E-13	5.1432E-13	Calculated	0.02000	BETA	3.25302E+03	Calculated
>1185	Ce-136	1.3904E+03	7.2390E-09	4.0402E-08	Calculated	0.02000	BETA	4.13411E+03	Calculated
>1186	Ce-137	9.4103E+19	2.5000E-11	1.0000E-11	ICRP72	0.02000	BETA	2.54237E+04	Calculated
>1187	Ce-137m	2.4620E+19	5.4000E-10	4.4000E-10	ICRP72	0.02000	BETA	1.32082E+04	Calculated
1189	Ce-139	2.5269E+17	2.6000E-10	1.9000E-09	ICRP72	2.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>1190	Ce-139m	5.3566E+22	7.0602E-13	1.6948E-12	Calculated	0.02000	BETA	1.41918E+03	Calculated
1192	Ce-141	1.0550E+18	7.1000E-10	3.8000E-09	ICRP72	0.60000	A2 VALUE	1.00000E+05	IAEA-G-1.7
>1193	Ce-142	1.8642E+00	4.2409E-09	2.3669E-08	Calculated	0.02000	BETA	7.05667E+03	Calculated
1194	Ce-143	2.4512E+19	1.1000E-09	8.3000E-10	ICRP72	0.60000	A2 VALUE	1.00000E+04	IAEA-G-1.7
1195	Ce-144	1.1779E+17	5.2000E-09	5.3000E-08	ICRP72	0.20000	A2 VALUE	1.00000E+04	IAEA-G-1.7
>1196	Ce-145	1.6274E+22	6.0127E-12	1.2187E-11	Calculated	0.02000	BETA	1.47648E+03	Calculated
>1197	Ce-146	3.5264E+21	3.8704E-11	9.2576E-11	Calculated	0.02000	BETA	2.92654E+03	Calculated
>1198	Ce-147	4.9844E+22	2.8158E-12	5.6212E-12	Calculated	0.02000	BETA	3.30728E+03	Calculated
>1199	Ce-148	5.0390E+22	3.3113E-12	7.9204E-12	Calculated	0.02000	BETA	2.73224E+03	Calculated
>1200	Ce-149	5.2884E+23	4.7265E-13	1.2214E-12	Calculated	0.02000	BETA	3.75406E+03	Calculated
>1201	Pr-134	3.0559E+21	1.0407E-10	7.4589E-11	Calculated	0.02000	BETA	4.57523E+02	Calculated
>1202	Pr-134m	4.7228E+21	8.1637E-11	5.9818E-11	Calculated	0.02000	BETA	4.47024E+02	Calculated
>1203	Pr-135	2.1486E+21	8.6582E-11	5.2897E-11	Calculated	0.02000	BETA	1.05152E+03	Calculated
>1204	Pr-136	3.9075E+21	3.3000E-11	1.4000E-11	ICRP72	0.02000	BETA	4.67165E+02	Calculated
>1205	Pr-137	6.6164E+20	4.0000E-11	2.1000E-11	ICRP72	0.02000	BETA	2.60986E+03	Calculated
>1206	Pr-138	3.4790E+22	4.6057E-12	3.7215E-12	Calculated	0.02000	BETA	1.07399E+03	Calculated
>1207	Pr-138m	3.9659E+20	1.3000E-10	7.4000E-11	ICRP72	0.02000	BETA	4.05701E+02	Calculated
>1208	Pr-139	1.8928E+20	3.1000E-11	2.0000E-11	ICRP72	0.02000	BETA	7.46037E+03	Calculated
>1209	Pr-140	1.4668E+22	5.9344E-12	4.7951E-12	Calculated	0.02000	BETA	1.67458E+03	Calculated
1211	Pr-142	4.2734E+19	1.3000E-09	5.5000E-10	ICRP72	0.40000	A2 VALUE	1.00000E+05	IAEA-G-1.7
1212	Pr-142m	3.3578E+21	1.7000E-11	7.0000E-12	ICRP72	0.02000	BETA	2.71518E+05	Calculated
1213	Pr-143	2.4931E+18	1.2000E-09	2.4000E-09	ICRP72	0.60000	A2 VALUE	1.00000E+06	IAEA-G-1.7
1214	Pr-144	2.7976E+21	5.0000E-11	1.8000E-11	ICRP72	0.02000	BETA	6.50083E+03	Calculated
>1215	Pr-144m	7.0061E+21	2.0626E-11	7.7276E-12	Calculated	0.02000	BETA	5.44102E+04	Calculated
>1216	Pr-145	1.3371E+20	3.9000E-10	1.7000E-10	ICRP72	0.02000	BETA	1.18611E+04	Calculated
>1217	Pr-146	1.9742E+21	8.9451E-11	7.2278E-11	Calculated	0.02000	BETA	8.93575E+02	Calculated
1218	Pr-147	3.4818E+21	3.3000E-11	1.8000E-11	ICRP72	0.02000	BETA	1.09170E+03	Calculated
>1219	Pr-148	2.0538E+22	9.6329E-12	7.7835E-12	Calculated	0.02000	BETA	9.04454E+02	Calculated
>1220	Pr-148m	2.3283E+22	8.5644E-12	6.9202E-12	Calculated	0.02000	BETA	9.03462E+02	Calculated
>1221	Pr-149	2.0671E+22	1.2537E-11	1.1393E-11	Calculated	0.02000	BETA	2.30694E+03	Calculated
>1222	Pr-150	4.5642E+23	4.5504E-13	3.6768E-13	Calculated	0.02000	BETA	1.28663E+03	Calculated
>1223	Pr-151	1.4633E+23	3.0405E-12	2.3627E-12	Calculated	0.02000	BETA	1.24642E+03	Calculated
>1224	Nd-135	4.1809E+21	3.4480E-11	1.8241E-11	Calculated	0.02000	BETA	7.30994E+02	Calculated
>1225	Nd-135m	9.3698E+21	1.8596E-11	1.0074E-11	Calculated	0.02000	BETA	5.69889E+02	Calculated
>1226	Nd-136	1.0106E+21	9.9000E-11	5.4000E-11	ICRP72	0.02000	BETA	3.49030E+03	Calculated
>1227	Nd-137	1.3198E+21	4.1776E-11	2.3529E-11	Calculated	0.02000	BETA	8.39081E+02	Calculated
>1228	Nd-137m	1.9055E+24	3.7426E-14	2.1412E-14	Calculated	0.02000	BETA	2.60402E+03	Calculated
>1229	Nd-138	1.6682E+20	6.4000E-10	2.5000E-10	ICRP72	0.02000	BETA	2.29915E+04	Calculated
>1230	Nd-139	1.6863E+21	2.0000E-11	1.0000E-11	ICRP72	0.02000	BETA	2.26327E+03	Calculated
1231	Nd-139m	1.5176E+20	2.5000E-10	1.5000E-10	ICRP72	0.02000	BETA	3.69004E+02	Calculated
1232	Nd-140	1.0247E+19	2.8000E-09	2.0000E-09	R245	0.02000	BETA	3.52104E+04	Calculated
>1233	Nd-141	3.3047E+20	8.3000E-12	5.0000E-12	ICRP72	0.02000	BETA	1.30599E+04	Calculated
>1234	Nd-141m	4.7780E+22	6.4781E-13	3.9025E-13	Calculated	0.02000	BETA	1.21861E+03	Calculated
>1237	Nd-144	4.0137E+01	7.0975E-08	9.9764E-08	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
1240	Nd-147	2.9950E+18	1.1000E-09	2.4000E-09	ICRP72	0.60000	A2 VALUE	1.00000E+05	IAEA-G-1.7
>1241	Nd-148	3.3120E-02	3.5927E-09	5.0500E-09	Calculated	0.02000	BETA	5.18457E+03	Calculated
1242	Nd-149	4.5058E+20	1.2000E-10	8.9000E-11	ICRP72	0.50000	A2 VALUE	1.00000E+05	IAEA-G-1.7
>1243	Nd-150	4.2014E-03	6.2725E-09	8.8167E-09	Calculated	0.02000	BETA	2.96956E+03	Calculated
>1244	Nd-151	3.7055E+21	3.0000E-11	1.7000E-11	ICRP72	0.02000	BETA	1.10677E+03	Calculated
>1245	Nd-152	4.0169E+21	1.4930E-11	8.9941E-12	Calculated	0.02000	BETA	5.07007E+03	Calculated
>1246	Nd-153	8.6337E+22	1.0486E-12	6.4857E-13	Calculated	0.02000	BETA	8.17528E+02	Calculated
>1247	Nd-154	1.0470E+23	1.0830E-12	6.5243E-13	Calculated	0.02000	BETA	1.82245E+03	Calculated
>1248	Pm-135	6.3138E+22	5.5337E-12	4.7003E-12	Calculated	0.02000	BETA	3.49839E+02	Calculated
>1249	Pm-135m	7.7301E+22	4.2858E-12	3.6278E-12	Calculated	0.02000	BETA	4.34002E+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
>1250	Pm-136	2.8701E+22	7.7684E-12	6.6639E-12	Calculated	0.02000	BETA	3.78620E+02	Calculated
>1251	Pm-136m	6.5304E+22	5.0229E-12	4.3822E-12	Calculated	0.02000	BETA	3.29420E+02	Calculated
>1252	Pm-137	2.5391E+22	8.1412E-12	7.2032E-12	Calculated	0.02000	BETA	5.19751E+02	Calculated
+1253	Pm-137m	2.1159E+22	1.0020E-11	8.8699E-12	Calculated	0.02000	BETA	5.08636E+02	Calculated
>1254	Pm-138	3.0266E+23	8.6245E-13	6.4583E-13	Calculated	0.02000	BETA	8.19309E+02	Calculated
>1255	Pm-138m	1.5601E+22	1.3959E-11	1.0024E-11	Calculated	0.02000	BETA	4.13068E+02	Calculated
>1256	Pm-139	1.2068E+22	9.5003E-12	8.0720E-12	Calculated	0.02000	BETA	9.55168E+02	Calculated
>1257	Pm-139m	1.6694E+25	7.2761E-15	6.2044E-15	Calculated	0.02000	BETA	1.04980E+04	Calculated
>1258	Pm-140	3.2428E+23	4.4788E-13	4.2230E-13	Calculated	0.02000	BETA	8.42370E+02	Calculated
>1259	Pm-140m	8.3568E+21	2.1452E-11	2.0066E-11	Calculated	0.02000	BETA	3.26684E+02	Calculated
>1260	Pm-141	2.3622E+21	3.6000E-11	1.5000E-11	ICRP72	0.02000	BETA	1.23109E+03	Calculated
>1261	Pm-142	7.2627E+22	1.1178E-12	1.0098E-12	Calculated	0.02000	BETA	9.94246E+02	Calculated
1262	Pm-143	1.2709E+17	2.3000E-10	1.5000E-09	ICRP72	3.00000	A2 VALUE	3.15829E+03	Calculated
1263	Pm-144	9.2482E+16	9.7000E-10	8.2000E-09	ICRP72	0.70000	A2 VALUE	6.42151E+02	Calculated
1264	Pm-145	5.1569E+15	1.1000E-10	3.6000E-09	ICRP72	10.00000	A2 VALUE	3.05362E+04	Calculated
1265	Pm-146	1.6391E+16	9.0000E-10	2.1000E-08	ICRP72	0.02000	BETA	1.30936E+03	Calculated
1266	Pm-147	3.4320E+16	2.6000E-10	5.0000E-09	ICRP72	2.00000	A2 VALUE	1.00000E+06	IAEA-G-1.7
1267	Pm-148	6.0846E+18	2.7000E-09	2.2000E-09	ICRP72	0.02000	BETA	1.54056E+03	Calculated
1268	Pm-148m	7.9566E+17	1.7000E-09	5.7000E-09	ICRP72	0.70000	A2 VALUE	4.99814E+02	Calculated
1269	Pm-149	1.4669E+19	9.9000E-10	7.3000E-10	ICRP72	0.60000	A2 VALUE	1.00000E+06	IAEA-G-1.7
>1270	Pm-150	2.8859E+20	2.6000E-10	1.3000E-10	ICRP72	0.02000	BETA	6.56461E+02	Calculated
>1271	Pm-151	2.7052E+19	7.3000E-10	4.6000E-10	ICRP72	0.60000	A2 VALUE	2.80081E+03	Calculated
>1272	Pm-152	1.1115E+22	4.9141E-12	4.4395E-12	Calculated	0.02000	BETA	2.39372E+03	Calculated
>1273	Pm-152m	6.0895E+21	1.3314E-11	1.2028E-11	Calculated	0.02000	BETA	6.38042E+02	Calculated
>1274	Pm-152n	3.1801E+21	3.0800E-11	2.7826E-11	Calculated	0.02000	BETA	4.47701E+02	Calculated
>1275	Pm-153	8.6654E+21	3.7964E-12	3.7301E-12	Calculated	0.02000	BETA	7.04373E+03	Calculated
>1276	Pm-154	2.6587E+22	3.3690E-12	3.0437E-12	Calculated	0.02000	BETA	5.31651E+02	Calculated
>1277	Pm-154m	1.6740E+22	5.4980E-12	4.9670E-12	Calculated	0.02000	BETA	5.14737E+02	Calculated
>1278	Pm-155	6.4923E+22	1.3747E-12	1.2219E-12	Calculated	0.02000	BETA	1.49753E+03	Calculated
>1279	Pm-156	1.0022E+23	1.2503E-12	1.1770E-12	Calculated	0.02000	BETA	5.29566E+02	Calculated
>1280	Pm-157	2.5178E+23	4.5690E-13	4.1246E-13	Calculated	0.02000	BETA	6.25523E+02	Calculated
>1281	Sm-136	6.5338E+22	7.4899E-12	4.4029E-12	Calculated	0.02000	BETA	9.87233E+02	Calculated
>1282	Sm-137	6.7709E+22	8.7689E-12	5.2950E-12	Calculated	0.02000	BETA	4.65168E+02	Calculated
>1283	Sm-137m	1.5234E+23	3.9378E-12	2.3781E-12	Calculated	0.02000	BETA	4.38258E+02	Calculated
>1284	Sm-138	1.6262E+22	3.0771E-11	1.6030E-11	Calculated	0.02000	BETA	7.99320E+02	Calculated
>1285	Sm-139	1.9486E+22	1.7757E-11	1.0497E-11	Calculated	0.02000	BETA	6.37841E+02	Calculated
>1286	Sm-139m	2.8081E+23	1.2881E-12	7.6261E-13	Calculated	0.02000	BETA	3.59195E+03	Calculated
>1287	Sm-140	3.3558E+21	8.6646E-11	5.4860E-11	Calculated	0.02000	BETA	1.60514E+03	Calculated
>1288	Sm-141	4.8401E+21	5.4924E-11	2.3996E-11	Calculated	0.02000	BETA	6.88007E+02	Calculated
>1289	Sm-141m	2.1845E+21	1.2708E-10	5.6461E-11	Calculated	0.02000	BETA	5.14165E+02	Calculated
>1290	Sm-142	6.7627E+20	1.9000E-10	7.1000E-11	ICRP72	0.02000	BETA	1.08051E+04	Calculated
>1291	Sm-143	5.5634E+21	1.0620E-11	6.5231E-12	Calculated	0.02000	BETA	1.78420E+03	Calculated
>1292	Sm-143m	4.4254E+22	2.3476E-12	1.4388E-12	Calculated	0.02000	BETA	1.44762E+03	Calculated
1294	Sm-145	9.8056E+16	2.1000E-10	1.6000E-09	ICRP72	10.00000	A2 VALUE	1.51661E+04	Calculated
1295	Sm-146	9.0652E+08	5.4000E-08	1.1000E-05	ICRP72	0.00009	ALPHA	1.81818E+05	Calculated
1296	Sm-147	8.4937E+05	4.9000E-08	9.6000E-06	ICRP72	-1.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>1297	Sm-148	1.1178E+01	4.2111E-08	8.4990E-06	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
>1298	Sm-149	4.4412E+01	1.3711E-07	1.9551E-07	Calculated	0.00009	ALPHA	1.45865E+05	Calculated
1300	Sm-151	9.7383E+19	9.8000E-11	4.0000E-09	ICRP72	10.00000	A2 VALUE	1.00000E+06	IAEA-G-1.7
1302	Sm-153	1.6382E+19	7.4000E-10	6.3000E-10	ICRP72	0.60000	A2 VALUE	1.00000E+05	IAEA-G-1.7
>1304	Sm-155	2.0137E+21	2.9000E-11	1.7000E-11	ICRP72	0.02000	BETA	6.27391E+03	Calculated
>1305	Sm-156	7.9109E+19	2.5000E-10	2.2000E-10	ICRP72	0.02000	BETA	7.31283E+03	Calculated
>1306	Sm-157	5.4958E+21	5.9264E-12	3.6056E-12	Calculated	0.02000	BETA	1.87547E+03	Calculated
>1307	Sm-158	7.9852E+21	6.6432E-12	4.0745E-12	Calculated	0.02000	BETA	2.64590E+03	Calculated
>1308	Sm-159	2.3099E+23	7.8089E-13	4.4542E-13	Calculated	0.02000	BETA	1.75064E+03	Calculated
>1309	Eu-138	2.5010E+23	3.3804E-11	1.5170E-11	Calculated	0.02000	BETA	2.96445E+02	Calculated
>1310	Eu-139	1.6785E+23	3.3231E-11	1.5964E-11	Calculated	0.02000	BETA	5.43478E+02	Calculated
>1311	Eu-140	1.9756E+24	2.7237E-12	1.3594E-12	Calculated	0.02000	BETA	6.33998E+02	Calculated
>1312	Eu-141	7.2777E+22	5.8453E-11	2.3733E-11	Calculated	0.02000	BETA	8.03209E+02	Calculated
>1313	Eu-141m	1.0970E+24	3.8585E-12	1.5650E-12	Calculated	0.02000	BETA	1.33298E+03	Calculated
>1314	Eu-142	1.2569E+24	2.7962E-12	1.1829E-12	Calculated	0.02000	BETA	6.79426E+02	Calculated
>1315	Eu-142m	4.0082E+22	1.0553E-10	4.5834E-11	Calculated	0.02000	BETA	2.78277E+02	Calculated
>1316	Eu-143	1.8794E+22	1.0326E-10	5.0666E-11	Calculated	0.02000	BETA	8.13524E+02	Calculated
>1317	Eu-144	2.8435E+23	6.2973E-12	3.0852E-12	Calculated	0.02000	BETA	7.72003E+02	Calculated
>1318	Eu-145	5.6220E+18	7.5000E-10	5.5000E-10	ICRP72	0.02000	BETA	7.81000E+02	Calculated
>1319	Eu-146	7.2134E+18	1.3000E-09	8.0000E-10	ICRP72	0.02000	BETA	4.20183E+02	Calculated
>1320	Eu-147	1.3702E+18	4.4000E-10	1.1000E-09	ICRP72	2.00000	A2 VALUE	2.26260E+03	Calculated
