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THE FOND-2.2 EVALUATED NEUTRON DATA LIBRARY

(Russian library of evaluated neutron data files for generating sets of constants in the ABBN constants system)

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Abstract: A short description is given of the Russian evaluated neutron data library FOND-2.2. The main purpose of FOND-2.2 is to provide sets of constants for the ABBN constants system. A history of its compilation and the sources of the neutron data are given. The contents of FOND-2.2 are presented with brief comments.

The 1999 release of FOND-2.2 Library is available online from IAEA Nuclear Data Section Web server (<http://www-nds.iaea.org/reports/nds-199.pdf>) through hyperlinks to data in this report or on CD-ROM on the request.

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The file was revised to conform with ENDF/B format standards.. The merged file was corrected for format errors and processed through the code CHECKR to ensure, as far as possible, format compatibility.

For Web access to data, please click on [FOND-2.2 DATA](#)

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96/11

Citation guidelines:

a) *citing the entire library*

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b) *citing the format*

V. McLane, P.F. Rose, C.L. Dunford (ed.), "Data formats and procedures for the Evaluated Nuclear Data File ENDF-6", report BNL-NCS-44945 (ENDF-102) Rev 2/97 (Brookhaven National Laboratory 1997).

THE FOND-2.2 EVALUATED NEUTRON DATA LIBRARY

(Russian library of evaluated neutron data files for generating sets of constants in the ABBN constants system)

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THE FOND-2.2 EVALUATED NEUTRON DATA LIBRARY. A short description is given of the Russian evaluated neutron data library FOND-2.2. The main purpose of FOND-2.2 is to provide sets of constants for the ABBN constants system. A history of its compilation and the sources of the neutron data are given. The contents of FOND-2.2 are presented with brief comments.

The FOND library contains evaluated neutron data files for a large number of nuclides. The library's main purpose is to provide the sets of neutron data needed to create libraries of group constants for the ABBN constants system [1]. The library was created in the ABBN constants laboratory of the A.I. Leipunsky Institute for Physics and Power Engineering. The new version of the ABBN-93 group constants system, which was created using the FOND library, is used widely in a number of applications:

- calculations for nuclear physics facilities with different spectral characteristics;
- radiation shielding calculations;
- nuclear safety problems, etc.

History

1970 - During the development of the SOKRATOR system [2], work began on the compilation of library evaluated neutron data in machine format for the main reactor material ^{238}U and a number of other nuclides.

1984 - The compilation of the first version of the FOND library, which formed part of the SOKRATOR system for providing group constants for nuclear reactor calculations, was completed. Initially, the library contained evaluated neutron data for the 67 nuclides of most importance for fast reactor calculations [3]. The library was the principal (but not the only) neutron data source used in creating the ABBN-78 group constants library [4].

1988 - During the development of the new ABBN-90 constants system [5], the first fairly complete version of the evaluated neutron data library FOND-1 was compiled; it contained neutron data for 121 nuclides [6]. The library included neutron data for the main fuel materials, shielding materials, moderators, fission products and minor actinides.

1993 - As part of the process of verifying the ABBN-90 constants system by comparing the results of calculations with the results obtained in critical assemblies and the BN-350 power reactor, a review was carried out of neutron data in the FOND library for a number of basic fuel nuclides and structural materials. In particular, the ENDF/B-VI (Rev.2) evaluation was adopted for ^{235}U and the JENDL-3 library evaluation - modified in the low-energy region - for ^{239}Pu , the neutron data for Ni, Na, Pb, O, N and C were reviewed and evaluations for new materials were added to the library which then contained evaluated neutron data for 268 nuclides [7]. This version was named FOND-2.

1996 - Version FOND-2.1a was produced. It included evaluated neutron data for 52 minor actinides; these data were selected while the actinide library was being created in the ABBN-93 constants system [8] following analysis of a series of international tests [9] and taking into account available experimental data [10].

1998 - Version FOND-2.1b was produced. It included evaluated neutron data for 172 fission product nuclides selected while the fission product library was being created in the ABBN-93.1 constants system and verified in the SWG-17 international test [11].

1999 - Version FOND-2.2 was produced and finalized which forms the basis of the modern ABBN-93.2 group constants system and contains the earlier data for the main reactor materials and improved data for fission products and minor actinides. The FOND-2.2 library contains evaluated neutron data for 679 nuclides.

Neutron data sources

Traditionally, the main source of neutron data for the FOND library has been the BROND national evaluated neutron data library [6, 7] compiled in the Russian Nuclear Data Centre with the participation of specialists from the ABBN constants laboratory. In the first phase, evaluated neutron data from the foreign ENDF/B, JENDL, JEF and EAF libraries, and later from the Russian ADL library, were used when gaps existed in the BROND library.

At that stage, nuclear data were selected from foreign libraries by means of a comparative analysis of their simplest integral characteristics, such as:

- reaction cross-sections at the thermal point ($E = 0.0253$ eV);
- resonance integrals;
- cross-sections averaged over known standard spectra, etc.

In the second phase, when selecting neutron data for some of the main reactor nuclides, the results of calculation-based studies of experiments performed in a number of critical assemblies and operational reactors were taken into account. The calculations employed different sets of group constants obtained using several of the neutron data files being studied.

For later versions of the FOND library, emphasis was placed on the up-to-dateness and completeness of the experimental data used for the evaluation when selecting evaluated neutron data, and compliance with the requirement for congruence with the results of integral experiments.

Data presentation format

As a component of the SOKRATOR system, the FOND library was at first produced in the specially developed SOKRATOR format [12], which is similar to the UKNDL format [13]. Subsequently, as the FOND library developed, the following ENDF formats were used to store the evaluated neutron data [14]:

- ENDF-IV format (for the first version FOND-1);
- ENDF-V format (for FOND-2);
- ENDF-VI format (for FOND-2.1 and FOND-2.2).

The only difference from the ENDF-IV format is the rule for generation of the material identifier MAT.

MAT is a four-digit identifier of the type ZZAA. As is the case in the ENDF format, the highest-order digits ZZ contain the atomic number **Z**. The two lowest-order digits AA, **as a rule**, contain the two lowest-order digits of the mass number of the nuclide **A**. For natural mixtures, the latter are zeros. For example: for ^{235}U , MAT = 9235; for ^3He , MAT = 0203; and for $^{\text{nat}}\text{Pb}$, MAT = 8200.

The exceptions are as follows:

- a) for ^{100}Mo , MAT = 4210; for ^{100}Ru , MAT = 4410; for ^{200}Hg , MAT = 8020, etc.;
- b) when generating the last two digits of the MAT identifier for first isomers, the mass number is decreased by 30, and for second isomers it is decreased by 40. Thus: for $^{242\text{m}}\text{Am}$, MAT = 9512; and for $^{178\text{n}}\text{Hf}$, MAT = 7238, etc.

Use of computer programs

The neutron data from the FOND library can be processed by any computer program which processes data in ENDF format.

The following programs are usually used:

- The Utility Codes program package [15] is traditionally used to verify the consistency of the data from the point of view of the format and the physics involved. Different versions of this program package have been used as the FOND library has developed;
- The GRUKON application package [16] and the NJOY94 neutron data processing system [17] have traditionally been used to process the evaluated neutron data into the required sets of group constants;
- The ENDF/B Pre-Processing Codes program package may also be used to process neutron data [18], but the authors have only limited practical experience of its use.

Structure of the library

The library consists of four sections:

neutron data for light elements,
structural materials;
intermediate nuclei
and data for actinides.

The neutron data can be classified into data for main and secondary materials. For main materials, all the neutron data required for neutron field calculations are given. These are the general purpose (GP) files. For secondary materials, often only the data on neutron reactions which bring about a change in the material's composition are given. These are the activation and transmutation data (ACT, MA or FP). The latter type are used to calculate activation of reactor configurations, the nuclide composition of nuclear fuel after its removal from the reactor, cooling, chemical processing, recycling, disposal, etc.

Composition of the neutron data files

The files contain different types of neutron data. The full range is not given for all nuclides. Generally, the files contain the following:

data on neutron transport	(MF = 2, 3, 4, 5);
energy-angle data	(MF = 6);
decay data	(MF = 8, 9, 10);
data on photon production	(MF = 12, 13, 14, 15);
data on errors and their covariances	(MF = 32, 33 etc.).

It should be noted that the decay data file (MF = 8) is always minimal in size, i.e. it gives the radionuclides which form as a result of neutron reactions but not the radiation characteristics of those radionuclides. MF = 8 files are given only for materials for which there are also MF = 9 or MF = 10 files.

Contents of the library

A list of the nuclides for which the FOND-2.2 library contains data is given in the table. Some explanations of the table are given below.

NUCLIDE - The symbols of natural nuclides are shown in bold.

For radioactive isotopes, the half-life is given and the following symbols are used:

y - years; d - days; h - hours; m - minutes, in accordance with the nuclide chart in [19].

SOURCE - Original evaluation from which neutron data were taken for FOND-2.2;

EVAL/REV - Date of neutron data evaluation/date when data revised;

STATUS - Recommended area of application:

GP	general-purpose neutron data;
ACT	neutron data for use in calculating activation;
FP	neutron data for fission products;
MA	neutron data for minor actinides.

COMPOSITION OF DATA:

NT	main data required for neutron transport calculations;
DDD	energy-angle data;
DD	decay data;
GAM	data on photon production;
COV	data on errors in cross-sections or the parameters describing them, and on the covariances of these errors.