>1321	Eu-148	5.9930E+17	1.3000E-09	2.6000E-09	ICRP72	0.50000	A2 VALUE	4.48698E+02	Calculated
1322	Eu-149	3.4847E+17	1.0000E-10	2.9000E-10	ICRP72	20.00000	A2 VALUE	1.46127E+04	Calculated
1323	Eu-150	2.4266E+15	1.3000E-09	5.3000E-08	ICRP72	0.70000	A2 VALUE	6.53278E+02	Calculated
1324	Eu-150m	6.0423E+19	3.8000E-10	1.9000E-10	ICRP72	0.70000	A2 VALUE	1.23536E+04	Calculated
1326	Eu-152	6.4376E+15	1.4000E-09	4.2000E-08	ICRP72	1.00000	A2 VALUE	1.00000E+02	IAEA-G-1.7
1327	Eu-152m	8.2288E+19	5.0000E-10	2.2000E-10	ICRP72	0.80000	A2 VALUE	1.00000E+05	IAEA-G-1.7
1328	Eu-152n	4.7702E+20	9.9000E-11	6.2000E-11	NRPB-M	0.02000	BETA	1.20872E+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
1330	Eu-154	1.0001E+16	2.0000E-09	5.3000E-08	ICRP72	0.60000	A2 VALUE	1.00000E+02	IAEA-G-1.7
1331	Eu-154m	9.7410E+20	1.4000E-12	2.0000E-12	NRPB-M	0.02000	BETA	1.21055E+04	Calculated
1332	Eu-155	1.7964E+16	3.2000E-10	6.9000E-09	ICRP72	3.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>1333	Eu-156	2.0398E+18	2.2000E-09	3.4000E-09	ICRP72	0.70000	A2 VALUE	7.84033E+02	Calculated
>1334	Eu-157	4.8675E+19	6.0000E-10	2.8000E-10	ICRP72	0.02000	BETA	3.03804E+03	Calculated
>1335	Eu-158	9.5974E+20	9.4000E-11	4.7000E-11	ICRP72	0.02000	BETA	7.35725E+02	Calculated
>1336	Eu-159	2.4185E+21	3.2565E-10	1.3614E-10	Calculated	0.02000	BETA	2.64905E+03	Calculated
>1337	Eu-160	5.2685E+22	2.2757E-11	1.1149E-11	Calculated	0.02000	BETA	5.95656E+02	Calculated
>1338	Eu-161	9.9719E+22	1.7687E-11	8.6654E-12	Calculated	0.02000	BETA	7.30645E+02	Calculated
>1339	Eu-162	2.4308E+23	1.2810E-11	6.2761E-12	Calculated	0.02000	BETA	4.83816E+02	Calculated
>1340	Eu-163	4.2681E+23	6.9959E-12	3.4274E-12	Calculated	0.02000	BETA	5.61167E+02	Calculated
>1341	Gd-139	5.2685E+23	1.8121E-12	2.8819E-12	Calculated	0.02000	BETA	3.46628E+02	Calculated
+1342	Gd-139m	6.2563E+23	1.5433E-12	2.4547E-12	Calculated	0.02000	BETA	3.35954E+02	Calculated
>1343	Gd-140	1.8871E+23	4.3257E-12	7.0611E-12	Calculated	0.02000	BETA	5.23670E+02	Calculated
>1344	Gd-141	2.1156E+23	3.3286E-12	4.7496E-12	Calculated	0.02000	BETA	6.45044E+02	Calculated
>1345	Gd-141m	1.2083E+23	6.2906E-12	9.0615E-12	Calculated	0.02000	BETA	4.30889E+02	Calculated
>1346	Gd-142	4.1896E+22	9.9835E-12	1.4046E-11	Calculated	0.02000	BETA	2.06033E+03	Calculated
>1347	Gd-143	7.4885E+22	5.4124E-12	8.7234E-12	Calculated	0.02000	BETA	7.13201E+02	Calculated
>1348	Gd-143m	2.6550E+22	1.6007E-11	2.5798E-11	Calculated	0.02000	BETA	4.50640E+02	Calculated
>1349	Gd-144	1.0742E+22	3.2761E-11	5.2761E-11	Calculated	0.02000	BETA	7.37109E+02	Calculated
>1350	Gd-145	2.0872E+21	4.4000E-11	2.0000E-11	ICRP72	0.02000	BETA	4.06075E+02	Calculated
>1351	Gd-145m	3.3886E+22	4.1311E-12	3.6994E-12	Calculated	0.02000	BETA	1.44634E+03	Calculated
>1352	Gd-146	6.8592E+17	9.6000E-10	6.4000E-09	ICRP72	0.50000	A2 VALUE	3.75104E+03	Calculated
1353	Gd-147	2.0708E+19	6.1000E-10	4.0000E-10	ICRP72	0.02000	BETA	7.96673E+02	Calculated
1354	Gd-148	1.1980E+15	5.6000E-08	2.6000E-05	ICRP72	0.00200	A2 VALUE	7.69231E+04	Calculated
>1355	Gd-149	3.4959E+18	4.5000E-10	7.3000E-10	ICRP72	0.02000	BETA	1.86757E+03	Calculated
1356	Gd-150	4.8478E+10	5.2000E-08	8.3000E-05	KENDALL	0.00009	ALPHA	2.40964E+04	Calculated
1357	Gd-151	2.5816E+17	2.0000E-10	8.6000E-10	ICRP72	0.00009	ALPHA	1.34620E+04	Calculated
1358	Gd-152	8.0620E+02	4.1000E-08	1.9000E-05	ICRP72	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
1359	Gd-153	1.3142E+17	2.7000E-10	2.1000E-09	ICRP72	9.00000	A2 VALUE	1.00000E+04	IAEA-G-1.7
1365	Gd-159	3.9482E+19	4.9000E-10	2.7000E-10	ICRP72	0.60000	A2 VALUE	1.00000E+05	IAEA-G-1.7
>1366	Gd-160	6.3622E-01	6.7167E-09	2.5240E-08	Calculated	0.02000	BETA	5.78202E+03	Calculated
>1367	Gd-161	1.1812E+22	4.6464E-12	7.4830E-12	Calculated	0.02000	BETA	2.21583E+03	Calculated
>1368	Gd-162	5.1146E+21	2.6166E-11	4.2140E-11	Calculated	0.02000	BETA	2.21840E+03	Calculated
>1369	Gd-163	3.7675E+22	3.9729E-12	6.3983E-12	Calculated	0.02000	BETA	1.67551E+03	Calculated
>1370	Gd-164	5.6561E+22	3.8552E-12	6.2087E-12	Calculated	0.02000	BETA	1.17050E+03	Calculated
>1371	Gd-165	2.4562E+23	1.0734E-12	1.7250E-12	Calculated	0.02000	BETA	6.50899E+02	Calculated
>1372	Tb-144	2.9001E+24	1.5431E-10	1.8287E-10	Calculated	0.02000	BETA	3.47543E+03	Calculated
>1373	Tb-144m	6.8238E+23	7.1818E-10	8.5113E-10	Calculated	0.02000	BETA	1.52219E+03	Calculated
>1374	Tb-145	2.3990E+21	1.9370E-07	1.9019E-07	Calculated	0.02000	BETA	3.87012E+02	Calculated
>1375	Tb-145m	9.7633E+22	3.6679E-09	3.3791E-09	Calculated	0.02000	BETA	4.24989E+02	Calculated
>1376	Tb-146	3.5756E+23	9.1432E-10	1.0919E-09	Calculated	0.02000	BETA	6.00513E+02	Calculated
>1377	Tb-146m	1.1919E+23	3.4907E-09	4.1617E-09	Calculated	0.02000	BETA	2.35703E+02	Calculated
>1378	Tb-147	4.6423E+20	1.6000E-10	7.6000E-11	ICRP72	0.02000	BETA	5.14754E+02	Calculated
>1379	Tb-147m	2.5875E+22	5.0870E-09	5.6138E-09	Calculated	0.02000	BETA	6.38529E+02	Calculated
>1380	Tb-148	7.8385E+20	2.7000E-11	4.1000E-11	NRPB-M	0.02000	BETA	4.40597E+02	Calculated
>1381	Tb-148m	2.1378E+22	1.0976E-08	1.4302E-08	Calculated	0.02000	BETA	3.41542E+02	Calculated
>1382	Tb-149	1.8907E+20	2.5000E-10	4.9000E-09	ICRP72	0.00009	ALPHA	7.31603E+02	Calculated
>1383	Tb-149m	1.1230E+22	8.3916E-09	9.9465E-09	Calculated	0.00009	ALPHA	9.20472E+02	Calculated
1384	Tb-150	2.2274E+20	2.5000E-10	1.1000E-10	ICRP72	0.00009	ALPHA	4.85437E+02	Calculated
>1385	Tb-150m	8.0007E+21	2.1698E-08	2.5715E-08	Calculated	0.02000	BETA	4.21683E+02	Calculated
>1386	Tb-151	4.3630E+19	3.4000E-10	2.3000E-10	ICRP72	0.00009	ALPHA	1.00433E+03	Calculated
>1387	Tb-151m	1.1063E+23	5.1936E-11	6.1561E-11	Calculated	0.02000	BETA	1.28008E+04	Calculated
>1388	Tb-152	4.3612E+19	5.8000E-10	5.5000E-10	NRPB-M	0.02000	BETA	7.08057E+02	Calculated
>1389	Tb-152m	1.0650E+22	5.9386E-09	7.0375E-09	Calculated	0.02000	BETA	1.31062E+03	Calculated
>1390	Tb-153	1.3501E+19	2.5000E-10	1.9000E-10	ICRP72	0.02000	BETA	3.06910E+03	Calculated
1391	Tb-154	3.5037E+19	6.5000E-10	3.6000E-10	ICRP72	0.02000	BETA	4.51834E+02	Calculated
>1392	Tb-154m	8.3700E+19	1.1275E-06	1.3414E-06	Calculated	0.02000	BETA	7.72439E+02	Calculated
1393	Tb-154n	3.3193E+19	8.7000E-10	8.5000E-10	NRPB-M	0.02000	BETA	4.83232E+02	Calculated
>1394	Tb-155	5.8618E+18	2.1000E-10	2.2000E-10	ICRP72	0.02000	BETA	5.54264E+03	Calculated
1395	Tb-156	5.9932E+18	1.2000E-09	1.2000E-09	ICRP72	0.02000	BETA	5.14448E+02	Calculated
1396	Tb-156m	3.0477E+19	1.7000E-10	2.1000E-10	ICRP72	0.02000	BETA	2.51286E+04	Calculated
1397	Tb-156n	1.4581E+20	8.1000E-11	9.6000E-11	ICRP72	0.02000	BETA	7.60495E+04	Calculated
1398	Tb-157	8.5143E+14	3.4000E-11	1.2000E-09	ICRP72	40.00000	A2 VALUE	9.12054E+04	Calculated
>1399	Tb-158	4.6532E+14	1.1000E-09	4.6000E-08	ICRP72	1.00000	A2 VALUE	1.21231E+03	Calculated
>1400	Tb-158m	2.4474E+23	3.1101E-11	3.6858E-11	Calculated	0.02000	BETA	3.04918E+04	Calculated
1402	Tb-160	4.1783E+17	1.6000E-09	7.0000E-09	ICRP72	0.60000	A2 VALUE	1.00000E+03	IAEA-G-1.7
1403	Tb-161	4.3573E+18	7.2000E-10	1.3000E-09	ICRP72	0.02000	BETA	1.85752E+04	Calculated
>1404	Tb-162	5.6531E+21	1.9619E-08	2.3251E-08	Calculated	0.02000	BETA	8.62213E+02	Calculated
>1405	Tb-163	2.1897E+21	3.5127E-08	4.1630E-08	Calculated	0.02000	BETA	1.21630E+03	Calculated
>1406	Tb-164	1.4146E+22	1.1343E-08	1.3443E-08	Calculated	0.02000	BETA	4.26076E+02	Calculated
>1407	Tb-165	1.9991E+22	6.7123E-09	7.9151E-09	Calculated	0.02000	BETA	1.36427E+03	Calculated
>1408	Tb-166	9.8226E+22	2.2876E-09	2.8880E-09	Calculated	0.02000	BETA	5.64642E+02	Calculated
>1409	Tb-167	1.3155E+23	2.0465E-09	2.4120E-09	Calculated	0.02000	BETA	6.65187E+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
>1410	Tb-168	3.0301E+23	1.4389E-09	1.7053E-09	Calculated	0.02000	BETA	4.50045E+02	Calculated
>1411	Dy-147	7.0990E+22	4.8447E-12	2.7000E-12	Calculated	0.02000	BETA	4.15588E+02	Calculated
>1412	Dy-147m	4.8152E+22	8.9214E-12	4.9720E-12	Calculated	0.02000	BETA	7.03433E+02	Calculated
>1413	Dy-148	1.4252E+22	4.0638E-12	2.2653E-12	Calculated	0.02000	BETA	1.38874E+03	Calculated
>1414	Dy-149	1.1122E+22	1.1943E-11	6.6955E-12	Calculated	0.02000	BETA	6.16010E+02	Calculated
>1415	Dy-150	6.4719E+21	3.3487E-10	1.8673E-10	Calculated	0.00009	ALPHA	3.93407E+03	Calculated
>1416	Dy-151	2.5752E+21	1.7764E-10	9.8899E-11	Calculated	0.00009	ALPHA	7.36648E+02	Calculated
>1417	Dy-152	3.2068E+20	2.5000E-10	7.3000E-09	NRPB-M	0.00009	ALPHA	3.47746E+03	Calculated
>1418	Dy-153	1.1847E+20	1.4000E-10	1.4000E-10	NRPB-M	0.00009	ALPHA	1.39472E+03	Calculated
>1419	Dy-154	2.8645E+10	5.8000E-08	2.3000E-05	KENDALL	0.00009	ALPHA	8.69565E+04	Calculated
>1420	Dy-155	7.5599E+19	1.3000E-10	7.7000E-11	ICRP72	0.02000	BETA	1.64540E+03	Calculated
>1421	Dy-156	8.4832E-02	4.6122E-08	5.9984E-08	Calculated	0.00009	ALPHA	9.93937E+03	Calculated
>1422	Dy-157	9.0773E+19	6.1000E-11	3.0000E-11	ICRP72	0.02000	BETA	2.84344E+03	Calculated
>1424	Dy-159	2.1052E+17	1.0000E-10	3.7000E-10	ICRP72	20.00000	A2 VALUE	2.13713E+04	Calculated
>1430	Dy-165	3.0121E+20	1.1000E-10	6.0000E-11	ICRP72	0.60000	A2 VALUE	1.00000E+06	IAEA-G-1.7
>1431	Dy-165m	3.3530E+22	1.2242E-12	6.7086E-13	Calculated	0.02000	BETA	3.34528E+04	Calculated
>1432	Dy-166	8.5635E+18	1.6000E-09	1.9000E-09	ICRP72	0.24000	A2 VALUE	1.00000E+05	IAEA-G-1.7
>1433	Dy-167	6.7218E+21	1.4230E-11	7.8028E-12	Calculated	0.02000	BETA	1.68255E+03	Calculated
>1434	Dy-168	4.7599E+21	3.8487E-11	2.1452E-11	Calculated	0.02000	BETA	1.80614E+03	Calculated
>1435	Dy-169	6.3332E+22	3.4877E-12	1.9565E-12	Calculated	0.02000	BETA	8.51472E+02	Calculated
>1436	Dy-170	8.1847E+22	3.0625E-12	1.7070E-12	Calculated	0.02000	BETA	1.09971E+03	Calculated
>1437	Dy-171	4.0684E+23	9.3858E-13	4.9369E-13	Calculated	0.02000	BETA	6.18429E+02	Calculated
>1438	Ho-152	1.6981E+22	1.0419E-10	4.7341E-10	Calculated	0.00009	ALPHA	5.93789E+02	Calculated
>1439	Ho-152m	5.5504E+22	3.4174E-11	1.4867E-10	Calculated	0.00009	ALPHA	2.92337E+02	Calculated
>1440	Ho-153	2.2633E+22	9.7985E-12	1.0804E-11	Calculated	0.00009	ALPHA	1.03364E+03	Calculated
>1441	Ho-153m	4.8741E+21	5.7808E-11	6.2470E-11	Calculated	0.00009	ALPHA	6.35001E+02	Calculated
>1442	Ho-154	3.8194E+21	4.0026E-11	4.0024E-11	Calculated	0.00009	ALPHA	8.68372E+02	Calculated
>1443	Ho-154m	1.3906E+22	1.8832E-11	1.8831E-11	Calculated	0.00009	ALPHA	5.01706E+02	Calculated
>1444	Ho-155	9.3552E+20	3.7000E-11	2.0000E-11	ICRP72	0.02000	BETA	2.14448E+03	Calculated
>1445	Ho-156	7.9672E+20	2.3530E-10	2.3529E-10	Calculated	0.02000	BETA	7.09079E+02	Calculated
>1446	Ho-156m	2.8166E+23	1.1356E-12	1.1356E-12	Calculated	0.02000	BETA	1.01474E+03	Calculated
>1447	Ho-156n	5.7175E+21	6.7741E-11	6.7738E-11	Calculated	0.02000	BETA	6.77048E+02	Calculated
>1448	Ho-157	3.5185E+21	6.5000E-12	4.2000E-12	ICRP72	0.02000	BETA	2.13808E+03	Calculated
>1449	Ho-158	4.0047E+21	8.8650E-11	8.8646E-11	Calculated	0.02000	BETA	6.46281E+02	Calculated
>1450	Ho-158m	1.6315E+21	2.1760E-10	2.1759E-10	Calculated	0.02000	BETA	8.00000E+06	Calculated
>1451	Ho-158n	2.0649E+21	1.6752E-10	1.6751E-10	Calculated	0.02000	BETA	3.65464E+02	Calculated
>1452	Ho-159	1.3245E+21	7.9000E-12	6.1000E-12	ICRP72	0.02000	BETA	2.59264E+03	Calculated
>1453	Ho-159m	3.1645E+23	1.1377E-13	1.0623E-13	Calculated	0.02000	BETA	9.05794E+03	Calculated
>1454	Ho-160	1.7194E+21	1.2928E-10	1.2928E-10	Calculated	0.02000	BETA	5.81225E+02	Calculated
>1455	Ho-160m	1.4500E+20	2.2000E-10	2.2000E-10	NRPB-M	0.02000	BETA	1.51987E+03	Calculated
>1456	Ho-160n	9.0002E+23	2.7461E-13	2.7460E-13	Calculated	0.02000	BETA	8.69047E+03	Calculated
>1457	Ho-161	2.9053E+20	1.3000E-11	6.0000E-12	ICRP72	0.02000	BETA	1.62567E+04	Calculated
>1458	Ho-161m	3.8314E+23	7.8015E-14	7.2704E-14	Calculated	0.02000	BETA	8.74150E+03	Calculated
>1459	Ho-162	2.8642E+21	3.3000E-12	2.8000E-12	ICRP72	0.02000	BETA	5.88885E+03	Calculated
>1460	Ho-162m	6.4123E+20	2.6000E-11	2.1000E-11	ICRP72	0.02000	BETA	1.72236E+03	Calculated