Contents of the FOND-2.2 library

LIGHT ELEMENTS

No.	Nuclide	Source	EVAL/REV	Status	Composition of data and brief comments
1	1-H-1	ENDF/B-6 Rev. 1	Oct89/Jul91	GP	NT, GAM Total cross-section below 20 MeV was used as a standard. NT, DD, GAM
2	1-H-2	ENDF/B-6 Rev. 2	Nov67/Nov96	GP	
3	<i>1-H-3</i> <i>12.323 y</i>	BROND-2	Dec 88/	GP	
4	2-He-nat	FOND-2	Jan76/Jan92	GP	NT NT, DDD, DD Cross-section for (n,p) reaction up to 50 keV was used as a standard. NT
5	2-He-3	BROND-2	Dec 88/	GP	
6	2-He-4	BROND-2	Jan76/Jan92	GP	
7	3-Li-6	BROND-2	Jan76/Jan92	GP	NT, DDD, COV Cross-section for (n, t) reaction up to 1 MeV was used as a standard. NT, DD, GAM
8	3-Li-7	BROND-2	May84/Feb92	GP ACT	
9	4-Be-9	ENDF/B-6	Jan86/	GP	NT, DD, GAM Only sets of cross-sections given.
10	<i>4-Be-10</i> <i>1.6×10⁶ y</i>	EAF-3	Jul92/	ACT ACT	
11	5-B-10	ENDF/B-6 Rev. 1	Oct89/Jul91	GP ACT	NT, GAM Cross-sections for (n,α) and (n,α1) reactions was used as standards. NT, DD, GAM
12	5-B-11	ENDF/B-6	May89/	GP ACT	
13	6-C-nat	ENDF/B-6 Rev. 1	Aug89/Jul91	GP	NT, GAM, COV Elastic scattering cross-section up to 2 MeV was used as a standard. Only sets of cross-sections given. Only sets of cross-sections given. Only sets of cross-sections given.
14	6-C-12	EAF-3	Jul92/	ACT	
15	6-C-13	EAF-3	Jul92/	ACT	
16	<i>6-C-14</i> <i>5.730 y</i>	EAF-3	Jul92/	ACT	
17	7-N-14	ENDF/B-6 Rev. 2	May90/Aug94	GP	NT, GAM .
18	7-N-15	ENDF/B-6	Sep83/	GP	NT, GAM
19	8-O-16	ENDF/B-6	Jun90/	GP	NT, GAM NT, DD, GAM, COV Only sets of cross-sections given.
20	8-O-17	ENDF/B-6	Jan78/	GP	
21	8-O-18	EAF-3	Jul92/	ACT	
22	9-F-19	ENDF/B-6	Jun90/	GP	NT, DD, GAM, COV
23	10-Ne-20	EAF-3	Jul92/	GP	Only sets of cross-sections given.
24	10-Ne-21	EAF-3	Jul92/	GP	Only sets of cross-sections given.
25	10-Ne-22	EAF-3	Jul92/	GP	Only sets of cross-sections given.
26	<i>11-Na-22</i> <i>2.603 y</i>	EAF-3	Jul92/	GP	Only sets of cross-sections given.
27	11-Na-23	ENDF/B-6 Rev. 1	Dec77/Jul91	GP	NT, DD, GAM
28	12-Mg-nat	JENDL-3.2	Mar87/Nov93	GP	NT, GAM
29	12-Mg-24	JENDL-3.2	Mar87/Apr93	GP	NT

No.	Nuclide	Source	EVAL/REV	Status	Composition of data and brief comments
30	12-Mg-25	JENDL-3.2	Mar87/	GP	NT
31	12-Mg-26	JENDL-3.2	Mar87/	GP	NT
32	13-Al-26 7.16×2.603 y	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
33	13-Al-27	ENDF/B-6 Rev. 1	Sep94/Aug96	GP ACT	NT, GAM Cross-section for (n,α) reaction was used as a standard.
34	14-Si-nat	BROND-2	May85/	GP	NT, GAM
35	14-Si-28	ENDF/B-6	May96/	GP	NT, DD, GAM
36	14-Si-29	ENDF/B-6	May96/	GP	NT, DD, GAM
37	14-Si-30	ENDF/B-6	May96/	GP	NT, DD, GAM
38	14-Si-31 2.62 h	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
39	14-Si-32 172 y	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
40	15-P-31	BROND-2	May89/Dec90	GP ACT	NT, GAM Modification of ENDL-84 evaluation
41	15-P-32 14.26 d	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
42	15-P-33 25.34 d	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
43	16-S-nat	ENDF/B-6	Apr79	GP	NT, GAM
44	16-S-32	JENDL-3.2	May87/Feb94	GP	NT
45	16-S-33	JENDL-3.2	May87/Feb94	GP	NT
46	16-S-34	JENDL-3.2	May87/Feb94	GP	NT
47	16-S-35 87.5 d	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
48	16-S-36	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
49	17-Cl-nat	BROND-2	Feb90/	GP	NT, GAM Modification of ENDF/B-4 evaluation
50	17-Cl-35	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
51	17-Cl-36 3.0×10 ⁵ y	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
52	17-Cl-37	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
53	18-Ar-nat	ENDL-84	Oct83/	GP	NT, GAM
54	18-Ar-36	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
55	18-Ar-37 35.0 d	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
56	18-Ar-38	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
57	18-Ar-39 269 y	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
58	18-Ar-40	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
59	18-Ar-41 1.83 h	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
60	18-Ar-42 33 y	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
61	19-K-nat	JENDL-3.0	May87/Jan93	GP	NT
62	19-K-39	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
63	19-K-40 1.28×10 ⁹ y	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
64	19-K-41	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
65	19-K-42 12.36 h	EAF-3	Jul92/	ACT	Only sets of cross-sections given.