>1461	Ho-163	1.7765E+13	2.2731E-11	5.3037E-11	Calculated	0.02000	BETA	3.77357E+06	Calculated
>1462	Ho-163m	2.3291E+24	1.5638E-14	1.5638E-14	Calculated	0.02000	BETA	4.12105E+03	Calculated
>1463	Ho-164	1.4839E+21	9.5000E-12	8.4000E-12	ICRP72	0.02000	BETA	2.14662E+04	Calculated
>1464	Ho-164m	1.1287E+21	1.6000E-11	1.2000E-11	ICRP72	0.02000	BETA	1.74777E+04	Calculated
>1466	Ho-166	2.6074E+19	1.4000E-09	6.5000E-10	ICRP72	0.40000	A2 VALUE	1.00000E+05	IAEA-G-1.7
>1467	Ho-166m	6.6431E+13	2.0000E-09	1.2000E-07	ICRP72	0.50000	A2 VALUE	6.09271E+02	Calculated
>1468	Ho-167	2.2406E+20	8.3000E-11	7.1000E-11	ICRP72	0.02000	BETA	2.59272E+03	Calculated
>1469	Ho-168	1.3855E+22	1.4254E-11	1.4254E-11	Calculated	0.02000	BETA	1.06003E+03	Calculated
>1470	Ho-168m	1.8823E+22	2.1635E-15	2.1634E-15	Calculated	0.02000	BETA	1.55815E+04	Calculated
>1471	Ho-169	9.3594E+21	1.3918E-11	1.4180E-11	Calculated	0.02000	BETA	1.84740E+03	Calculated
>1472	Ho-170	1.4726E+22	2.1268E-11	2.1267E-11	Calculated	0.02000	BETA	5.21325E+02	Calculated
>1473	Ho-170m	5.7123E+22	4.1977E-12	4.1975E-12	Calculated	0.02000	BETA	1.22565E+03	Calculated
>1474	Ho-171	4.6058E+22	6.8997E-12	6.0922E-12	Calculated	0.02000	BETA	8.50970E+02	Calculated
>1475	Ho-172	9.7075E+22	4.3477E-12	4.2959E-12	Calculated	0.02000	BETA	5.35916E+02	Calculated
>1476	Ho-173	2.4128E+23	2.1800E-12	2.1790E-12	Calculated	0.02000	BETA	5.99399E+02	Calculated
>1477	Er-153	7.3569E+22	4.4260E-11	5.8975E-11	Calculated	0.00009	ALPHA	3.09774E+03	Calculated
>1478	Er-154	1.2117E+22	9.1198E-12	1.2132E-11	Calculated	0.00009	ALPHA	1.26351E+04	Calculated
>1479	Er-155	8.4724E+21	1.6419E-11	2.0663E-11	Calculated	0.00009	ALPHA	5.72017E+02	Calculated
>1480	Er-156	2.2880E+21	6.8145E-11	9.0652E-11	Calculated	0.02000	BETA	1.55695E+04	Calculated
>1481	Er-157	2.3770E+21	1.3046E-11	1.5216E-11	Calculated	0.02000	BETA	3.17058E+03	Calculated
>1482	Er-158	3.2631E+20	3.2000E-12	3.5000E-12	NRPB-M	0.02000	BETA	7.11238E+03	Calculated
>1483	Er-159	1.2159E+21	4.5814E-11	5.9714E-11	Calculated	0.02000	BETA	1.33684E+03	Calculated
>1484	Er-160	2.5368E+19	7.4000E-10	6.2000E-10	NRPB-M	0.02000	BETA	2.68530E+04	Calculated
>1485	Er-161	2.2438E+20	8.0000E-11	4.8000E-11	ICRP72	0.02000	BETA	1.05612E+03	Calculated
>1486	Er-162	5.8347E+02	7.0335E-08	2.1832E-07	Calculated	0.00009	ALPHA	1.08472E+04	Calculated
>1487	Er-163	5.6933E+20	2.4000E-12	2.1000E-12	NRPB-M	0.02000	BETA	2.45657E+04	Calculated
>1489	Er-165	6.7860E+19	1.9000E-11	7.9000E-12	ICRP72	0.02000	BETA	2.60792E+04	Calculated
>1492	Er-167m	1.1021E+24	1.0632E-14	1.4144E-14	Calculated	0.02000	BETA	9.28540E+03	Calculated
>1494	Er-169	3.0424E+18	3.7000E-10	1.0000E-09	ICRP72	1.00000	A2 VALUE	1.00000E+06	IAEA-G-1.7

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
1496	Er-171	9.0250E+19	3.6000E-10	2.2000E-10	ICRP72	0.50000	A2 VALUE	1.00000E+05	IAEA-G-1.7
1497	Er-172	1.3679E+19	1.0000E-09	1.1000E-09	ICRP72	0.02000	BETA	1.89197E+03	Calculated
>1498	Er-173	2.8734E+22	2.9029E-12	3.8568E-12	Calculated	0.02000	BETA	1.11101E+03	Calculated
>1499	Er-174	1.2495E+22	1.5466E-11	2.0574E-11	Calculated	0.02000	BETA	1.42045E+03	Calculated
>1500	Er-175	3.3129E+22	3.9944E-12	5.3043E-12	Calculated	0.02000	BETA	7.43128E+02	Calculated
>1501	Tm-158	1.1068E+22	1.5952E-09	1.5440E-09	Calculated	0.02000	BETA	5.84529E+02	Calculated
>1502	Tm-159	4.7839E+21	4.2235E-09	4.0704E-09	Calculated	0.02000	BETA	6.81979E+02	Calculated
>1503	Tm-160	4.6276E+21	3.9676E-09	3.7063E-09	Calculated	0.02000	BETA	7.71209E+02	Calculated
>1504	Tm-160m	3.5019E+22	5.5523E-10	5.1975E-10	Calculated	0.02000	BETA	2.63130E+03	Calculated
>1505	Tm-161	1.1376E+21	1.0904E-08	9.7697E-09	Calculated	0.02000	BETA	9.97410E+02	Calculated
+1506	Tm-161m	8.6423E+21	1.5261E-09	1.3741E-09	Calculated	0.02000	BETA	1.63428E+03	Calculated
1507	Tm-162	1.9798E+21	2.9000E-11	1.6000E-11	ICRP72	0.02000	BETA	6.05290E+02	Calculated
>1508	Tm-162m	1.0608E+23	2.0154E-11	1.9342E-11	Calculated	0.02000	BETA	3.24675E+03	Calculated
1509	Tm-163	3.9318E+20	5.3000E-11	5.9000E-11	NRPB-M	0.02000	BETA	7.69669E+02	Calculated
>1510	Tm-164	2.1219E+22	3.2315E-10	3.1309E-10	Calculated	0.02000	BETA	1.29534E+03	Calculated
>1511	Tm-164m	8.3179E+21	7.1971E-11	6.9730E-11	Calculated	0.02000	BETA	3.26143E+03	Calculated
>1512	Tm-165	2.3387E+19	3.2000E-10	2.8000E-10	NRPB-M	0.02000	BETA	1.81161E+03	Calculated
>1513	Tm-166	9.0750E+19	2.8000E-10	1.7000E-10	ICRP72	0.02000	BETA	5.09187E+02	Calculated
>1514	Tm-167	3.1288E+18	5.6000E-10	1.1000E-09	ICRP72	0.80000	A2 VALUE	1.91888E+04	Calculated
>1515	Tm-168	3.0901E+17	9.6000E-10	3.1000E-09	NRPB-M	0.02000	BETA	8.00011E+02	Calculated
1517	Tm-170	2.2107E+17	1.3000E-09	7.0000E-09	ICRP72	0.60000	A2 VALUE	1.00000E+05	IAEA-G-1.7
1518	Tm-171	4.0377E+16	1.1000E-10	1.4000E-09	ICRP72	40.00000	A2 VALUE	1.00000E+06	IAEA-G-1.7
>1519	Tm-172	1.0603E+19	1.7000E-09	1.1000E-09	ICRP72	0.02000	BETA	1.87522E+03	Calculated
>1520	Tm-173	8.1368E+19	3.1000E-10	1.8000E-10	ICRP72	0.02000	BETA	2.38469E+03	Calculated
>1521	Tm-174	7.4067E+21	1.5856E-09	1.5362E-09	Calculated	0.02000	BETA	5.46411E+02	Calculated
1522	Tm-175	2.6220E+21	2.7000E-11	1.8000E-11	ICRP72	0.02000	BETA	8.28089E+02	Calculated
>1523	Tm-176	2.0811E+22	6.1955E-10	6.0026E-10	Calculated	0.02000	BETA	5.58650E+02	Calculated
>1524	Tm-177	2.6204E+22	6.3072E-10	5.5954E-10	Calculated	0.02000	BETA	8.55559E+02	Calculated
>1525	Tm-178	7.8169E+22	3.5039E-10	2.8848E-10	Calculated	0.02000	BETA	4.88935E+02	Calculated
>1526	Tm-179	1.1660E+23	1.9967E-10	1.9330E-10	Calculated	0.02000	BETA	5.65823E+02	Calculated
>1527	Yb-159	3.1265E+22	7.2629E-12	8.5186E-12	Calculated	0.02000	BETA	1.60171E+03	Calculated
>1528	Yb-160	9.0622E+21	1.6091E-11	1.8320E-11	Calculated	0.02000	BETA	3.61783E+03	Calculated
>1529	Yb-161	1.0292E+22	1.7899E-11	2.0294E-11	Calculated	0.02000	BETA	9.23647E+02	Calculated
>1530	Yb-162	2.2767E+21	2.3000E-11	1.4000E-11	ICRP72	0.02000	BETA	4.18698E+03	Calculated
>1531	Yb-163	3.8641E+21	1.1896E-11	1.4007E-11	Calculated	0.02000	BETA	1.32450E+03	Calculated
>1532	Yb-164	5.5987E+20	9.2533E-11	1.0890E-10	Calculated	0.02000	BETA	1.89664E+04	Calculated
>1533	Yb-165	4.2606E+21	4.4450E-12	5.2297E-12	Calculated	0.02000	BETA	2.85063E+03	Calculated
>1534	Yb-166	1.2324E+19	9.5000E-10	7.7000E-10	ICRP72	0.02000	BETA	1.13008E+04	Calculated
1535	Yb-167	2.3814E+21	6.7000E-12	6.9000E-12	ICRP72	0.02000	BETA	3.55341E+03	Calculated
>1536	Yb-168	6.0588E+02	5.5984E-08	1.5373E-07	Calculated	0.00009	ALPHA	1.40677E+04	Calculated
>1537	Yb-169	8.9320E+17	7.1000E-10	3.0000E-09	ICRP72	1.00000	A2 VALUE	3.08227E+03	Calculated
>1538	Yb-169m	5.3715E+22	2.8968E-14	7.0083E-14	Calculated	0.02000	BETA	4.13208E+05	Calculated
1544	Yb-175	6.5990E+18	4.4000E-10	7.3000E-10	ICRP72	0.90000	A2 VALUE	1.00000E+05	IAEA-G-1.7
>1546	Yb-176m	2.0811E+23	1.8454E-13	2.1718E-13	Calculated	0.02000	BETA	1.09290E+03	Calculated
>1547	Yb-177	3.4291E+20	8.8000E-11	6.9000E-11	ICRP72	0.02000	BETA	4.13678E+03	Calculated
>1548	Yb-177m	3.6803E+23	1.1443E-13	1.0247E-13	Calculated	0.02000	BETA	5.95742E+03	Calculated
1549	Yb-178	5.2833E+20	1.2000E-10	7.5000E-11	ICRP72	0.02000	BETA	1.56838E+03	Calculated
>1550	Yb-179	4.8596E+21	1.0831E-11	1.2714E-11	Calculated	0.02000	BETA	1.05592E+03	Calculated
>1551	Yb-180	1.6104E+22	7.9565E-12	9.3638E-12	Calculated	0.02000	BETA	1.19822E+03	Calculated
>1552	Yb-181	3.8437E+22	3.0317E-12	3.6162E-12	Calculated	0.02000	BETA	7.01097E+02	Calculated
>1553	Lu-162	3.1358E+22	1.1940E-09	3.5799E-09	Calculated	0.02000	BETA	6.18685E+02	Calculated
+1554	Lu-162m	2.8630E+22	1.5650E-09	4.8037E-09	Calculated	0.02000	BETA	3.83474E+02	Calculated
+1555	Lu-162n	2.2603E+22	2.0216E-09	6.2193E-09	Calculated	0.02000	BETA	3.74008E+02	Calculated
>1556	Lu-163	1.0764E+22	4.5245E-09	1.5518E-08	Calculated	0.02000	BETA	2.33100E+02	Calculated
>1557	Lu-164	1.3515E+22	1.2440E-09	4.2662E-09	Calculated	0.02000	BETA	1.06940E+03	Calculated
>1558	Lu-165	3.9297E+21	3.9603E-09	1.3581E-08	Calculated	0.02000	BETA	7.45979E+02	Calculated
>1559	Lu-166	1.5821E+22	1.2708E-09	4.2111E-09	Calculated	0.02000	BETA	4.58022E+02	Calculated
>1560	Lu-166m	2.9594E+22	5.5175E-10	1.8136E-09	Calculated	0.02000	BETA	1.14325E+03	Calculated
>1561	Lu-166n	1.9807E+22	1.0501E-09	3.4836E-09	Calculated	0.02000	BETA	4.65571E+02	Calculated
>1562	Lu-167	8.0921E+20	2.0940E-08	7.0239E-08	Calculated	0.02000	BETA	9.74344E+02	Calculated
+1563	Lu-167m	4.1659E+22	4.1653E-10	1.3979E-09	Calculated	0.02000	BETA	1.76295E+03	Calculated
>1564	Lu-168	7.5320E+21	4.4239E-09	1.5171E-08	Calculated	0.02000	BETA	2.25882E+02	Calculated
>1565	Lu-168m	6.1830E+21	2.8220E-09	9.6779E-09	Calculated	0.02000	BETA	4.37139E+02	Calculated
1566	Lu-169	2.0151E+19	4.6000E-10	3.8000E-10	ICRP72	0.02000	BETA	8.20951E+02	Calculated
>1567	Lu-169m	1.5443E+22	1.1263E-11	3.7062E-11	Calculated	0.02000	BETA	2.77778E+05	Calculated
1568	Lu-170	1.4198E+19	9.9000E-10	6.6000E-10	ICRP72	0.02000	BETA	3.95993E+02	Calculated
>1569	Lu-170m	3.6661E+24	1.5728E-13	5.2879E-13	Calculated	0.02000	BETA	8.91266E+04	Calculated
1570	Lu-171	3.4259E+18	6.7000E-10	8.8000E-10	ICRP72	0.02000	BETA	1.53815E+03	Calculated
>1571	Lu-171m	3.1307E+22	1.6017E-11	5.4774E-11	Calculated	0.02000	BETA	1.14546E+05	Calculated
1572	Lu-172	4.1939E+18	1.3000E-09	1.6000E-09	ICRP72	0.60000	A2 VALUE	5.08557E+02	Calculated
>1573	Lu-172m	1.0936E+22	2.7177E-11	9.2105E-11	Calculated	0.02000	BETA	1.75812E+05	Calculated
1574	Lu-173	5.7247E+16	2.6000E-10	2.4000E-09	ICRP72	8.00000	A2 VALUE	5.72142E+03	Calculated
1575	Lu-174	2.1366E+16	2.7000E-10	4.2000E-09	ICRP72	9.00000	A2 VALUE	8.25390E+03	Calculated
1576	Lu-174m	1.9560E+17	5.3000E-10	4.2000E-09	ICRP72	10.00000	A2 VALUE	1.36329E+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
1578	Lu-176	1.8795E+06	1.8000E-09	7.0000E-08	ICRP72	0.02000	BETA	1.00000E+03	IAEA-G-1.7
>1579	Lu-176m	1.8130E+20	1.7000E-10	1.2000E-10	ICRP72	0.02000	BETA	1.64328E+04	Calculated
1580	Lu-177	4.1077E+18	5.3000E-10	1.2000E-09	ICRP72	0.70000	A2 VALUE	1.00000E+05	IAEA-G-1.7
1581	Lu-177m	1.7033E+17	1.7000E-09	1.6000E-08	ICRP72	0.02000	BETA	5.68254E+03	Calculated
+1582	Lu-177n	5.6151E+21	4.2873E-09	1.1856E-08	Calculated	0.02000	BETA	5.65177E+02	Calculated
>1583	Lu-178	1.3766E+21	4.7000E-11	2.6000E-11	ICRP72	0.02000	BETA	5.03164E+03	Calculated
1584	Lu-178m	1.6925E+21	3.8000E-11	3.3000E-11	ICRP72	0.02000	BETA	9.08265E+02	Calculated
>1585	Lu-179	1.4117E+20	2.1000E-10	1.2000E-10	ICRP72	0.02000	BETA	1.28130E+04	Calculated
>1586	Lu-180	6.7826E+21	2.0066E-09	6.8815E-09	Calculated	0.02000	BETA	6.61505E+02	Calculated
+1587	Lu-180m	2.3190E+24	5.9310E-12	2.0340E-11	Calculated	0.02000	BETA	1.73149E+03	Calculated
>1588	Lu-181	1.0985E+22	4.1236E-10	1.5057E-09	Calculated	0.02000	BETA	1.75778E+03	Calculated
>1589	Lu-182	1.9117E+22	7.6422E-10	2.6208E-09	Calculated	0.02000	BETA	4.81719E+02	Calculated
>1590	Lu-183	3.9337E+22	6.6589E-10	1.5060E-09	Calculated	0.02000	BETA	1.30947E+03	Calculated
>1591	Lu-184	1.1343E+23	3.7514E-10	9.6664E-10	Calculated	0.02000	BETA	6.12347E+02	Calculated
>1592	Hf-163	6.4043E+22	2.6170E-12	5.2657E-12	Calculated	0.02000	BETA	1.31406E+03	Calculated
>1593	Hf-164	2.2930E+22	3.9617E-12	7.9706E-12	Calculated	0.02000	BETA	9.67118E+02	Calculated
>1594	Hf-165	2.4811E+22	3.5793E-12	7.2011E-12	Calculated	0.02000	BETA	1.82194E+03	Calculated
>1595	Hf-166	6.1957E+21	1.0849E-11	2.1172E-11	Calculated	0.02000	BETA	3.46837E+03	Calculated
>1596	Hf-167	2.0328E+22	3.8134E-12	7.5632E-12	Calculated	0.02000	BETA	1.34851E+03	Calculated
>1597	Hf-168	1.5958E+21	4.5618E-11	9.1781E-11	Calculated	0.02000	BETA	1.84400E+03	Calculated
>1598	Hf-169	1.2710E+22	2.6575E-12	5.3434E-12	Calculated	0.02000	BETA	8.69565E+02	Calculated
1599	Hf-170	4.2644E+19	4.8000E-10	3.2000E-10	ICRP72	0.02000	BETA	1.99124E+03	Calculated
>1600	Hf-171	5.6007E+19	7.8372E-10	1.6025E-09	Calculated	0.02000	BETA	1.07067E+03	Calculated
+1601	Hf-171m	8.2748E+22	5.3579E-13	1.0954E-12	Calculated	0.02000	BETA	4.55996E+04	Calculated
>1602	Hf-172	4.1140E+16	1.0000E-09	3.2000E-08	ICRP72	0.60000	A2 VALUE	8.60797E+03	Calculated
1603	Hf-173	2.8053E+19	2.3000E-10	1.6000E-10	ICRP72	0.02000	BETA	2.48873E+03	Calculated
1604	Hf-174	3.8023E+01	7.6800E-08	3.6054E-07	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
1605	Hf-175	3.9452E+17	4.1000E-10	1.2000E-09	ICRP72	3.00000	A2 VALUE	2.72081E+03	Calculated
1608	Hf-177m	2.1843E+24	1.2066E-14	2.4277E-14	Calculated	0.02000	BETA	9.15674E+02	Calculated
1609	Hf-177n	7.6494E+20	8.1000E-11	9.0000E-11	ICRP72	0.02000	BETA	8.31654E+02	Calculated
1611	Hf-178m	5.8645E+23	3.9181E-14	7.8830E-14	Calculated	0.02000	BETA	9.80352E+02	Calculated
1612	Hf-178n	2.3979E+15	4.7000E-09	2.6000E-07	ICRP72	0.02000	BETA	8.12690E+02	Calculated
>1614	Hf-179m	1.2494E+23	5.9741E-14	1.2019E-13	Calculated	0.02000	BETA	3.93472E+03	Calculated
>1615	Hf-179n	1.0756E+18	1.2000E-09	3.8000E-09	ICRP72	0.02000	BETA	1.06648E+03	Calculated
1617	Hf-180m	1.1716E+20	1.7000E-10	1.3000E-10	ICRP72	0.02000	BETA	9.92769E+02	Calculated
1618	Hf-181	6.3001E+17	1.1000E-09	5.0000E-09	ICRP72	0.50000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>1619	Hf-182	8.0777E+09	3.0000E-09	3.1000E-07	ICRP72	-1.00000	A2 VALUE	4.12210E+03	Calculated
>1620	Hf-182m	6.2172E+20	4.2000E-11	4.6000E-11	ICRP72	0.02000	BETA	1.08333E+03	Calculated
>1621	Hf-183	5.9398E+20	7.3000E-11	5.7000E-11	ICRP72	0.02000	BETA	1.25042E+03	Calculated
>1622	Hf-184	1.5299E+20	5.2000E-10	3.3000E-10	ICRP72	0.02000	BETA	3.53641E+03	Calculated
>1623	Hf-184m	4.7263E+22	1.2399E-12	2.1331E-12	Calculated	0.02000	BETA	1.04357E+03	Calculated
>1624	Hf-185	1.0744E+22	6.0801E-12	1.0925E-11	Calculated	0.02000	BETA	8.98311E+02	Calculated
>1625	Hf-186	1.4386E+22	6.0599E-12	8.6066E-12	Calculated	0.02000	BETA	1.25104E+03	Calculated
>1626	Hf-187	7.4407E+22	1.2783E-12	2.8681E-12	Calculated	0.02000	BETA	7.19599E+02	Calculated
>1627	Ta-170	6.0557E+21	2.4903E-11	1.9618E-11	Calculated	0.02000	BETA	8.22462E+02	Calculated
>1628	Ta-171	1.7467E+21	9.7787E-11	9.4703E-11	Calculated	0.02000	BETA	5.22739E+02	Calculated
>1629	Ta-172	1.0995E+21	5.3000E-11	3.5000E-11	ICRP72	0.02000	BETA	5.63679E+02	Calculated
>1630	Ta-173	2.1352E+20	1.9000E-10	1.1000E-10	ICRP72	0.02000	BETA	2.37077E+03	Calculated
>1631	Ta-174	5.8473E+20	5.7000E-11	4.3000E-11	ICRP72	0.02000	BETA	1.14485E+03	Calculated
1632	Ta-175	6.3123E+19	2.1000E-10	1.3000E-10	ICRP72	0.02000	BETA	1.18113E+03	Calculated
>1633	Ta-176	8.1461E+19	3.1000E-10	2.0000E-10	ICRP72	0.02000	BETA	4.74942E+02	Calculated
1634	Ta-177	1.1619E+19	1.1000E-10	1.1000E-10	ICRP72	0.02000	BETA	1.42807E+04	Calculated
>1635	Ta-178	4.2084E+21	1.3796E-12	1.3250E-12	Calculated	0.02000	BETA	8.22338E+03	Calculated
1636	Ta-178m	2.7598E+20	7.2000E-11	6.8000E-11	ICRP72	0.80000	A2 VALUE	8.55242E+02	Calculated
1637	Ta-179	4.5916E+16	6.5000E-11	5.6000E-10	ICRP72	30.00000	A2 VALUE	3.33493E+04	Calculated
1638	Ta-180	7.9747E+19	5.4000E-11	4.4000E-11	ICRP72	0.02000	BETA	1.91075E+04	Calculated
1639	Ta-180m	4.0837E+01	8.4000E-10	2.6000E-08	ICRP72	0.02000	BETA	1.00000E+03	IAEA-G-1.7
1641	Ta-182	2.3150E+17	1.5000E-09	1.0000E-08	ICRP72	0.50000	A2 VALUE	1.00000E+02	IAEA-G-1.7
>1642	Ta-182m	8.1066E+24	1.2055E-16	3.6021E-16	Calculated	0.02000	BETA	2.98572E+05	Calculated
1643	Ta-182n	2.4139E+21	1.2000E-11	2.1000E-11	ICRP72	0.02000	BETA	3.58328E+03	Calculated
1644	Ta-183	5.1881E+18	1.3000E-09	2.1000E-09	ICRP72	0.02000	BETA	3.10974E+03	Calculated
>1645	Ta-184	7.2451E+19	6.8000E-10	4.3000E-10	ICRP72	0.02000	BETA	6.15322E+02	Calculated
>1646	Ta-185	7.6765E+20	6.8000E-11	4.8000E-11	ICRP72	0.02000	BETA	4.74389E+03	Calculated
>1647	Ta-186	3.5630E+21	3.3000E-11	1.8000E-11	ICRP72	0.02000	BETA	7.06544E+02	Calculated
>1648	Ta-187	1.8602E+22	5.0025E-12	5.9253E-12	Calculated	0.02000	BETA	8.70002E+02	Calculated
>1649	Ta-188	1.1102E+23	1.1014E-12	1.0652E-12	Calculated	0.02000	BETA	5.61514E+02	Calculated
>1650	Ta-189	7.3620E+23	2.3658E-13	2.2396E-13	Calculated	0.02000	BETA	7.47196E+02	Calculated
>1651	Ta-190	7.3232E+24	3.2551E-14	3.1264E-14	Calculated	0.02000	BETA	4.83559E+02	Calculated
>1652	W-171	1.7094E+22	2.0195E-11	2.4156E-12	Calculated	0.02000	BETA	5.88534E+02	Calculated
>1653	W-172	6.0691E+21	1.8206E-11	1.7540E-12	Calculated	0.02000	BETA	1.24750E+03	Calculated
>1654	W-173	5.2913E+21	3.0709E-11	3.2363E-12	Calculated	0.02000	BETA	7.43128E+02	Calculated
>1655	W-174	1.3635E+21	6.7334E-11	7.2931E-12	Calculated	0.02000	BETA	1.60429E+03	Calculated
>1656	W-175	1.1294E+21	9.0088E-11	1.0150E-11	Calculated	0.02000	BETA	9.82446E+02	Calculated
1657	W-176	2.6361E+20	1.0000E-10	4.1000E-11	ICRP72	0.02000	BETA	5.64135E+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
>1658	W-177	2.9786E+20	5.8000E-11	2.4000E-11	ICRP72	0.02000	BETA	1.21434E+03	Calculated
1659	W-178	1.2570E+18	2.2000E-10	7.2000E-11	ICRP72	5.00000	A2 VALUE	5.03444E+04	Calculated
>1660	W-179	1.0493E+21	3.3000E-12	9.2000E-13	ICRP72	0.02000	BETA	1.80714E+04	Calculated
>1661	W-179m	6.0746E+21	1.9132E-12	3.1856E-13	Calculated	0.02000	BETA	2.72480E+04	Calculated
1663	W-181	2.2070E+17	7.6000E-11	2.7000E-11	ICRP72	30.00000	A2 VALUE	1.00000E+04	IAEA-G-1.7
>1665	W-183	6.5727E-01	2.2073E-08	3.5224E-05	Calculated	0.00009	ALPHA	5.67793E+04	Calculated
>1666	W-183m	4.3459E+23	3.1793E-14	3.7848E-15	Calculated	0.02000	BETA	6.95476E+03	Calculated
>1667	W-184	1.7977E-01	1.1649E-07	3.2358E-08	Calculated	0.00009	ALPHA	1.71687E+05	Calculated
1668	W-185	3.4782E+17	4.4000E-10	1.2000E-10	ICRP72	0.80000	A2 VALUE	1.00000E+06	IAEA-G-1.7
1669	W-185m	2.2569E+22	3.9382E-13	4.7925E-14	Calculated	0.02000	BETA	2.32894E+04	Calculated
>1670	W-186	1.2056E-01	1.0685E-08	1.7052E-05	Calculated	0.00009	ALPHA	4.08165E+04	Calculated
1671	W-187	2.6004E+19	6.3000E-10	1.9000E-10	ICRP72	0.60000	A2 VALUE	1.00000E+04	IAEA-G-1.7
>1672	W-188	3.6836E+17	2.1000E-09	5.7000E-10	ICRP72	0.24000	A2 VALUE	8.42296E+04	Calculated
>1673	W-189	3.2015E+21	3.0108E-11	3.4762E-12	Calculated	0.02000	BETA	7.61422E+02	Calculated
>1674	W-190	1.2208E+21	9.3551E-11	1.1137E-11	Calculated	0.02000	BETA	5.08865E+03	Calculated
>1675	W-191	1.0927E+23	1.1351E-12	1.4036E-13	Calculated	0.02000	BETA	8.42008E+02	Calculated
>1676	W-192	2.1741E+23	6.2056E-13	7.3874E-14	Calculated	0.02000	BETA	1.32392E+03	Calculated
>1677	W-193	2.1207E+22	9.2331E-12	1.1521E-12	Calculated	0.02000	BETA	7.65873E+02	Calculated
>1678	W-194	8.8087E+22	2.5323E-12	3.0363E-13	Calculated	0.02000	BETA	8.91266E+02	Calculated
>1679	Re-174	1.7389E+22	3.4279E-11	3.0559E-11	Calculated	0.02000	BETA	1.39535E+03	Calculated
>1680	Re-175	6.7495E+21	9.6421E-11	8.7310E-11	Calculated	0.02000	BETA	6.27682E+02	Calculated
>1681	Re-176	7.4603E+21	4.6270E-11	6.4863E-11	Calculated	0.02000	BETA	8.62232E+02	Calculated
>1682	Re-177	2.8083E+21	5.6822E-11	9.1429E-11	Calculated	0.02000	BETA	1.65691E+03	Calculated
>1683	Re-178	2.9618E+21	2.5000E-11	1.4000E-11	ICRP72	0.02000	BETA	7.77092E+02	Calculated
>1684	Re-179	1.9937E+21	7.5829E-11	7.6213E-11	Calculated	0.02000	BETA	9.26278E+02	Calculated
>1685	Re-180	1.5845E+22	1.0079E-11	9.3419E-12	Calculated	0.02000	BETA	8.61557E+02	Calculated
>1686	Re-181	3.2200E+19	4.2000E-10	2.5000E-10	ICRP72	0.02000	BETA	1.25016E+03	Calculated
>1687	Re-182	9.9572E+18	1.4000E-09	1.2000E-09	ICRP72	0.02000	BETA	5.51139E+02	Calculated
>1688	Re-182m	5.0178E+19	2.7000E-10	2.0000E-10	ICRP72	0.02000	BETA	8.23465E+02	Calculated
>1689	Re-183	3.7725E+17	7.6000E-10	1.8000E-09	R245	0.02000	BETA	6.12711E+03	Calculated
>1690	Re-184	6.9298E+17	1.0000E-09	1.9000E-09	ICRP72	1.00000	A2 VALUE	1.09756E+03	Calculated
>1691	Re-184m	1.5633E+17	1.5000E-09	6.5000E-09	ICRP72	1.00000	A2 VALUE	2.47401E+03	Calculated
1693	Re-186	6.8823E+18	1.5000E-09	1.1000E-09	ICRP72	0.60000	A2 VALUE	1.00000E+06	IAEA-G-1.7
1694	Re-186m	3.5631E+11	2.2000E-09	1.2000E-08	ICRP72	0.02000	BETA	1.49656E+04	Calculated
1695	Re-187	1.6265E+06	5.1000E-12	6.3000E-12	ICRP72	-1.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
1696	Re-188	3.6331E+19	1.4000E-09	5.4000E-09	ICRP72	0.40000	A2 VALUE	1.00000E+05	IAEA-G-1.7
1697	Re-188m	1.9900E+21	3.0000E-11	1.3000E-11	ICRP72	0.02000	BETA	1.21655E+04	Calculated
>1698	Re-189	2.5252E+19	7.8000E-10	4.3000E-10	ICRP72	0.60000	A2 VALUE	1.12810E+04	Calculated
>1699	Re-190	1.1814E+22	2.0380E-11	1.8889E-11	Calculated	0.02000	BETA	7.09088E+02	Calculated
1700	Re-190m	1.9108E+20	4.1000E-10	3.8000E-10	NRPB-M	0.02000	BETA	1.05097E+03	Calculated
>1701	Re-191	3.7558E+21	2.3153E-11	2.4717E-11	Calculated	0.02000	BETA	1.33463E+04	Calculated
>1702	Re-192	3.5072E+23	5.9885E-13	5.5503E-13	Calculated	0.02000	BETA	3.09745E+03	Calculated
>1703	Re-193	7.2094E+22	3.6290E-12	3.6962E-12	Calculated	0.02000	BETA	8.81868E+02	Calculated
>1704	Re-194	1.0758E+24	3.4998E-13	3.2818E-13	Calculated	0.02000	BETA	5.58557E+02	Calculated
>1705	Re-195	2.0990E+23	1.9041E-12	1.7237E-12	Calculated	0.02000	BETA	7.63942E+02	Calculated
>1706	Re-196	5.3652E+23	1.1947E-12	1.1072E-12	Calculated	0.02000	BETA	4.84418E+02	Calculated
>1707	Re-197	4.3514E+23	1.4661E-12	1.3641E-12	Calculated	0.02000	BETA	6.15637E+02	Calculated
>1708	Re-198	9.2474E+23	8.7341E-13	8.0950E-13	Calculated	0.02000	BETA	4.27472E+02	Calculated
>1709	Os-175	2.8396E+22	2.8383E-11	8.2427E-12	Calculated	0.02000	BETA	5.26195E+02	Calculated
>1710	Os-176	1.3180E+22	3.3082E-11	1.2653E-11	Calculated	0.02000	BETA	9.40448E+02	Calculated
>1711	Os-177	1.3102E+22	2.9500E-11	1.0630E-11	Calculated	0.02000	BETA	6.31458E+02	Calculated
>1712	Os-178	7.8169E+21	2.3668E-11	6.1557E-12	Calculated	0.02000	BETA	1.29439E+03	Calculated
>1713	Os-179	5.9809E+21	5.5800E-11	1.6892E-11	Calculated	0.02000	BETA	7.55486E+02	Calculated
1714	Os-180	1.7982E+21	1.7000E-11	1.5000E-11	ICRP72	0.02000	BETA	7.18570E+03	Calculated
>1715	Os-181	1.4239E+22	3.5616E-12	9.7493E-13	Calculated	0.02000	BETA	2.62329E+03	Calculated
1716	Os-181m	3.6616E+20	8.9000E-11	6.5000E-11	ICRP72	0.02000	BETA	7.20254E+02	Calculated
>1717	Os-182	2.8835E+19	5.6000E-10	3.8000E-10	ICRP72	0.02000	BETA	2.29393E+03	Calculated
1718	Os-183	4.8752E+19	2.0000E-10	2.3000E-10	NRPB-M	0.02000	BETA	1.56431E+03	Calculated
1719	Os-183m	6.4089E+19	1.9000E-10	2.1000E-10	NRPB-M	0.02000	BETA	9.97407E+02	Calculated
>1720	Os-184	1.2840E+03	2.8227E-08	4.5045E-05	Calculated	0.00009	ALPHA	1.37817E+04	Calculated
1721	Os-185	2.7848E+17	5.1000E-10	1.6000E-09	ICRP72	1.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>1722	Os-186	3.5557E+01	4.0179E-07	2.7603E-07	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
1726	Os-189m	1.2769E+20	1.8000E-11	5.3000E-12	ICRP72	0.02000	BETA	2.25428E+05	Calculated
>1728	Os-190m	3.6994E+21	4.0123E-11	1.1813E-11	Calculated	0.02000	BETA	6.24916E+02	Calculated
1729	Os-191	1.6536E+18	5.7000E-10	1.9000E-09	ICRP72	2.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
1730	Os-191m	4.6351E+19	9.6000E-11	1.6000E-10	ICRP72	30.00000	A2 VALUE	1.00000E+06	IAEA-G-1.7
>1732	Os-192m	3.6849E+23	4.2594E-13	1.2541E-13	Calculated	0.02000	BETA	5.58183E+02	Calculated
1733	Os-193	1.9957E+19	8.1000E-10	5.2000E-10	ICRP72	0.60000	A2 VALUE	1.00000E+05	IAEA-G-1.7
1734	Os-194	1.1387E+16	2.4000E-09	8.5000E-08	ICRP72	0.30000	A2 VALUE	1.80724E+05	Calculated
>1735	Os-195	5.4897E+21	1.6881E-11	4.6029E-12	Calculated	0.02000	BETA	4.67822E+03	Calculated
>1736	Os-196	1.0172E+21	1.5302E-10	4.5053E-11	Calculated	0.02000	BETA	8.74973E+03	Calculated
>1737	Os-197	6.2138E+23	3.5755E-13	1.0615E-13	Calculated	0.02000	BETA	1.26791E+03	Calculated
>1738	Os-198	6.4087E+22	3.7442E-12	1.1024E-12	Calculated	0.02000	BETA	2.52525E+03	Calculated
>1739	Os-199	5.7318E+22	7.6082E-12	2.4762E-12	Calculated	0.02000	BETA	7.95355E+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