No.	Nuclide	Source	EVAL/REV	Status	Composition of data and brief comments
66	<i>19-K-43</i> <i>22.2 h</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
67	20-Ca-nat	FOND-2	Jan78/Dec90	GP	NT, GAM Modification of ENDL-78 evaluation.
68	20-Ca-40	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
69	<i>20-Ca-41</i> <i>1.03×10⁵ y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
70	20-Ca-42	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
71	20-Ca-43	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
72	20-Ca-44	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
73	<i>20-Ca-45</i> <i>163 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
74	20-Ca-46	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
75	<i>20-Ca-47</i> <i>4.54 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
76	20-Ca-48	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
77	<i>21-Sc-44m</i> <i>2.44 d</i>	ADL-3	Jan94/	ACT	Only sets of cross-sections given.
78	21-Sc-45	JENDL-3.0	Feb82/Nov83	GP ACT	NT
79	<i>21-Sc-46</i> <i>83.82 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
80	<i>21-Sc-47</i> <i>3.35 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
81	<i>21-Sc-48</i> <i>43.67 h</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.

STRUCTURAL MATERIALS

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
1	22-Ti-nat	FOND-2	Jun77/Dec90	GP	NT, GAM
2	<i>22-Ti-44</i> <i>47.3 y</i>	EAF-3	Jul92/	ACT	Modification of ENDL-78 evaluation. Only sets of cross-sections given.
3	<i>22-Ti-45</i> <i>3.08 h</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
4	<i>23-V-48</i> <i>15.97 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
5	<i>23-V-49</i> <i>330 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
6	23-V-50 1.4×10¹⁷ y	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
7	23-V-51	FOND-2	May77/Dec90	GP	NT, GAM Modification of ENDL-78 evaluation.
8	24-Cr-nat	BROND-2	Apr84/Oct89	GP	NG, GAM
9	24-Cr-50	BROND-2	Apr85/Mar92	GP	NT, DD
10	<i>24-Cr-51</i> <i>27.70 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
11	24-Cr-52	BROND-2	Apr85/Mar92	GP	NT, DD
12	24-Cr-53	BROND-2	May88/Mar92	GP	NT, DD
13	24-Cr-54	BROND-2	May85/Mar92	GP	NT, DD
14	<i>25-Mn-52</i> <i>5.6 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
15	<i>25-Mn-53</i> <i>3.7×10⁶ y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
16	<i>25-Mn-54</i> <i>312.2 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
17	25-Mn-55	JENDL-3	Mar87/Mar88	GP ACT	NT, GAM, COV
18	26-Fe-nat	BROND-2	Nov85/Mar90	GP	NT, DDD, GAM
19	26-Fe-54	BROND-2	Nov85/Nov90	GP	NT
20	<i>26-Fe-55</i> <i>2.73 y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
21	26-Fe-56	BROND-2	Nov85/Nov90	GP	NT
22	26-Fe-57	BROND-2	Nov85/Oct89	GP	NT
23	26-Fe-58	BROND-2	Nov85/Nov90	GP	NT
24	<i>26-Fe-59</i> <i>44.503 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
25	<i>26-Fe-60</i> <i>1.5×10⁶ y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
26	<i>27-Co-56</i> <i>77.26 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
27	<i>27-Co-57</i> <i>271.79 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
28	<i>27-Co-58</i> <i>70.86 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
29	27-Co-59	FOND-2	Nov82/Jan84	GP	NT Modification of JENDL-2 evaluation. Cross-section for (n, 2n) reaction was used as a standard.
30	<i>27-Co-60</i> <i>5.272 y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
31	<i>28-Ni-56</i> <i>6.075 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
32	<i>28-Ni-57</i> <i>36.0 h</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
33	28-Ni-58	ENDF/B-6 Rev. 1	Oct89/Jul91	GP, ACT	NT, DDD, GAM, COV
34	<i>28-Ni-59</i> <i>7.5×10⁴ y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
35	28-Ni-60	ENDF/B-6 Rev. 1	Oct89/Jul91	GP, ACT	NT, DDD, GAM, COV
36	28-Ni-61	ENDF/B-6	Feb89/	GP, ACT	NT, DDD, GAM, COV
37	28-Ni-62	ENDF/B-6 Rev. 1	Oct89/Jul91	GP, ACT	NT, DDD, GAM, COV
38	<i>28-Ni-63</i> <i>100 y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
39	28-Ni-64	ENDF/B-6 Rev. 1	Oct89/Jul91	GP, ACT	NT, DDD, GAM, COV
40	<i>28-Ni-65</i> <i>2.52 h</i>	ADL-3	Jan94/	ACT	Only sets of cross-sections given.
41	<i>28-Ni-66</i> <i>54.6 h</i>	ADL-3	Jan94/	ACT	Only sets of cross-sections given.
42	29-Cu-63	ENDF/B-6	Nov89/	GP, ACT	NT, DDD, GAM, COV
43	29-Cu-65	ENDF/B-6	Nov89/	GP, ACT	NT, DDD, GAM, COV
44	<i>29-Cu-66</i> <i>5.1 m</i>	ADL-3	Jun94/	ACT	Only sets of cross-sections given.
45	<i>29-Cu-67</i> <i>61.9 h</i>	ADL-3	Jun94/	ACT	Only sets of cross-sections given.
46	30-Zn-nat	BROND-2	Dec89/Oct91	GP	NT, GAM
47	30-Zn-64	BROND-2	Dec89/Mar92	GP	NT, DD
48	<i>30-Zn-65</i> <i>244.3 d</i>	ADL-3	Jan94/	ACT	Only sets of cross-sections given.
49	30-Zn-66	BROND-2	Dec89/	GP	NT, DD
50	30-Zn-67	BROND-2	Dec89/Feb92	GP	NT, DD
51	30-Zn-68	BROND-2	Dec89/Feb92	GP	NT, DD
52	30-Zn-70	BROND-2	Dec89/Feb92	GP	NT, DD
53	<i>30-Zn-71m</i> <i>3.9 h</i>	ADL-3	Jan94/	ACT	Only sets of cross-sections given.
54	<i>30-Zn-72</i> <i>46.5 h</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.

ELEMENTS IN INTERMEDIATE GROUP

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
1	31-Ga-nat	FOND-2	Sep72/Dec90	GP	NT, GAM Modification of ENDL-72 evaluation.
2	31-Ga-69	JENDL-3.2	Mar94/	GP	NT
3	31-Ga-71	JENDL-3.2	Mar94/	GP	NT
4	32-Ge-nat	JENDL-3.2	Mar94/	GP	NT
5	<i>32-Ge-68</i> <i>270.82 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
6	<i>32-Ge-69</i> <i>39.0 h</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
7	32-Ge-70	JENDL-3.2	Mar94/	FP	NT
8	<i>32-Ge-71</i> <i>11.43 d</i>	EAF-3	Jul92/Nov96	FP	MF=10 data added for MT=106.
9	32-Ge-72	JENDL-3.2	Mar94/	FP	NT
10	32-Ge-73	JENDL-3.2	Mar94/	FP	NT
11	32-Ge-74	JENDL-3.2	Mar94/	FP	NT
12	32-Ge-76 1.53×10^{21} y	JENDL-3.2	Mar94/Jul99	FP	NT Threshold reaction cross-sections reviewed.
13	<i>33-As-71</i> <i>65.28 h</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
14	<i>33-As-72</i> <i>26.0 h</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
15	<i>33-As-73</i> <i>80.3 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
16	<i>33-As-74</i> <i>17.77 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
17	33-As-75	JENDL-3.2	Mar90/Feb94/Ju 199	GP	NT Threshold reaction cross-sections reviewed.
18	<i>33-As-76</i> <i>26.4 h</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
19	<i>33-As-77</i> <i>38.8 h</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
20	<i>34-Se-72</i> <i>8.5 d</i>	EAF-3	Jul92/Nov96	FP	MF=10 data added for MT=106.
21	<i>34-Se-73</i> <i>7.1 h</i>	EAF-3	Jul92/Nov96	FP	MF=10 data added for MT=104.
22	34-Se-74	JENDL-3.2	Mar90/Nov96	FP	NT
23	<i>34-Se-75</i> <i>119.64d</i>	EAF-3	Jul92/Nov96	FP	MF=9 data added for MT=16. Neutron data represented only by reaction cross-sections. MF=10 data added for MT=106.
24	34-Se-76	JENDL-3.2	Mar90/	FP	NT
25	34-Se-77	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
26	34-Se-78	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
27	<i>34-Se-79</i> <i>$6. \times 10^4$ y</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
28	34-Se-80	JENDL-3.2	Mar93/Jul99	FP	NT Threshold reaction cross-sections reviewed.
29	34-Se-82 1.08×10^{20} y	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
30	<i>35-Br-77</i> <i>57.0 h</i>	ADL-3	Jan94/	FP	Only sets of cross-sections given.
31	35-Br-79	JENDL-3.2	Mar90/Mar93	FP	NT