>1740	Os-200	1.3046E+23	3.4931E-12	1.0140E-12	Calculated	0.02000	BETA	1.04895E+03	Calculated
>1741	Os-201	2.2001E+23	2.8312E-12	8.2075E-13	Calculated	0.02000	BETA	6.43225E+02	Calculated
>1742	Ir-178	1.9547E+23	3.2892E-12	3.4135E-12	Calculated	0.02000	BETA	6.16017E+02	Calculated
>1743	Ir-179	2.9519E+22	2.5766E-11	2.8266E-11	Calculated	0.02000	BETA	5.51743E+02	Calculated
>1744	Ir-180	2.5773E+22	1.7448E-11	2.1915E-11	Calculated	0.02000	BETA	5.39569E+02	Calculated
>1745	Ir-181	7.8461E+21	3.1905E-11	3.3906E-11	Calculated	0.02000	BETA	7.27633E+02	Calculated
1746	Ir-182	2.5490E+21	4.8000E-11	2.4000E-11	ICRP72	0.02000	BETA	1.20948E+03	Calculated
>1747	Ir-183	6.5561E+20	1.8961E-10	2.6772E-10	Calculated	0.02000	BETA	1.08756E+03	Calculated
1748	Ir-184	2.0875E+20	1.7000E-10	1.2000E-10	ICRP72	0.02000	BETA	5.73010E+02	Calculated
1749	Ir-185	4.5137E+19	2.6000E-10	1.9000E-10	ICRP72	0.02000	BETA	1.09092E+03	Calculated
1750	Ir-186	3.7474E+19	4.9000E-10	3.2000E-10	ICRP72	0.02000	BETA	6.12445E+02	Calculated
1751	Ir-186m	3.1177E+20	6.1000E-11	4.4000E-11	ICRP72	0.02000	BETA	6.93481E+02	Calculated
1752	Ir-187	5.9067E+19	1.2000E-10	7.9000E-11	ICRP72	0.02000	BETA	3.24797E+03	Calculated
1753	Ir-188	1.4865E+19	6.3000E-10	4.2000E-10	ICRP72	0.02000	BETA	4.75249E+02	Calculated
>1754	Ir-189	1.9370E+18	2.4000E-10	6.0000E-10	ICRP72	10.00000	A2 VALUE	1.20560E+04	Calculated
1755	Ir-190	2.1194E+18	1.2000E-09	2.4000E-09	ICRP72	0.70000	A2 VALUE	1.00000E+03	IAEA-G-1.7
1756	Ir-190m	5.4499E+20	8.0000E-12	1.0000E-11	ICRP72	0.02000	BETA	2.14268E+05	Calculated
1757	Ir-190n	1.9773E+20	1.2000E-10	8.3000E-11	ICRP72	0.02000	BETA	1.61914E+04	Calculated
>1759	Ir-191m	4.4610E+23	3.9587E-14	4.2797E-14	Calculated	0.02000	BETA	1.17705E+04	Calculated
>1760	Ir-191n	3.9744E+23	5.4143E-13	5.8533E-13	Calculated	0.02000	BETA	5.34009E+02	Calculated
1761	Ir-192	3.4093E+17	1.4000E-09	6.6000E-09	ICRP72	0.60000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>1762	Ir-192m	2.5168E+22	2.5097E-13	3.4021E-13	Calculated	0.02000	BETA	1.26872E+05	Calculated
1763	Ir-192n	2.8592E+14	3.1000E-10	3.9000E-08	ICRP72	0.02000	BETA	5.10458E+04	Calculated
1765	Ir-193m	2.3616E+18	2.7000E-10	1.3000E-09	ICRP72	0.02000	BETA	1.02669E+05	Calculated
1766	Ir-194	3.0974E+19	1.3000E-09	5.6000E-10	ICRP72	0.30000	A2 VALUE	1.00000E+05	IAEA-G-1.7
>1767	Ir-194m	6.7556E+25	2.1000E-09	1.3000E-08	ICRP72	0.02000	BETA	6.79911E+03	Calculated
+1768	Ir-194n	1.4566E+17	2.0377E-08	5.0989E-08	Calculated	0.02000	BETA	4.26984E+02	Calculated
>1769	Ir-195	2.3789E+20	1.0000E-10	7.1000E-11	ICRP72	0.02000	BETA	1.03924E+04	Calculated
>1770	Ir-195m	1.5651E+20	2.1000E-10	1.7000E-10	ICRP72	0.02000	BETA	2.58090E+03	Calculated
>1771	Ir-196	4.0963E+22	3.4259E-12	3.7037E-12	Calculated	0.02000	BETA	2.90676E+03	Calculated
1772	Ir-196m	4.2263E+20	1.2000E-10	1.6000E-10	NRPB-M	0.02000	BETA	3.97614E+02	Calculated
>1773	Ir-197	6.0897E+21	1.9936E-11	2.1941E-11	Calculated	0.02000	BETA	3.36554E+03	Calculated
>1774	Ir-197m	3.9686E+21	3.4215E-11	4.5404E-11	Calculated	0.02000	BETA	1.42769E+04	Calculated
>1775	Ir-198	2.6356E+23	8.1337E-13	8.7932E-13	Calculated	0.02000	BETA	1.04895E+03	Calculated
>1776	Ir-199	1.0488E+23	2.7974E-12	3.5890E-12	Calculated	0.02000	BETA	9.11521E+02	Calculated
>1777	Ir-200	4.0214E+23	9.2599E-13	9.8048E-13	Calculated	0.02000	BETA	7.11339E+02	Calculated
>1778	Ir-201	1.1227E+23	4.1453E-12	4.3710E-12	Calculated	0.02000	BETA	7.23414E+02	Calculated
>1779	Ir-202	2.4313E+23	2.0027E-12	2.3838E-12	Calculated	0.02000	BETA	5.01337E+02	Calculated
>1780	Pt-181	4.4350E+22	6.5452E-12	1.2729E-12	Calculated	0.00009	ALPHA	5.35471E+02	Calculated
>1781	Pt-182	1.4705E+22	4.5304E-12	4.8260E-13	Calculated	0.00009	ALPHA	5.47786E+03	Calculated
>1782	Pt-183	5.8487E+21	3.4984E-11	7.4371E-12	Calculated	0.00009	ALPHA	6.16391E+02	Calculated
>1783	Pt-183m	5.3058E+22	2.2431E-12	5.0399E-13	Calculated	0.02000	BETA	8.49762E+02	Calculated
>1784	Pt-184	2.1860E+21	4.8621E-11	9.0092E-12	Calculated	0.00009	ALPHA	5.50767E+02	Calculated
>1785	Pt-185	5.2977E+20	3.6389E-10	7.0591E-11	Calculated	0.02000	BETA	3.75000E+02	Calculated
>1786	Pt-185m	1.1398E+21	1.5537E-10	3.0116E-11	Calculated	0.02000	BETA	3.17682E+02	Calculated
>1787	Pt-186	2.9977E+20	9.3000E-11	3.3000E-11	ICRP72	0.00009	ALPHA	1.47117E+03	Calculated
>1788	Pt-187	2.6391E+20	1.1417E-10	2.1401E-11	Calculated	0.02000	BETA	2.18026E+03	Calculated
>1789	Pt-188	2.5200E+18	7.6000E-10	4.2000E-10	ICRP72	0.80000	A2 VALUE	4.69895E+03	Calculated
>1790	Pt-189	5.6451E+19	1.2000E-10	3.8000E-11	ICRP72	0.02000	BETA	2.07652E+03	Calculated
1791	Pt-190	1.0713E+05	8.2000E-09	2.3000E-07	R245	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
1792	Pt-191	9.0292E+18	3.4000E-10	1.1000E-10	ICRP72	3.00000	A2 VALUE	1.00000E+04	IAEA-G-1.7
1794	Pt-193	1.3710E+15	3.1000E-11	2.1000E-11	ICRP72	40.00000	A2 VALUE	2.89296E+04	Calculated
1795	Pt-193m	5.7690E+18	4.5000E-10	1.2000E-10	ICRP72	0.50000	A2 VALUE	1.00000E+06	IAEA-G-1.7
1798	Pt-195m	6.1647E+18	6.3000E-10	1.8000E-10	ICRP72	0.50000	A2 VALUE	1.07643E+04	Calculated
1800	Pt-197	2.9595E+19	4.0000E-10	8.5000E-11	ICRP72	0.60000	A2 VALUE	1.00000E+06	IAEA-G-1.7
1801	Pt-197m	3.7063E+20	8.4000E-11	2.4000E-11	ICRP72	0.60000	A2 VALUE	1.00000E+05	IAEA-G-1.7
>1803	Pt-199	1.1352E+21	3.9000E-11	1.2000E-11	ICRP72	0.02000	BETA	3.93140E+03	Calculated
>1804	Pt-199m	1.5426E+23	4.1095E-13	1.1258E-13	Calculated	0.02000	BETA	2.87089E+03	Calculated
>1805	Pt-200	4.6387E+19	1.2000E-09	2.2000E-10	ICRP72	0.02000	BETA	1.21558E+04	Calculated
>1806	Pt-201	1.3845E+22	7.3024E-12	1.3548E-12	Calculated	0.02000	BETA	1.02491E+03	Calculated
>1807	Pt-202	1.3047E+19	4.7102E-09	1.2630E-09	Calculated	0.02000	BETA	1.47452E+04	Calculated
>1808	Pt-203	5.0036E+22	2.4296E-12	4.7748E-13	Calculated	0.02000	BETA	9.77517E+02	Calculated
>1809	Au-185	8.8484E+21	6.0731E-11	5.7453E-11	Calculated	0.00009	ALPHA	5.77377E+02	Calculated
>1810	Au-186	3.4963E+21	6.5807E-11	7.2053E-11	Calculated	0.02000	BETA	6.51309E+02	Calculated
>1811	Au-187	4.4298E+21	5.3112E-10	5.0458E-10	Calculated	0.00009	ALPHA	5.33117E+02	Calculated
>1812	Au-187m	9.7052E+23	2.4331E-12	2.3115E-12	Calculated	0.02000	BETA	8.29807E+03	Calculated
>1813	Au-188	4.1901E+21	3.7928E-11	3.7282E-11	Calculated	0.02000	BETA	4.86808E+02	Calculated
>1814	Au-189	1.2828E+21	6.1316E-11	6.3073E-11	Calculated	0.02000	BETA	1.17925E+03	Calculated
>1815	Au-189m	8.0211E+21	1.2766E-11	1.2902E-11	Calculated	0.02000	BETA	3.21602E+03	Calculated
>1816	Au-190	8.5567E+20	1.9422E-10	1.8467E-10	Calculated	0.02000	BETA	4.68216E+02	Calculated
>1817	Au-191	1.9094E+20	6.6000E-11	8.6000E-11	NRPB-M	0.02000	BETA	1.76879E+03	Calculated
>1818	Au-191m	2.3760E+24	1.2871E-14	1.4106E-14	Calculated	0.02000	BETA	5.11509E+03	Calculated
>1819	Au-192	1.2227E+20	1.7000E-10	2.0000E-10	NRPB-M	0.02000	BETA	5.84575E+02	Calculated
>1820	Au-192m	7.4982E+25	4.0861E-16	4.5107E-16	Calculated	0.02000	BETA	4.65873E+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
>1821	Au-192n	1.3590E+25	3.8453E-15	4.0013E-15	Calculated	0.02000	BETA	6.62959E+03	Calculated
>1822	Au-193	3.4045E+19	1.3000E-10	1.2000E-10	ICRP72	2.00000	A2 VALUE	6.10970E+03	Calculated
>1823	Au-193m	5.5467E+23	4.0249E-14	3.8048E-14	Calculated	0.02000	BETA	5.82140E+03	Calculated
>1824	Au-194	1.5723E+19	4.2000E-10	2.4000E-10	ICRP72	1.00000	A2 VALUE	9.66635E+02	Calculated
>1825	Au-194m	3.5867E+24	1.9056E-15	1.1134E-15	Calculated	0.02000	BETA	3.12500E+05	Calculated
>1826	Au-194n	5.1239E+24	2.9950E-15	2.3587E-15	Calculated	0.02000	BETA	8.26446E+03	Calculated
>1827	Au-195	1.3316E+17	2.5000E-10	1.7000E-09	ICRP72	6.00000	A2 VALUE	1.10011E+04	Calculated
>1828	Au-195m	7.0197E+22	3.1995E-13	3.0699E-13	Calculated	0.02000	BETA	4.71076E+03	Calculated
>1829	Au-196	3.9873E+18	4.4000E-10	3.7000E-10	R245	0.02000	BETA	2.10568E+03	Calculated
>1830	Au-196m	2.6297E+23	2.8399E-14	2.6269E-14	Calculated	0.02000	BETA	9.43396E+04	Calculated
>1831	Au-196n	6.1634E+19	4.5000E-10	7.1000E-10	NRPB-M	0.02000	BETA	3.80569E+03	Calculated
>1833	Au-197m	2.7381E+23	1.0635E-13	1.0112E-13	Calculated	0.02000	BETA	4.10135E+03	Calculated
1834	Au-198	9.0577E+18	1.0000E-09	8.6000E-10	ICRP72	0.60000	A2 VALUE	1.00000E+04	IAEA-G-1.7
1835	Au-198m	1.0611E+19	1.3000E-09	2.0000E-09	ICRP72	0.02000	BETA	1.80495E+03	Calculated
1836	Au-199	7.7354E+18	4.4000E-10	7.9000E-10	ICRP72	0.60000	A2 VALUE	1.00000E+05	IAEA-G-1.7
>1837	Au-200	7.1881E+20	6.8000E-11	3.5000E-11	ICRP72	0.02000	BETA	2.87748E+03	Calculated
1838	Au-200m	3.1017E+19	1.1000E-09	7.2000E-10	ICRP72	0.02000	BETA	4.98753E+02	Calculated
>1839	Au-201	1.3314E+21	2.4000E-11	1.7000E-11	ICRP72	0.02000	BETA	1.30552E+04	Calculated
>1840	Au-202	7.1761E+22	1.3045E-12	1.2404E-12	Calculated	0.02000	BETA	3.47643E+03	Calculated
>1841	Au-203	3.8802E+22	1.5135E-12	1.4566E-12	Calculated	0.02000	BETA	6.86375E+03	Calculated
>1842	Au-204	5.1417E+22	3.6511E-12	3.4716E-12	Calculated	0.02000	BETA	5.03651E+02	Calculated
>1843	Au-205	6.5684E+22	3.0193E-12	2.8709E-12	Calculated	0.02000	BETA	7.71069E+02	Calculated
>1844	Au-206	1.2745E+24	2.9135E-13	2.7702E-13	Calculated	0.02000	BETA	4.14479E+02	Calculated
>1845	Hg-186	2.7108E+22	9.7361E-12	8.1130E-12	Calculated	0.00009	ALPHA	2.27536E+03	Calculated
>1846	Hg-187	1.5504E+22	3.1311E-10	2.3150E-10	Calculated	0.00009	ALPHA	2.47170E+02	Calculated
>1847	Hg-187m	1.5501E+22	1.6082E-10	1.1886E-10	Calculated	0.00009	ALPHA	5.68598E+02	Calculated
>1848	Hg-188	1.1388E+22	1.4731E-11	1.1231E-11	Calculated	0.02000	BETA	5.67600E+03	Calculated
>1849	Hg-189	4.8442E+21	4.5856E-10	3.4012E-10	Calculated	0.00009	ALPHA	3.14369E+02	Calculated
>1850	Hg-189m	4.2317E+21	5.5389E-11	4.2048E-11	Calculated	0.02000	BETA	7.09728E+02	Calculated
>1851	Hg-190	1.8311E+21	9.7506E-11	7.2121E-11	Calculated	0.02000	BETA	4.73516E+03	Calculated
>1852	Hg-191	7.5373E+20	1.5581E-10	1.1963E-10	Calculated	0.02000	BETA	1.83836E+03	Calculated
>1853	Hg-191m	7.1667E+20	1.6907E-10	1.2967E-10	Calculated	0.02000	BETA	6.84885E+02	Calculated
>1854	Hg-192	1.2454E+20	2.2000E-10	2.2000E-10	NRPB-M	0.02000	BETA	3.60282E+03	Calculated
>1855	Hg-193	1.5810E+20	8.2000E-11	7.5000E-11	ICRP72	0.02000	BETA	1.16887E+03	Calculated
1856	Hg-193m	5.0898E+19	4.0000E-10	2.6000E-10	ICRP72	0.02000	BETA	8.85308E+02	Calculated
>1857	Hg-194	1.5496E+14	5.1000E-08	1.4000E-08	ICRP72	1.00000	A2 VALUE	1.38026E+05	Calculated
>1858	Hg-195	6.0073E+19	9.7000E-11	7.3000E-11	ICRP72	0.02000	BETA	4.87648E+03	Calculated
1859	Hg-195m	1.4273E+19	5.6000E-10	5.3000E-10	ICRP72	0.70000	A2 VALUE	4.60193E+03	Calculated
>1860	Hg-196	2.6999E-02	4.7447E-09	8.1886E-09	Calculated	0.02000	BETA	1.21847E+04	Calculated
1861	Hg-197	9.1127E+18	2.3000E-10	3.0000E-10	ICRP72	10.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
1862	Hg-197m	2.4631E+19	4.7000E-10	5.3000E-10	ICRP72	0.40000	A2 VALUE	1.00000E+05	IAEA-G-1.7
1865	Hg-199m	8.3054E+20	3.1000E-11	3.2000E-11	ICRP72	0.02000	BETA	4.55923E+03	Calculated
1869	Hg-203	5.1075E+17	1.9000E-09	2.4000E-09	ICRP72	1.00000	A2 VALUE	1.00000E+04	IAEA-G-1.7
>1871	Hg-205	6.5271E+21	5.4528E-12	4.0332E-12	Calculated	0.02000	BETA	1.65260E+04	Calculated
>1872	Hg-206	4.1443E+21	1.6857E-11	1.2469E-11	Calculated	0.02000	BETA	1.00000E+03	IAEA-G-1.7
>1873	Hg-207	1.1590E+22	2.6920E-11	1.9911E-11	Calculated	0.02000	BETA	3.47303E+02	Calculated
>1874	Hg-208	7.9637E+20	5.1911E-10	3.8396E-10	Calculated	0.02000	BETA	7.47300E+02	Calculated
>1875	Hg-209	5.3979E+22	8.5482E-12	6.8372E-12	Calculated	0.02000	BETA	5.15747E+02	Calculated
>1876	Tl-192	3.7744E+21	2.8317E-11	1.9999E-11	Calculated	0.02000	BETA	4.44109E+02	Calculated
>1877	Tl-192m	3.3550E+21	3.2615E-11	2.3018E-11	Calculated	0.02000	BETA	4.32832E+02	Calculated
>1878	Tl-193	1.6538E+21	1.1992E-11	8.6497E-12	Calculated	0.02000	BETA	1.76888E+03	Calculated
>1879	Tl-193m	1.7086E+22	1.5910E-12	1.1320E-12	Calculated	0.02000	BETA	2.67113E+03	Calculated
1880	Tl-194	1.0869E+21	8.1000E-12	4.4000E-12	ICRP72	0.02000	BETA	1.40469E+03	Calculated
1881	Tl-194m	1.0935E+21	4.0000E-11	1.9000E-11	ICRP72	0.02000	BETA	3.94166E+02	Calculated
1882	Tl-195	5.1219E+20	2.7000E-11	1.5000E-11	ICRP72	0.02000	BETA	8.36855E+02	Calculated
>1883	Tl-195m	5.9471E+23	4.1939E-14	2.5722E-14	Calculated	0.02000	BETA	2.69632E+03	Calculated
>1884	Tl-196	3.2156E+20	4.9000E-11	6.6000E-11	NRPB-M	0.02000	BETA	6.60857E+02	Calculated
1885	Tl-196m	4.1930E+20	1.7000E-11	2.6000E-11	NRPB-M	0.02000	BETA	8.82784E+02	Calculated
>1886	Tl-197	2.0728E+20	2.3000E-11	1.4000E-11	ICRP72	0.02000	BETA	2.16818E+03	Calculated
>1887	Tl-197m	3.9245E+24	4.7911E-15	3.1899E-15	Calculated	0.02000	BETA	2.21119E+03	Calculated
>1888	Tl-198	1.1051E+20	7.3000E-11	6.0000E-11	ICRP72	0.02000	BETA	5.03235E+02	Calculated
>1889	Tl-198m	3.1321E+20	5.4000E-11	3.7000E-11	ICRP72	0.02000	BETA	8.40947E+02	Calculated
>1890	Tl-199	7.8538E+19	2.6000E-11	1.9000E-11	ICRP72	0.02000	BETA	3.90216E+03	Calculated
1891	Tl-200	2.2216E+19	2.0000E-10	1.3000E-10	ICRP72	0.90000	A2 VALUE	1.00000E+04	IAEA-G-1.7
1892	Tl-201	7.9055E+18	9.5000E-11	4.4000E-11	ICRP72	4.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
1893	Tl-202	1.9543E+18	4.5000E-10	1.9000E-10	ICRP72	2.00000	A2 VALUE	1.00000E+04	IAEA-G-1.7
1895	Tl-204	1.7120E+16	1.2000E-09	3.9000E-10	ICRP72	0.70000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>1897	Tl-206	8.0381E+21	1.4884E-12	1.0199E-12	Calculated	0.02000	BETA	1.00000E+03	IAEA-G-1.7
>1898	Tl-206m	8.9830E+21	7.8664E-12	5.3899E-12	Calculated	0.02000	BETA	3.99232E+02	Calculated
>1899	Tl-207	7.0467E+21	1.5517E-12	1.0632E-12	Calculated	0.02000	BETA	1.90563E+04	Calculated
>1900	Tl-207m	1.5164E+24	2.6760E-14	1.8336E-14	Calculated	0.02000	BETA	8.50499E+02	Calculated
>1901	Tl-208	1.0957E+22	7.9680E-12	5.4596E-12	Calculated	0.02000	BETA	1.00000E+03	IAEA-G-1.7
>1902	Tl-209	1.5132E+22	5.2871E-12	4.2018E-12	Calculated	0.02000	BETA	4.56475E+02	Calculated
>1903	Tl-210	2.5485E+22	3.4216E-12	3.5330E-12	Calculated	0.02000	BETA	1.00000E+03	IAEA-G-1.7

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
>1904	Pb-193	7.2094E+21	7.3345E-12	4.6942E-12	Calculated	0.02000	BETA	5.31632E+02	Calculated
+1905	Pb-193m	6.2150E+21	8.6872E-12	5.5588E-12	Calculated	0.02000	BETA	5.20209E+02	Calculated
>1906	Pb-194	2.9888E+21	6.1251E-12	3.6774E-12	Calculated	0.00009	ALPHA	9.59446E+02	Calculated
>1907	Pb-195	2.3788E+21	4.5767E-12	2.5341E-12	Calculated	0.02000	BETA	3.38867E+03	Calculated
1908	Pb-195m	2.3788E+21	2.9000E-11	2.7000E-11	ICRP72	0.02000	BETA	5.84624E+02	Calculated
>1909	Pb-196	9.5946E+20	1.5952E-11	1.5370E-11	Calculated	0.02000	BETA	2.00870E+03	Calculated
>1910	Pb-197	4.4150E+21	4.6716E-12	2.9193E-12	Calculated	0.02000	BETA	7.03401E+02	Calculated
>1911	Pb-197m	7.9074E+20	2.9158E-11	1.8247E-11	Calculated	0.02000	BETA	8.37802E+02	Calculated
>1912	Pb-198	2.4404E+20	1.0000E-10	7.0000E-11	ICRP72	0.02000	BETA	2.25105E+03	Calculated
>1913	Pb-199	3.8850E+20	5.4000E-11	3.7000E-11	ICRP72	0.02000	BETA	1.03629E+03	Calculated
>1914	Pb-199m	2.8660E+21	8.6303E-12	5.8202E-12	Calculated	0.02000	BETA	5.67543E+03	Calculated
>1915	Pb-200	2.6969E+19	4.0000E-10	3.5000E-10	ICRP72	0.02000	BETA	4.60666E+03	Calculated
1916	Pb-201	6.1377E+19	1.6000E-10	1.2000E-10	ICRP72	1.00000	A2 VALUE	1.29219E+03	Calculated
>1917	Pb-201m	3.4049E+22	5.0856E-13	3.5577E-13	Calculated	0.02000	BETA	2.54868E+03	Calculated
1918	Pb-202	1.2357E+12	8.8000E-09	1.2000E-08	ICRP72	20.00000	A2 VALUE	1.41050E+04	Calculated
1919	Pb-202m	1.6081E+20	1.3000E-10	1.0000E-10	ICRP72	0.02000	BETA	5.02673E+02	Calculated
1920	Pb-203	1.1009E+19	2.4000E-10	2.2000E-10	ICRP72	3.00000	A2 VALUE	1.00000E+04	IAEA-G-1.7
>1921	Pb-203m	3.2695E+23	3.7897E-14	2.6295E-14	Calculated	0.02000	BETA	1.48985E+03	Calculated
>1922	Pb-203n	4.2845E+24	8.7450E-15	5.7143E-15	Calculated	0.02000	BETA	5.18616E+02	Calculated
>1923	Pb-204	4.6320E-01	4.0693E-08	6.0148E-08	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
>1924	Pb-204m	5.0530E+20	5.0803E-11	3.2182E-11	Calculated	0.02000	BETA	4.78241E+02	Calculated
1925	Pb-205	4.2177E+09	2.8000E-10	8.5000E-10	ICRP72	-1.00000	A2 VALUE	1.66143E+04	Calculated
+1926	Pb-205m	3.6688E+26	3.2319E-17	2.0473E-17	Calculated	0.02000	BETA	9.86349E+02	Calculated
>1929	Pb-207m	2.5022E+24	7.5407E-15	4.7768E-15	Calculated	0.02000	BETA	6.58451E+02	Calculated
1931	Pb-209	1.7056E+20	5.7000E-11	6.1000E-11	ICRP72	0.02000	BETA	1.00000E+03	IAEA-G-1.7
1932	Pb-210	2.8427E+15	6.9000E-07	5.6000E-06	ICRP72	0.02600	A2 VALUE	1.00000E+03	IAEA-G-1.7
1933	Pb-211	9.1340E+20	1.8000E-10	1.2000E-08	ICRP72	0.02000	BETA	8.82143E+03	Calculated
1934	Pb-212	5.1406E+19	6.0000E-09	1.9000E-07	ICRP72	0.20000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>1935	Pb-213	3.2022E+21	4.8196E-12	3.0567E-12	Calculated	0.02000	BETA	1.33233E+03	Calculated
1936	Pb-214	1.2130E+21	1.4000E-10	1.5000E-08	ICRP72	0.02000	BETA	1.00000E+03	IAEA-G-1.7
+1937	Pb-215	5.3931E+22	3.4816E-11	2.1961E-10	Calculated	0.02000	BETA	9.63360E+02	Calculated
>1938	Bi-196	6.9598E+21	2.1418E-08	2.8242E-06	Calculated	0.00009	ALPHA	3.70961E+02	Calculated
+1939	Bi-196m	3.5495E+24	4.2942E-11	5.6505E-09	Calculated	0.02000	BETA	6.84001E+02	Calculated
+1940	Bi-196n	8.8738E+21	1.7332E-08	2.2787E-06	Calculated	0.00009	ALPHA	4.76132E+02	Calculated
>1941	Bi-197	3.7973E+21	3.2087E-08	3.8084E-06	Calculated	0.00009	ALPHA	5.75170E+02	Calculated
>1942	Bi-197m	7.0069E+21	2.1983E-07	2.6217E-05	Calculated	0.00009	ALPHA	1.11999E+03	Calculated
>1943	Bi-198	3.4113E+21	4.4914E-08	5.5325E-06	Calculated	0.02000	BETA	4.15657E+02	Calculated
>1944	Bi-198m	2.9654E+21	4.9118E-08	6.0604E-06	Calculated	0.02000	BETA	4.73030E+02	Calculated
>1945	Bi-198n	2.7382E+23	5.8106E-10	7.1491E-08	Calculated	0.02000	BETA	8.27815E+03	Calculated
>1946	Bi-199	1.2950E+21	8.1134E-08	9.9860E-06	Calculated	0.02000	BETA	7.32065E+02	Calculated
>1947	Bi-199m	1.4154E+21	8.6787E-08	1.0633E-05	Calculated	0.00009	ALPHA	5.42101E+02	Calculated
1948	Bi-200	9.5750E+20	5.1000E-11	3.3000E-11	ICRP72	0.02000	BETA	4.13223E+02	Calculated
>1949	Bi-200m	1.1222E+21	5.8836E-08	7.8805E-06	Calculated	0.02000	BETA	6.42624E+02	Calculated
+1950	Bi-200n	5.2178E+24	1.9576E-12	2.3230E-10	Calculated	0.02000	BETA	2.33536E+03	Calculated
1951	Bi-201	3.2052E+20	1.2000E-10	6.6000E-11	ICRP72	0.02000	BETA	5.33789E+02	Calculated
>1952	Bi-201m	5.8566E+20	1.6716E-07	2.0607E-05	Calculated	0.02000	BETA	6.46245E+02	Calculated
>1953	Bi-202	3.3377E+20	8.9000E-11	5.5000E-11	ICRP72	0.02000	BETA	4.04234E+02	Calculated
1954	Bi-203	4.8571E+19	4.8000E-10	2.6000E-10	ICRP72	0.00009	ALPHA	4.20785E+02	Calculated
>1955	Bi-203m	6.7426E+24	3.7796E-12	4.5024E-10	Calculated	0.02000	BETA	1.05643E+03	Calculated
>1956	Bi-204	5.0664E+19	1.0000E-09	9.2000E-10	NRPB-M	0.02000	BETA	3.34277E+02	Calculated
>1957	Bi-205	1.5395E+18	9.0000E-10	9.3000E-10	ICRP72	0.70000	A2 VALUE	6.73456E+02	Calculated
1958	Bi-206	3.7571E+18	1.9000E-09	1.7000E-09	ICRP72	0.30000	A2 VALUE	1.00000E+03	IAEA-G-1.7
1959	Bi-207	2.0122E+15	1.3000E-09	5.6000E-09	ICRP72	0.70000	A2 VALUE	1.00000E+02	IAEA-G-1.7
1960	Bi-208	1.7282E+11	1.4000E-09	4.0000E-09	R245	0.02000	BETA	3.76196E+02	Calculated
>1961	Bi-208m	7.7792E+26	4.6163E-14	5.5040E-12	Calculated	0.02000	BETA	6.63144E+02	Calculated
>1962	Bi-209	3.3313E-03	1.2822E-04	3.5672E-02	Calculated	0.00009	ALPHA	5.60657E+01	Calculated
1963	Bi-210	4.5906E+18	1.3000E-09	9.3000E-08	ICRP72	0.60000	A2 VALUE	1.00000E+03	IAEA-G-1.7
1964	Bi-210m	2.0997E+10	1.5000E-08	3.4000E-06	ICRP72	0.02000	A2 VALUE	3.76203E+03	Calculated
>1965	Bi-211	1.5195E+22	1.9915E-07	2.3745E-05	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
1966	Bi-212	5.4208E+20	2.6000E-10	3.1000E-08	ICRP72	0.60000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>1967	Bi-212m	1.3127E+21	2.6793E-06	3.1946E-04	Calculated	0.00009	ALPHA	6.26058E+03	Calculated
>1968	Bi-212n	3.6464E+21	1.4560E-06	1.7360E-04	Calculated	0.02000	BETA	7.64811E+03	Calculated
1969	Bi-213	7.1645E+20	2.0000E-10	3.0000E-08	ICRP72	0.00009	ALPHA	5.75935E+03	Calculated
1970	Bi-214	1.6337E+21	1.1000E-10	1.4000E-08	ICRP72	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
>1971	Bi-215	4.3727E+21	8.4083E-07	1.0084E-03	Calculated	0.02000	BETA	1.00000E+03	IAEA-G-1.7
+1972	Bi-215m	5.2615E+22	7.0343E-08	8.3864E-05	Calculated	0.02000	BETA	7.56334E+02	Calculated
+1973	Bi-216	1.4843E+22	2.4900E-07	2.6560E-04	Calculated	0.02000	BETA	6.66782E+02	Calculated
>1974	Po-202	7.7114E+20	5.4602E-10	8.4772E-10	Calculated	0.00009	ALPHA	1.16850E+03	Calculated
1975	Po-203	9.3390E+20	4.6000E-11	3.6000E-11	ICRP72	0.00009	ALPHA	1.00000E+04	IAEA-G-1.7
>1976	Po-203m	4.5699E+22	2.7195E-12	3.4958E-12	Calculated	0.02000	BETA	2.52758E+03	Calculated
1977	Po-204	1.6101E+20	1.0000E-09	2.7000E-08	NRPB-M	0.00009	ALPHA	8.55432E+02	Calculated
1978	Po-205	3.4076E+20	5.8000E-11	6.9000E-11	ICRP72	0.00009	ALPHA	1.00000E+04	IAEA-G-1.7
>1979	Po-206	2.6653E+18	1.3000E-07	1.1000E-11	R245	0.00009	ALPHA	8.36727E+02	Calculated
1980	Po-207	9.6586E+19	1.1000E-07	8.2000E-11	ICRP72	0.00009	ALPHA	1.00000E+04	IAEA-G-1.7

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
>1981	Po-207m	7.2283E+23	2.5084E-13	3.7723E-13	Calculated	0.02000	BETA	9.05849E+02	Calculated
1982	Po-208	2.1706E+16	7.7000E-07	2.4000E-06	R245	0.00009	ALPHA	2.59740E+04	Calculated
1983	Po-209	6.2053E+14	7.7000E-07	2.4000E-06	R245	0.00009	ALPHA	2.59740E+04	Calculated
1984	Po-210	1.6626E+17	1.2000E-06	4.3000E-06	ICRP72	0.02000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>1985	Po-211	3.8342E+24	4.8716E-12	7.5564E-12	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
>1986	Po-211m	7.7586E+22	2.4197E-10	3.7532E-10	Calculated	0.00009	ALPHA	6.70737E+02	Calculated
>1987	Po-212	6.6076E+30	3.3208E-18	5.1509E-18	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
>1988	Po-212m	4.3660E+22	6.6166E-10	1.0263E-09	Calculated	0.00009	ALPHA	1.09565E+04	Calculated
>1989	Po-213	4.6662E+29	4.4839E-17	6.9787E-17	Calculated	0.00009	ALPHA	4.25293E+07	Calculated
>1990	Po-214	1.1916E+28	1.5976E-15	2.5101E-15	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
>1991	Po-215	1.0907E+27	1.8274E-14	2.8745E-13	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
>1992	Po-216	1.2883E+25	1.5438E-12	2.1737E-11	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
>1993	Po-217	1.3086E+24	1.2357E-11	1.9167E-11	Calculated	0.00009	ALPHA	3.62429E+04	Calculated
>1994	Po-218	1.0301E+22	1.5898E-09	4.8181E-08	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
>1995	Po-219	1.5884E+22	2.1743E-09	2.0840E-08	Calculated	0.00009	ALPHA	2.26989E+03	Calculated
>1996	At-205	1.2970E+21	1.7542E-10	1.7481E-09	Calculated	0.00009	ALPHA	9.11577E+02	Calculated
>1997	At-206	1.1258E+21	9.7036E-11	5.5470E-10	Calculated	0.00009	ALPHA	4.28492E+02	Calculated
1998	At-207	3.1121E+20	2.4000E-10	2.3000E-09	ICRP72	0.00009	ALPHA	4.99725E+02	Calculated
>1999	At-208	3.4190E+20	1.9421E-10	2.0069E-09	Calculated	0.00009	ALPHA	3.28694E+02	Calculated
>2000	At-209	1.0256E+20	1.1649E-09	1.1645E-08	Calculated	0.00009	ALPHA	4.44264E+02	Calculated
>2001	At-210	6.8170E+19	1.1914E-09	1.7131E-08	Calculated	0.00009	ALPHA	3.36566E+02	Calculated
2002	At-211	7.6180E+19	1.1000E-08	1.1000E-07	ICRP72	0.50000	A2 VALUE	1.00000E+06	IAEA-G-1.7
>2003	At-212	6.2709E+24	4.1405E-13	4.1364E-12	Calculated	0.00009	ALPHA	4.83028E+10	Calculated
>2004	At-212m	1.6547E+25	1.6108E-13	1.6092E-12	Calculated	0.00009	ALPHA	1.25821E+05	Calculated
>2005	At-213	1.5678E+31	1.9592E-19	1.9573E-18	Calculated	0.00009	ALPHA	1.02083E+17	Calculated
>2006	At-214	3.4957E+30	8.4897E-19	8.4813E-18	Calculated	0.00009	ALPHA	2.35581E+16	Calculated
>2007	At-215	1.9415E+28	2.5238E-16	2.5213E-15	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
>2008	At-216	6.4416E+27	4.0431E-16	4.0391E-15	Calculated	0.00009	ALPHA	4.94667E+13	Calculated