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
32	35-Br-81	JENDL-3.2	Mar93/Jul99	FP	NT
33	<i>35-Br-82</i> <i>35.34 h</i>	ADL-3	Jan94/Jul99	FP	Threshold reaction cross-sections reviewed. Only sets of cross-sections given. Threshold reaction cross-sections reviewed.
34	36-Kr-78	JENDL-3.2	Mar90/	FP	NT
35	<i>36-Kr-79</i> <i>34.9 h</i>	ADL-3	Jan94/	FP	Only sets of cross-sections given.
36	36-Kr-80	JENDL-3.2	Mar90/Nov96	FP	NT
37	<i>36-Kr-81</i> <i>2.3×10⁵ y</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added. Only sets of cross-sections given. DD data added.
38	36-Kr-82	JENDL-3.2	Mar90/Jul99	FP	NT
39	36-Kr-83	JENDL-3.2	Mar90/Jul99	FP	Threshold reaction cross-sections reviewed. NT
40	36-Kr-84	JENDL-3.2	Mar90/Jul99	FP	Threshold reaction cross-sections reviewed. NT
41	<i>36-Kr-85</i> <i>10.76 y</i>	JENDL-3.2	Mar90/Jul99	FP	Threshold reaction cross-sections reviewed. NT
42	36-Kr-86	JENDL-3.2	Mar90/Jul99	FP	Threshold reaction cross-sections reviewed. NT
43	<i>37-Rb-83</i> <i>86.2 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
44	<i>37-Rb-84</i> <i>32.8 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
45	37-Rb-85	JENDL-3.2	Mar90/Jul99	FP	NT
46	<i>37-Rb-86</i> <i>18.7 d</i>	JEF-2	Jul82/Jul99	FP	Threshold reaction cross-sections reviewed. NT
47	37-Rb-87	JENDL-3.2	Mar90/Jul99	FP	Modification of ENDF/B-5FP evaluation. Threshold reaction cross-sections reviewed. NT
48	<i>38-Sr-82</i> <i>25.34 d</i>	EAF-3	Jul92/Nov96	FP	Threshold reaction cross-sections reviewed.
49	<i>38-Sr-83</i> <i>32.4 h</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
50	38-Sr-84	ENDF/B-5	Feb80/	FP	NT
51	<i>38-Sr-85</i> <i>64.9 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added. Threshold reaction cross-sections reviewed.
52	38-Sr-86	JENDL-3.2	Mar90/Jul99	FP	NT
53	38-Sr-87	JENDL-3.2	Mar90/	FP	Threshold reaction cross-sections reviewed. NT
54	38-Sr-88	JENDL-3.2	Mar90/Jul99	FP	NT
55	<i>38-Sr-89</i> <i>50.5 d</i>	JENDL-3.2	Mar90/Jul99	FP	Threshold reaction cross-sections reviewed. NT
56	<i>38-Sr-90</i> <i>28.64 y</i>	JENDL-3.2	Mar90/Jul99	FP	Threshold reaction cross-sections reviewed. NT
57	<i>39-Y-87</i> <i>80.3 h</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
58	<i>39-Y-88</i> <i>106.6 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
59	39-Y-89	JENDL-3.2	Nov93/Jul99	GP	NT, GAM Threshold reaction cross-sections reviewed.

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
60	39-Y-90 64.1 h	JEF-2	Jul82/Jul99	FP	NT Modification of ENDF/B-5FP evaluation. Threshold reaction cross-sections reviewed.
61	39-Y-91 58.5 d	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
62	40-Zr-nat	BROND-2	Dec88/Sep98	GP	NT, GAM Upper limit of unresolved resonance region changed for Zr-90 to 200 keV. Only sets of cross-sections given.
63	40-Zr-88 83.4 d	EAF-3	Jul92/	FP	Only sets of cross-sections given.
64	40-Zr-89 78.4 h	EAF-3	Jul92/	FP	Only sets of cross-sections given.
65	40-Zr-90	JENDL-3.2	Aug89/Jul99	FP	NT Threshold reaction cross-sections reviewed.
66	40-Zr-91	BROND-2	Dec88/Jul99	FP	NT Threshold reaction cross-sections reviewed.
67	40-Zr-92	JENDL-3.2	Aug89/Jul99	FP	NT Threshold reaction cross-sections reviewed.
68	40-Zr-93 1.5×10^6 y	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
69	40-Zr-94	JENDL-3.2	Aug89/Jul99	FP	NT Threshold reaction cross-sections reviewed.
70	40-Zr-95 64.0 d	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
71	40-Zr-96 3.9×10^{18} y	JENDL-3.2	Aug89/Jul99	FP	NT Threshold reaction cross-sections reviewed.
72	41-Nb-91 680 y	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
73	41-Nb-91m 60.9 d	EAF-3	Jul92/	FP	Only sets of cross-sections given.
74	41-Nb-92 3.6×10^7 y	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
75	41-Nb-92m 10.15 d	EAF-3	Jul92/	FP	Only sets of cross-sections given.
76	41-Nb-93	BROND-2	Dec88/Feb93	GP	NT, GAM Cross section for (n, 2n) reaction was used as a standard
77	41-Nb-93m 16.13 y	EAF-3	Jul92/	FP	Only sets of cross-sections given.
78	41-Nb-94 $2. \times 10^6$ y	JENDL-3.2	Mar90/Nov96	FP	NT Cross-sections modified. DD data added.
79	41-Nb-95 34.97 d	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
80	41-Nb-95m 86.6 h	EAF-3	Jul92/	FP	Only sets of cross-sections given.
81	41-Nb-96 23.4 h	ADL-3	Jan94/	FP	Only sets of cross-sections given.
82	42-Mo-nat	JENDL-3.2	Mar89/Feb94	GP	NT, GAM
83	42-Mo-92	JENDL-3.2	Aug89/Oct93	FP	NT
84	42-Mo-93 3.5×10^3 y	EAF-3	Jul92/	FP	Only sets of cross-sections given.
85	42-Mo-94	JENDL-3.2	Aug89/Oct93	FP	NT
86	42-Mo-95	JENDL-3.2	Aug89/Oct93 /Jul99	FP	NT Threshold reaction cross-sections reviewed.
87	42-Mo-96	JENDL-3.2	Aug89/Oct93 /Jul99	FP	NT Threshold reaction cross-sections reviewed.