>2009	At-217	5.9553E+25	3.9395E-14	3.9357E-13	Calculated	0.00009	ALPHA	3.24467E+06	Calculated
>2010	At-218	1.2765E+24	1.7333E-12	1.7316E-11	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
>2011	At-219	3.5295E+22	1.3467E-10	8.2354E-09	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
>2012	At-220	8.5231E+21	5.5552E-10	3.0710E-08	Calculated	0.00009	ALPHA	2.03808E+03	Calculated
>2013	At-221	1.3687E+22	3.1109E-10	3.1078E-09	Calculated	0.02000	BETA	1.16650E+03	Calculated
>2014	At-222	3.4820E+22	8.3292E-11	1.2793E-08	Calculated	0.02000	BETA	6.16136E+02	Calculated
>2015	Rn-208	1.3737E+21	1.3380E-06	7.7832E-07	Calculated	0.00009	ALPHA	1.85082E+03	Calculated
>2016	Rn-209	1.1680E+21	5.5309E-07	2.7652E-07	Calculated	0.00009	ALPHA	1.01159E+03	Calculated
>2017	Rn-210	2.3007E+20	1.2129E-05	5.9369E-06	Calculated	0.00009	ALPHA	1.64890E+03	Calculated
>2018	Rn-211	3.7612E+19	4.2101E-05	2.1065E-05	Calculated	0.00009	ALPHA	4.75049E+02	Calculated
>2019	Rn-212	1.3731E+21	2.1241E-06	1.0632E-06	Calculated	0.00009	ALPHA	9.41557E+03	Calculated
>2020	Rn-213	7.8392E+25	4.7733E-11	2.3867E-11	Calculated	0.00009	ALPHA	4.18996E+08	Calculated
>2021	Rn-214	7.2243E+30	5.8128E-16	2.9395E-16	Calculated	0.00009	ALPHA	3.44069E+13	Calculated
>2022	Rn-215	8.4413E+29	8.7560E-15	4.3780E-15	Calculated	0.00009	ALPHA	2.28416E+12	Calculated
>2023	Rn-216	4.2945E+28	1.7892E-13	8.9461E-14	Calculated	0.00009	ALPHA	1.11781E+11	Calculated
>2024	Rn-217	3.5622E+27	2.0604E-12	1.0320E-12	Calculated	0.00009	ALPHA	6.18213E+06	Calculated
>2025	Rn-218	5.4707E+25	1.2252E-10	6.1673E-11	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
>2026	Rn-219	4.8130E+23	1.3893E-08	4.1553E-08	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
>2027	Rn-220	3.4001E+22	1.8978E-07	5.2686E-07	Calculated	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
>2028	Rn-221	1.2591E+21	4.6002E-06	2.3001E-06	Calculated	0.00009	ALPHA	4.34762E+03	Calculated
>2029	Rn-222	5.6919E+18	6.8594E-04	5.3542E-03	Calculated	0.00400	A2 VALUE	1.00000E+03	IAEA-G-1.7
>2030	Rn-223	1.2890E+21	2.3552E-08	8.3460E-09	Calculated	0.02000	BETA	2.54690E+03	Calculated
>2031	Rn-224	2.9023E+20	1.3975E-07	7.0561E-08	Calculated	0.02000	BETA	3.86663E+03	Calculated
>2032	Rn-225	6.6352E+21	9.7635E-09	4.9110E-09	Calculated	0.02000	BETA	1.01764E+03	Calculated
>2033	Fr-218	1.9147E+27	1.3980E-12	6.2376E-12	Calculated	0.00009	ALPHA	1.43060E+10	Calculated
+2034	Fr-218m	8.7036E+25	3.1021E-11	1.3841E-10	Calculated	0.00009	ALPHA	6.44734E+08	Calculated
>2035	Fr-219	9.5298E+25	3.6887E-11	1.6458E-10	Calculated	0.00009	ALPHA	2.78440E+05	Calculated
>2036	Fr-220	6.9244E+22	3.3222E-08	1.4823E-07	Calculated	0.00009	ALPHA	9.06598E+04	Calculated
>2037	Fr-221	6.4240E+21	3.3183E-07	1.4806E-06	Calculated	0.00009	ALPHA	3.25688E+04	Calculated
>2038	Fr-222	2.2067E+21	7.2000E-10	1.4000E-08	ICRP72	0.02000	BETA	4.02108E+03	Calculated
2039	Fr-223	1.4310E+21	2.4000E-09	8.9000E-10	ICRP72	0.00009	ALPHA	1.00000E+03	IAEA-G-1.7
>2040	Fr-224	9.3258E+21	1.1995E-09	5.4199E-09	Calculated	0.02000	BETA	1.60522E+03	Calculated
>2041	Fr-225	7.7301E+21	1.2149E-09	5.5004E-09	Calculated	0.02000	BETA	1.50180E+03	Calculated
>2042	Fr-226	3.7689E+22	3.3511E-10	1.4952E-09	Calculated	0.02000	BETA	1.79140E+03	Calculated
>2043	Fr-227	1.2406E+22	7.3900E-10	3.2820E-09	Calculated	0.02000	BETA	1.95460E+03	Calculated
>2044	Fr-228	4.8171E+22	3.2996E-10	1.4720E-09	Calculated	0.02000	BETA	1.23442E+03	Calculated
>2045	Ra-220	1.0540E+26	4.3258E-11	1.5778E-09	Calculated	0.00009	ALPHA	2.15054E+05	Calculated
>2046	Ra-221	6.7453E+22	6.3733E-08	2.3274E-06	Calculated	0.00009	ALPHA	2.27130E+04	Calculated
>2047	Ra-222	4.9478E+22	8.0352E-08	2.9443E-06	Calculated	0.00009	ALPHA	1.07819E+05	Calculated
2048	Ra-223	1.8953E+18	1.0000E-07	8.7000E-06	ICRP72	0.00700	A2 VALUE	1.00000E+03	IAEA-G-1.7
2049	Ra-224	5.9248E+18	6.5000E-08	3.4000E-06	ICRP72	0.02000	A2 VALUE	1.00000E+03	IAEA-G-1.7
2050	Ra-225	1.4507E+18	9.9000E-08	7.7000E-06	ICRP72	0.00400	A2 VALUE	1.00000E+04	IAEA-G-1.7
2051	Ra-226	3.6577E+13	2.8000E-07	9.5000E-06	ICRP72	0.00300	A2 VALUE	1.00000E+03	IAEA-G-1.7
2052	Ra-227	7.2616E+20	8.1000E-11	4.6000E-10	ICRP72	0.02000	BETA	1.00000E+05	IAEA-G-1.7
2053	Ra-228	1.0088E+16	6.9000E-07	1.6000E-05	ICRP72	0.02000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>2054	Ra-229	7.5939E+21	1.6829E-09	6.1530E-08	Calculated	0.02000	BETA	1.63019E+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
>2055	Ra-230	3.2520E+20	5.4490E-08	1.9876E-06	Calculated	0.02000	BETA	3.03033E+03	Calculated
>2056	Ra-231	1.7544E+22	1.3565E-09	4.9463E-08	Calculated	0.02000	BETA	1.09971E+03	Calculated
>2057	Ac-222	4.4765E+23	4.3063E-10	4.6811E-08	Calculated	0.00009	ALPHA	4.27248E+07	Calculated
>2058	Ac-222m	2.8487E+22	6.6470E-09	7.2293E-07	Calculated	0.00009	ALPHA	2.76654E+06	Calculated
>2059	Ac-223	1.4179E+22	1.6230E-08	1.7642E-06	Calculated	0.00009	ALPHA	2.53344E+05	Calculated
>2060	Ac-224	1.8618E+20	7.0000E-10	1.3000E-07	ICRP72	0.00009	ALPHA	4.25598E+03	Calculated
2061	Ac-225	2.1470E+18	2.4000E-08	8.5000E-06	ICRP72	0.00600	A2 VALUE	5.02244E+04	Calculated
2062	Ac-226	1.7690E+19	1.0000E-08	1.3000E-06	ICRP72	0.00009	ALPHA	4.07103E+03	Calculated
2063	Ac-227	2.6759E+15	1.1000E-06	5.5000E-04	ICRP72	0.00009	A2 VALUE	1.00000E+03	IAEA-G-1.7
2064	Ac-228	8.2681E+19	4.3000E-10	2.5000E-08	ICRP72	0.50000	A2 VALUE	1.00000E+03	IAEA-G-1.7
2065	Ac-229	4.8446E+20	6.6526E-10	7.2623E-08	Calculated	0.02000	BETA	2.08879E+03	Calculated
>2066	Ac-230	1.4874E+22	3.6651E-11	3.9845E-09	Calculated	0.02000	BETA	1.68897E+03	Calculated
>2067	Ac-231	4.0149E+21	1.0144E-10	1.1019E-08	Calculated	0.02000	BETA	2.08466E+03	Calculated
>2068	Ac-232	1.5117E+22	5.4025E-11	5.8727E-09	Calculated	0.02000	BETA	8.02197E+02	Calculated
>2069	Ac-233	1.2353E+22	5.8648E-11	6.2747E-09	Calculated	0.02000	BETA	1.69297E+03	Calculated
>2070	Ac-234	4.0542E+22	2.8073E-11	3.0586E-09	Calculated	0.02000	BETA	6.07953E+02	Calculated
>2071	Th-224	1.7746E+24	1.9121E-10	1.9631E-10	Calculated	0.00009	ALPHA	4.11949E+04	Calculated
>2072	Th-225	3.5455E+21	7.8933E-08	8.1118E-08	Calculated	0.00009	ALPHA	6.53310E+03	Calculated
2073	Th-226	1.0069E+21	3.5000E-10	6.1000E-08	ICRP72	0.00009	ALPHA	1.00000E+06	IAEA-G-1.7
2074	Th-227	1.1369E+18	8.8000E-09	1.0000E-05	ICRP72	0.00500	A2 VALUE	1.00000E+03	IAEA-G-1.7
2075	Th-228	3.0328E+16	7.2000E-08	4.0000E-05	ICRP72	0.00100	A2 VALUE	1.00000E+03	IAEA-G-1.7
2076	Th-229	7.8683E+12	4.9000E-07	2.4000E-04	ICRP72	0.00050	A2 VALUE	1.00000E+02	IAEA-G-1.7
+2077	Th-229m	7.2334E+18	3.9983E-13	2.1184E-10	Calculated	0.02000	BETA	2.85714E+08	Calculated
2078	Th-230	7.6262E+11	2.1000E-07	1.0000E-04	ICRP72	0.00100	A2 VALUE	1.00000E+03	IAEA-G-1.7
2079	Th-231	1.9666E+19	3.4000E-10	3.3000E-10	ICRP72	0.02000	A2 VALUE	1.00000E+03	IAEA-G-1.7
2080	Th-232	4.0573E+06	2.3000E-07	1.1000E-04	ICRP72	-1.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>2081	Th-233	1.3387E+21	1.8301E-10	1.7617E-10	Calculated	0.02000	BETA	1.27044E+04	Calculated
2082	Th-234	8.5690E+17	3.4000E-09	7.7000E-09	ICRP72	0.30000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>2083	Th-235	4.2896E+21	2.0682E-10	2.1233E-10	Calculated	0.02000	BETA	1.42045E+03	Calculated
>2084	Pa-226	1.7102E+22	6.0016E-10	1.4094E-07	Calculated	0.00009	ALPHA	3.69869E+03	Calculated
2085	Pa-227	8.0010E+20	4.5000E-10	8.0000E-08	ICRP72	0.00009	ALPHA	6.89705E+04	Calculated
>2086	Pa-228	2.3113E+19	7.8000E-10	7.5000E-08	ICRP72	0.00009	ALPHA	7.45679E+02	Calculated
>2087	Pa-229	1.4063E+19	7.1222E-10	2.0286E-07	Calculated	0.00009	ALPHA	1.52611E+04	Calculated
2088	Pa-230	1.2070E+18	9.2000E-10	7.6000E-07	ICRP72	0.07000	A2 VALUE	1.00000E+04	IAEA-G-1.7
2089	Pa-231	1.7476E+12	7.1000E-07	1.4000E-04	ICRP72	0.00040	A2 VALUE	1.00000E+03	IAEA-G-1.7
2090	Pa-232	1.5894E+19	7.2000E-10	1.0000E-08	ICRP72	0.02000	BETA	1.04907E+03	Calculated
2091	Pa-233	7.6784E+17	8.7000E-10	3.9000E-09	ICRP72	0.70000	A2 VALUE	1.00000E+04	IAEA-G-1.7
2092	Pa-234	7.3071E+19	5.1000E-10	4.0000E-10	ICRP72	0.02000	BETA	1.00000E+03	IAEA-G-1.7
>2093	Pa-234m	2.5406E+22	7.1796E-13	1.5787E-10	Calculated	0.02000	BETA	1.00000E+03	IAEA-G-1.7
>2094	Pa-235	1.2231E+21	8.3931E-12	1.8512E-09	Calculated	0.02000	BETA	1.77677E+04	Calculated
>2095	Pa-236	3.2388E+21	1.1117E-11	2.4520E-09	Calculated	0.02000	BETA	1.12098E+03	Calculated
>2096	Pa-237	3.3734E+21	7.5630E-12	1.6682E-09	Calculated	0.02000	BETA	1.50378E+03	Calculated
>2097	Pa-238	1.2706E+22	4.4561E-12	9.8285E-10	Calculated	0.02000	BETA	4.86539E+02	Calculated
>2098	U-228	3.3527E+21	5.9273E-08	1.4717E-07	Calculated	0.00009	ALPHA	1.26124E+05	Calculated
>2099	U-229	5.2379E+20	6.6734E-08	1.6595E-07	Calculated	0.00009	ALPHA	2.59641E+03	Calculated
2100	U-230	1.0097E+18	5.6000E-08	1.6000E-05	ICRP72	0.00300	A2 VALUE	1.00000E+04	IAEA-G-1.7
2101	U-231	4.9789E+18	2.8000E-10	4.0000E-10	ICRP72	0.00009	ALPHA	1.00000E+05	IAEA-G-1.7
2102	U-232	8.1669E+14	3.3000E-07	3.7000E-05	ICRP72	0.00100	A2 VALUE	1.00000E+02	IAEA-G-1.7
2103	U-233	3.5642E+11	5.1000E-08	9.6000E-06	ICRP72	0.00600	A2 VALUE	1.00000E+03	IAEA-G-1.7
2104	U-234	2.3003E+11	4.9000E-08	9.4000E-06	ICRP72	0.00600	A2 VALUE	1.00000E+03	IAEA-G-1.7
2105	U-235	7.9960E+07	4.7000E-08	8.5000E-06	ICRP72	-1.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
>2106	U-235m	1.1384E+21	1.7286E-14	4.2920E-14	Calculated	0.02000	BETA	1.30208E+08	Calculated
2107	U-236	2.3644E+09	4.7000E-08	8.7000E-06	ICRP72	0.00600	A2 VALUE	1.00000E+04	IAEA-G-1.7
2108	U-237	3.0194E+18	7.6000E-10	1.9000E-09	ICRP72	0.02000	BETA	1.00000E+05	IAEA-G-1.7
2109	U-238	1.2436E+07	4.5000E-08	8.0000E-06	ICRP72	-1.00000	A2 VALUE	1.00000E+03	IAEA-G-1.7
2110	U-239	1.2400E+21	2.7000E-11	2.4000E-11	ICRP72	0.02000	BETA	1.00000E+05	IAEA-G-1.7
2111	U-240	3.4256E+19	1.1000E-09	5.8000E-10	ICRP72	0.02000	BETA	1.00000E+05	IAEA-G-1.7
>2112	U-241	5.7735E+21	7.6473E-11	1.9536E-10	Calculated	0.02000	BETA	1.40581E+03	Calculated
>2113	U-242	1.7074E+21	1.7121E-10	4.2513E-10	Calculated	0.02000	BETA	2.48139E+04	Calculated
>2114	U-243	1.0733E+22	7.9697E-11	1.9743E-10	Calculated	0.02000	BETA	9.18274E+02	Calculated
>2115	U-244	1.0893E+22	7.8119E-11	1.9396E-10	Calculated	0.02000	BETA	1.53304E+03	Calculated
>2116	U-245	1.4941E+23	7.3115E-12	1.7702E-11	Calculated	0.02000	BETA	7.45156E+02	Calculated
>2117	Np-230	6.5757E+21	1.0491E-10	9.8919E-09	Calculated	0.00009	ALPHA	7.75622E+02	Calculated
>2118	Np-231	6.1705E+20	2.0725E-10	6.6484E-09	Calculated	0.00009	ALPHA	8.20644E+02	Calculated
>2119	Np-232	2.0396E+21	9.7000E-12	1.2000E-10	ICRP72	0.02000	BETA	8.44353E+02	Calculated
>2120	Np-233	8.2468E+20	2.2000E-12	1.7000E-12	ICRP72	0.00009	ALPHA	1.15117E+04	Calculated
>2121	Np-234	4.6915E+18	8.1000E-10	5.5000E-10	ICRP72	0.02000	BETA	9.04729E+02	Calculated
2122	Np-235	5.1893E+16	5.3000E-11	6.3000E-10	ICRP72	40.00000	A2 VALUE	1.34884E+05	Calculated
2123	Np-236	3.6866E+11	1.7000E-08	8.0000E-06	ICRP72	0.02000	A2 VALUE	5.65126E+03	Calculated
2124	Np-236m	2.1832E+19	1.9000E-10	9.0000E-09	ICRP72	2.00000	A2 VALUE	1.71601E+04	Calculated
2125	Np-237	2.6075E+10	1.1000E-07	5.0000E-05	ICRP72	0.00200	A2 VALUE	1.00000E+03	IAEA-G-1.7
2126	Np-238	9.5867E+18	9.1000E-10	3.5000E-09	ICRP72	0.02000	BETA	1.49798E+03	Calculated
2127	Np-239	8.5818E+18	8.0000E-10	1.0000E-09	ICRP72	0.40000	A2 VALUE	1.00000E+05	IAEA-G-1.7
2128	Np-240	4.4586E+20	8.2000E-11	9.0000E-11	ICRP72	0.02000	BETA	1.00000E+04	IAEA-G-1.7

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
>2129	Np-240m	3.9163E+21	8.4898E-12	3.6205E-10	Calculated	0.02000	BETA	2.46853E+03	Calculated
>2130	Np-241	2.0763E+21	7.3944E-12	3.4779E-10	Calculated	0.02000	BETA	1.25303E+04	Calculated
>2131	Np-242	1.3064E+22	2.7981E-12	1.1880E-10	Calculated	0.02000	BETA	3.01117E+03	Calculated
>2132	Np-242m	5.2269E+21	1.1131E-11	4.7257E-10	Calculated	0.02000	BETA	1.00950E+03	Calculated
>2133	Np-243	1.5476E+22	3.0606E-12	1.2925E-10	Calculated	0.02000	BETA	1.28403E+03	Calculated
>2134	Np-244	1.2451E+22	5.8222E-12	2.4718E-10	Calculated	0.02000	BETA	8.03559E+02	Calculated
>2135	Np-245	4.4356E+22	1.4420E-12	5.7841E-11	Calculated	0.02000	BETA	1.02145E+03	Calculated
>2136	Np-246	1.0602E+23	9.1919E-13	3.9587E-11	Calculated	0.02000	BETA	6.00853E+02	Calculated
>2137	Pu-232	8.8983E+20	1.6792E-08	1.9646E-08	Calculated	0.00009	ALPHA	1.06371E+04	Calculated
>2138	Pu-233	1.4284E+21	3.8983E-10	4.5124E-10	Calculated	0.00009	ALPHA	3.02252E+02	Calculated
2139	Pu-234	5.6309E+19	1.6000E-10	2.4000E-08	ICRP72	0.00009	ALPHA	1.00000E+05	IAEA-G-1.7
2140	Pu-235	1.1699E+21	2.1000E-12	1.5000E-12	ICRP72	0.00009	ALPHA	1.00000E+05	IAEA-G-1.7
2141	Pu-236	1.9607E+16	8.7000E-08	4.0000E-05	ICRP72	0.00300	A2 VALUE	1.00000E+03	IAEA-G-1.7
2142	Pu-237	4.4991E+17	1.0000E-10	3.9000E-10	ICRP72	20.00000	A2 VALUE	1.00000E+05	IAEA-G-1.7
>2143	Pu-237m	9.7849E+24	2.2202E-15	2.6199E-15	Calculated	0.02000	BETA	6.87077E+03	Calculated
2144	Pu-238	6.3360E+14	2.3000E-07	1.1000E-04	ICRP72	0.00100	A2 VALUE	1.00000E+02	IAEA-G-1.7
2145	Pu-239	2.2947E+12	2.5000E-07	1.2000E-04	ICRP72	0.00100	A2 VALUE	1.00000E+02	IAEA-G-1.7
2146	Pu-240	8.3960E+12	2.5000E-07	1.2000E-04	ICRP72	0.00100	A2 VALUE	1.00000E+02	IAEA-G-1.7
2147	Pu-241	3.8292E+15	4.8000E-09	2.3000E-06	ICRP72	0.06000	A2 VALUE	1.00000E+04	IAEA-G-1.7
2148	Pu-242	1.4631E+11	2.4000E-07	1.1000E-04	ICRP72	0.00100	A2 VALUE	1.00000E+02	IAEA-G-1.7
2149	Pu-243	9.6255E+19	8.5000E-11	8.6000E-11	ICRP72	0.02000	BETA	1.00000E+06	IAEA-G-1.7
2150	Pu-244	6.7745E+08	2.4000E-07	1.1000E-04	ICRP72	0.00100	A2 VALUE	1.00000E+02	IAEA-G-1.7
2151	Pu-245	4.5061E+19	7.2000E-10	4.3000E-10	ICRP72	0.02000	BETA	2.31630E+03	Calculated
2152	Pu-246	1.8096E+18	3.3000E-09	8.0000E-09	ICRP72	0.02000	BETA	7.39251E+03	Calculated
>2153	Pu-247	8.6167E+18	1.9217E-08	3.3184E-08	Calculated	0.02000	BETA	1.47420E+03	Calculated
2154	Am-237	4.0203E+20	1.8000E-11	2.6000E-11	ICRP72	0.00009	ALPHA	2.42994E+03	Calculated
2155	Am-238	2.9821E+20	3.2000E-11	1.9000E-10	ICRP72	0.00009	ALPHA	1.10699E+03	Calculated
2156	Am-239	4.0760E+19	2.4000E-10	2.4000E-10	ICRP72	0.00009	ALPHA	3.56631E+03	Calculated
2157	Am-240	9.5082E+18	5.8000E-10	4.3000E-10	ICRP72	0.00009	ALPHA	9.61941E+02	Calculated
2158	Am-241	1.2678E+14	2.0000E-07	9.6000E-05	ICRP72	0.00100	A2 VALUE	1.00000E+02	IAEA-G-1.7
2159	Am-242	2.9864E+19	3.0000E-10	2.0000E-08	ICRP72	0.02000	BETA	1.00000E+06	IAEA-G-1.7
2160	Am-242m	3.8755E+14	1.9000E-07	9.2000E-05	ICRP72	0.00100	A2 VALUE	1.00000E+02	IAEA-G-1.7
2161	Am-243	7.3892E+12	2.0000E-07	9.6000E-05	ICRP72	0.00050	A2 VALUE	1.00000E+02	IAEA-G-1.7
2162	Am-244	4.7038E+19	4.6000E-10	3.7000E-09	ICRP72	0.02000	BETA	1.14389E+03	Calculated
2163	Am-244m	1.0963E+21	2.9000E-11	1.6000E-10	ICRP72	0.02000	BETA	1.59163E+04	Calculated
2164	Am-245	2.3080E+20	6.2000E-11	5.6000E-11	ICRP72	0.02000	BETA	1.77881E+04	Calculated
2165	Am-246	7.2494E+20	5.8000E-11	6.9000E-11	ICRP72	0.02000	BETA	1.18101E+03	Calculated
2166	Am-246m	1.1309E+21	3.4000E-11	2.3000E-11	ICRP72	0.02000	BETA	9.39347E+02	Calculated
>2167	Am-247	1.2243E+21	3.4680E-11	1.6745E-09	Calculated	0.02000	BETA	5.38186E+03	Calculated
>2168	Am-248	9.3508E+21	1.3687E-11	6.6097E-10	Calculated	0.02000	BETA	8.60882E+02	Calculated
>2169	Am-249	2.7940E+22	4.0398E-12	1.7283E-10	Calculated	0.02000	BETA	1.16054E+03	Calculated
>2170	Am-250	5.4547E+21	3.0561E-11	1.5137E-09	Calculated	0.02000	BETA	6.55594E+02	Calculated
>2171	Cm-238	2.0300E+20	8.0000E-11	4.9000E-09	ICRP72	0.00009	ALPHA	1.07980E+04	Calculated
>2172	Cm-239	1.6168E+20	4.3523E-10	1.6971E-09	Calculated	0.02000	BETA	8.16163E+02	Calculated
2173	Cm-240	7.4540E+17	7.6000E-09	3.5000E-06	ICRP72	0.02000	A2 VALUE	5.71429E+05	Calculated
2174	Cm-241	6.1104E+17	9.1000E-10	3.7000E-08	ICRP72	1.00000	A2 VALUE	1.95755E+03	Calculated
2175	Cm-242	1.2250E+17	1.2000E-08	5.9000E-06	ICRP72	0.01000	A2 VALUE	1.00000E+04	IAEA-G-1.7
2176	Cm-243	1.8140E+15	1.5000E-07	6.9000E-05	ICRP72	0.00100	A2 VALUE	1.00000E+03	IAEA-G-1.7
2177	Cm-244	3.0109E+15	1.2000E-07	5.7000E-05	ICRP72	0.00200	A2 VALUE	1.00000E+03	IAEA-G-1.7
2178	Cm-245	6.3500E+12	2.1000E-07	9.9000E-05	ICRP72	0.00090	A2 VALUE	1.00000E+02	IAEA-G-1.7
2179	Cm-246	1.1365E+13	2.1000E-07	9.8000E-05	ICRP72	0.00090	A2 VALUE	1.00000E+02	IAEA-G-1.7
2180	Cm-247	3.3460E+09	1.9000E-07	9.0000E-05	ICRP72	0.00100	A2 VALUE	1.00000E+02	IAEA-G-1.7
2181	Cm-248	1.5682E+11	7.7000E-07	3.6000E-04	ICRP72	0.00030	A2 VALUE	1.00000E+02	IAEA-G-1.7
2182	Cm-249	4.3541E+20	3.1000E-11	4.0000E-11	ICRP72	0.02000	BETA	2.08130E+04	Calculated
2183	Cm-250	6.6116E+12	4.4000E-06	2.1000E-03	ICRP72	0.00009	ALPHA	2.04082E+02	Calculated
>2184	Cm-251	1.6493E+21	3.4506E-11	1.4957E-10	Calculated	0.02000	BETA	6.44825E+03	Calculated
>2185	Bk-243	1.0601E+20	9.6955E-10	1.8144E-07	Calculated	0.00009	ALPHA	5.65911E+03	Calculated
>2186	Bk-244	1.0921E+20	4.1360E-08	3.0867E-06	Calculated	0.00009	ALPHA	4.46309E+02	Calculated
>2187	Bk-245	3.9907E+18	5.7000E-10	2.1000E-09	ICRP72	0.00009	ALPHA	4.18532E+03	Calculated
>2188	Bk-246	1.0908E+19	4.8000E-10	3.3000E-10	ICRP72	0.02000	BETA	1.17135E+03	Calculated
>2189	Bk-247	3.8795E+13	3.5000E-07	6.9000E-05	ICRP72	0.00080	A2 VALUE	6.83905E+03	Calculated
>2190	Bk-248	5.9262E+15	3.2522E-06	5.3718E-04	Calculated	0.00009	ALPHA	3.72318E+03	Calculated
>2191	Bk-248m	1.9722E+19	2.6934E-09	2.1684E-07	Calculated	0.02000	BETA	1.43472E+04	Calculated
2192	Bk-249	6.0615E+16	9.7000E-10	1.6000E-07	ICRP72	0.30000	A2 VALUE	1.00000E+05	IAEA-G-1.7
2193	Bk-250	1.4413E+20	1.4000E-10	1.0000E-09	ICRP72	0.02000	BETA	1.06938E+03	Calculated
>2194	Bk-251	4.9851E+20	3.7999E-10	2.6979E-08	Calculated	0.02000	BETA	2.49521E+03	Calculated
>2195	Bk-252	1.5337E+22	9.6803E-10	6.8729E-08	Calculated	0.00009	ALPHA	2.18531E+03	Calculated
>2196	Bk-253	2.7498E+21	1.0187E-10	7.2520E-09	Calculated	0.02000	BETA	1.67420E+03	Calculated
>2197	Bk-254	2.7390E+22	1.9181E-11	1.3724E-09	Calculated	0.02000	BETA	8.94484E+02	Calculated
2198	Cf-244	1.4697E+21	7.0000E-11	1.4000E-08	ICRP72	0.00009	ALPHA	1.42857E+08	Calculated
>2199	Cf-245	6.3103E+20	8.8373E-07	3.9736E-05	Calculated	0.00009	ALPHA	2.71166E+03	Calculated
2200	Cf-246	1.3199E+19	3.3000E-09	4.5000E-07	ICRP72	0.00009	ALPHA	1.00000E+06	IAEA-G-1.7
>2201	Cf-247	1.5085E+20	4.8083E-07	2.1608E-05	Calculated	0.00009	ALPHA	3.20513E+02	Calculated
2202	Cf-248	5.8397E+16	2.8000E-08	8.8000E-06	ICRP72	0.00600	A2 VALUE	1.00000E+03	IAEA-G-1.7

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
2203	Cf-249	1.5130E+14	3.5000E-07	7.0000E-05	ICRP72	0.00080	A2 VALUE	1.00000E+02	IAEA-G-1.7
2204	Cf-250	4.0438E+15	1.6000E-07	3.4000E-05	ICRP72	0.00200	A2 VALUE	1.00000E+03	IAEA-G-1.7
2205	Cf-251	5.8666E+13	3.6000E-07	7.1000E-05	ICRP72	0.00070	A2 VALUE	1.00000E+02	IAEA-G-1.7
2206	Cf-252	1.9838E+16	9.0000E-08	2.0000E-05	ICRP72	0.00300	A2 VALUE	1.00000E+03	IAEA-G-1.7
2207	Cf-253	1.0718E+18	1.4000E-09	1.3000E-06	ICRP72	0.04000	A2 VALUE	1.00000E+05	IAEA-G-1.7
2208	Cf-254	3.1439E+17	4.0000E-07	4.1000E-05	ICRP72	0.00100	A2 VALUE	1.00000E+03	IAEA-G-1.7
>2209	Cf-255	3.2097E+20	1.1504E-07	6.9451E-06	Calculated	0.00009	ALPHA	3.78266E+03	Calculated
>2210	Es-249	2.7330E+20	2.7592E-10	2.3413E-08	Calculated	0.00009	ALPHA	2.44128E+03	Calculated
>2211	Es-250	5.3914E+19	1.6582E-09	1.4116E-07	Calculated	0.02000	BETA	8.03361E+02	Calculated
>2212	Es-250m	2.0885E+20	2.1000E-11	6.3000E-10	ICRP72	0.02000	BETA	1.85154E+03	Calculated
>2213	Es-251	1.3999E+19	1.7000E-10	2.1000E-09	ICRP72	0.00009	ALPHA	2.53891E+04	Calculated
>2214	Es-252	4.0631E+16	6.9190E-07	1.3669E-04	Calculated	0.00009	ALPHA	4.76568E+03	Calculated
2215	Es-253	9.3256E+17	6.1000E-09	2.7000E-06	ICRP72	0.00009	ALPHA	1.00000E+05	IAEA-G-1.7
2216	Es-254	6.9018E+16	2.8000E-08	8.6000E-06	ICRP72	0.00009	ALPHA	1.00000E+02	IAEA-G-1.7
2217	Es-254m	1.1610E+19	4.2000E-09	4.7000E-07	ICRP72	0.00009	ALPHA	1.00000E+04	IAEA-G-1.7
>2218	Es-255	4.7587E+17	4.0068E-07	4.7450E-05	Calculated	0.00009	ALPHA	4.21496E+04	Calculated
>2219	Es-256	1.2348E+21	1.1316E-09	9.6031E-08	Calculated	0.02000	BETA	1.59684E+03	Calculated
>2220	Es-256m	5.9575E+19	2.2629E-08	1.9231E-06	Calculated	0.02000	BETA	1.17546E+04	Calculated
>2221	Es-257	2.4414E+18	1.8826E-08	6.5788E-06	Calculated	0.00009	ALPHA	3.36288E+03	Calculated
>2222	Fm-250	9.2761E+20	1.5612E-10	3.2107E-08	Calculated	0.00009	ALPHA	1.47895E+05	Calculated
+2223	Fm-250m	9.2761E+23	1.6785E-13	3.4520E-11	Calculated	0.00009	ALPHA	8.33333E+02	Calculated
>2224	Fm-251	8.7042E+19	3.4078E-11	6.9274E-09	Calculated	0.00009	ALPHA	6.04705E+03	Calculated
>2225	Fm-252	1.8116E+19	2.7000E-09	3.2000E-07	ICRP72	0.00009	ALPHA	2.17239E+06	Calculated
2226	Fm-253	6.3632E+18	9.1000E-10	4.0000E-07	ICRP72	0.00009	ALPHA	1.07052E+04	Calculated
2227	Fm-254	1.4085E+20	4.4000E-10	6.1000E-08	ICRP72	0.00009	ALPHA	1.00000E+07	IAEA-G-1.7
2228	Fm-255	2.2648E+19	2.5000E-09	2.7000E-07	ICRP72	0.00009	ALPHA	1.00000E+05	IAEA-G-1.7
>2229	Fm-256	1.7244E+20	1.3294E-10	2.7342E-08	Calculated	0.00009	ALPHA	7.31472E+07	Calculated
>2230	Fm-257	1.8698E+17	1.5000E-08	7.1000E-06	ICRP72	0.00009	ALPHA	7.95345E+03	Calculated
>2231	Fm-258	4.3711E+27	2.1702E-08	4.4633E-06	Calculated	0.02000	BETA	4.48103E+05	Calculated

References

- [1] RA Forrest, 'The European Activation System: EASY-2007 overview', UKAEA FUS 533, 2007.
- [2] RA Forrest, 'Dosimetric data for FISPACT 2', AEA FUS 182, 1992.
- [3] RA Forrest, 'SAFEPAQ-II: User manual', UKAEA FUS 454, Issue 7, 2007.
- [4] RA Forrest 'FISPACT-2007: User manual', UKAEA FUS 534, 2007.
- [5] 'Regulations for the safe transport of radioactive material', 1996 Edition IAEA Safety Series No. ST-1, IAEA Vienna.
- [6] 'Application of the concepts of exclusion, exemption and clearance', IAEA Safety Standards Series No. RS-G-1.7, IAEA Vienna, 2004.
- [7] International Commission on Radiological Protection, 'Dose coefficients for intakes of radionuclides by workers', ICRP Publication 68, 1995.
- [8] AW Phipps, GM Kendall, JW Stather and TP Fell, 'Committed equivalent organ doses and committed equivalent doses from intakes of radionuclides', NRPB-R245, 1991.
- [9] NRPB, 'The calculation of doses from internal emitters using a new computer program: Quality control on the RAPID database', NRPB-M215, 1990.

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- [10] GM Kendall, Personal communication to KR Smith, NRPB, 1989.
- [11] AW Phipps and TJ Silk, '*Dosimetric data for fusion applications*', **NRPB-M589**, 1995.
- [12] KR Smith, '*Dosimetric data for FISPACT*', Culham Report, **CLM-R299**, 1990.
- [13] International Commission on Radiological Protection, '*Limits for intakes of radionuclides by workers*', ICRP Publication **30**, Parts 1-3 (1979-1981) and Supplements to Parts 1-3 (1979-1982), Pergamon Press, Oxford.
- [14] '*Clearance levels for radionuclides in solid materials: application of exemption principles*', 1994 Draft Safety Guide, IAEA Safety Series No. **111.G-1-5**, IAEA Vienna.
- [15] International Commission on Radiological Protection, '*1990 Recommendations of the International Commission on Radiological Protection*', ICRP Publication **60**, Annals of the ICRP 21, No 1 - 3, 1991.
- [16] International Commission on Radiological Protection, '*Age-dependent doses to members of the public from intake of radionuclides: Part 5 Compilation of ingestion and inhalation dose coefficients*', ICRP Publication **72**, 1996.

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Disclaimer

Neither the author nor UKAEA accept responsibility for consequences arising from any errors either in the present documentation, or in the EASY-2007 system.

Contact person

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

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