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
88	42-Mo-97	JENDL-3.2	Aug89/Oct93 /Jul99	FP	NT Threshold reaction cross-sections reviewed.
89	42-Mo-98	JENDL-3.2	Aug89/Oct93 /Jul99	FP	NT Threshold reaction cross-sections reviewed.
90	<i>42-Mo-99</i> <i>66 h</i>	JENDL-3.2	Aug89/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
91	42-Mo-100 1.15×10^{19} y	JENDL-3.2	Aug89/Oct93 /Jul99	FP	NT Threshold reaction cross-sections reviewed.
92	<i>43-Tc-95</i> <i>20 h</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
93	<i>43-Tc-95m</i> <i>60 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
94	<i>43-Tc-96</i> <i>4.3 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
95	<i>43-Tc-97</i> <i>$4. \times 10^6$ y</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
96	<i>43-Tc-97m</i> <i>92.2 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
97	<i>43-Tc-98</i> <i>4.2×10^6 y</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
98	<i>43-Tc-99</i> <i>2.1×10^5 y</i>	JENDL-3.2	Mar90/Nov93 /Jul99	GP	NT Threshold reaction cross-sections reviewed.
99	44-Ru-96	JENDL-3.2	Mar90/	FP	NT
100	<i>44-Ru-97</i> <i>2.9 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
101	44-Ru-98	JENDL-3.2	Mar90/	FP	NT
102	44-Ru-99	JENDL-3.2	Mar90/Oct93	FP	NT
103	44-Ru-100	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
104	44-Ru-101	JENDL-3.2	Mar90/Oct93 /Jul99	FP	NT Threshold reaction cross-sections reviewed.
105	44-Ru-102	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
106	<i>44-Ru-103</i> <i>39.35 d</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
107	44-Ru-104	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
108	<i>44-Ru-105</i> <i>4.44 h</i>	EAF-3	Jul92/Nov96	FP	Only sets of cross-sections given. Cross-sections modified. DD data added.
109	<i>44-Ru-106</i> <i>373.6 d</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
110	<i>45-Rh-101</i> <i>3.3 y</i>	EAF-3	Jul92/Nov96	FP	Only sets of cross-sections given. Threshold reaction cross-sections reviewed.
111	<i>45-Rh-102m</i> <i>2.9 y</i>	EAF-3	Jul92/Nov96	FP	Neutron data represented only by reaction cross-sections. Threshold reaction cross-sections reviewed.
112	<i>45-Rh-102</i> <i>207. d</i>	EAF-3	Jul92/Nov96	FP	Only sets of cross-sections given. Threshold reaction cross-sections reviewed.
113	45-Rh-103	JENDL-3.2	Mar90/Feb94 /Jul99	GP	NT Threshold reaction cross-sections reviewed.
114	<i>45-Rh-105</i> <i>35.4 h</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
115	46-Pd-102	JENDL-3.2	Mar90/	FP	NT.
116	<i>46-Pd-103</i> <i>16.96 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
117	46-Pd-104	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
118	46-Pd-105	JENDL-3.2	Mar90/Aug91 /Jul99	FP	NT Threshold reaction cross-sections reviewed.
119	46-Pd-106	JENDL-3.2	Mar90/Jul99	FP	FP Threshold reaction cross-sections reviewed.
120	<i>46-Pd-107</i> <i>6.5×10⁶ y</i>	JENDL-3.2	Mar90/Mar93 /Jul99	FP	NT Threshold reaction cross-sections reviewed.
121	46-Pd-108	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
122	46-Pd-110	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
123	47-Ag-nat	JENDL-3.2	Mar87/Feb94	GP	NT, GAM
124	<i>47-Ag-105g</i> <i>41.29 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
125	<i>47-Ag-106m</i> <i>8.3 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
126	47-Ag-107	JENDL-3.2	Mar87/Feb94	ACT	NT, GAM
127	<i>47-Ag-108m</i> <i>418 y</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
128	47-Ag-109	JENDL-3.2	Mar87/Feb94 /Jul99	FP	NT, GAM Threshold reaction cross-sections reviewed.
129	<i>47-Ag-110m</i> <i>249.9 d</i>	JENDL-3.2	Mar90/	FP	NT
130	<i>47-Ag-111</i> <i>7.45 d</i>	JEF-2	Jul82/Jul99	FP	NT Modification of ENDF/B-5FP evaluation. Threshold reaction cross-sections reviewed.
131	48-Cd-nat	JENDL-3.2	Mar89/Dec93	GP	NT, GAM
132	48-Cd-106	JENDL-3.2	Mar90/Nov96	FP	NT Cross-sections modified. DD data added.
133	48-Cd-108	JENDL-3.2	Mar90/	FP	NT Cross-sections modified. DD data added.
134	<i>48-Cd-109</i> <i>462 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
135	48-Cd-110	JENDL-3.2	Mar90/Nov93 /Jul99	FP	NT Threshold reaction cross-sections reviewed.
136	48-Cd-111	JENDL-3.2	Mar90/Nov93 /Jul99	FP	NT Threshold reaction cross-sections reviewed.
137	48-Cd-112	JENDL-3.2	Mar90/Jul99	FP	FP Threshold reaction cross-sections reviewed.
138	48-Cd-113 <i>9×10¹⁵ y</i>	JENDL-3.2	Mar90/Aug93 /Jul99	FP	FP Threshold reaction cross-sections reviewed.
139	<i>48-Cd-113m</i> <i>14.6 y</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
140	48-Cd-114	JENDL-3.2	Mar90/Nov96 /Jul99	FP	FP DD data added. Threshold reaction cross-sections reviewed.
141	<i>48-Cd-115</i> <i>53.38 h</i>	EAF-3	Jul92/Nov96	FP	Only sets of cross-sections given.
142	<i>48-Cd-115m</i> <i>44.8 d</i>	JEF-2	Jul82/	FP	FP Modification of ENDF/B-5FP evaluation.
143	48-Cd-116 <i>2.6×10¹⁹ y</i>	JENDL-3.2	Mar90/Nov96 /Jul99	FP	NT DD data added. Threshold reaction cross-sections reviewed.
144	49-In-113	JENDL-3.2	Mar90/	FP	NT

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
145	<i>49-In-114m</i> <i>49.5 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
146	49-In-115 4.4×10¹⁴ y	JENDL-3.2	Mar90/Mar97 /Jul99	FP	NT, DD, COV Threshold reaction cross-sections reviewed.
147	50-Sn-112	JENDL-3.2	Mar90/	FP	NT
148	<i>50-Sn-113</i> <i>115.1 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
149	50-Sn-114	JENDL-3.2	Mar90/	FP	NT
150	50-Sn-115	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
151	50-Sn-116	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
152	50-Sn-117	JENDL-3.2	Mar90/Nov96 /Jul99	FP	NT, DD data added. Threshold reaction cross-sections reviewed.
153	<i>50-Sn-117m</i> <i>13.6 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
154	50-Sn-118	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
155	50-Sn-119	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
156	<i>50-Sn-119m</i> <i>293 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
157	50-Sn-120	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
158	<i>50-Sn-121</i> <i>27.0 h</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
159	<i>50-Sn-121m</i> <i>50 y</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
160	50-Sn-122	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
161	<i>50-Sn-123</i> <i>129.3 d</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
162	50-Sn-124	JENDL-3.2	Mar90/Mar93 /Jul99	FP	NT Threshold reaction cross-sections reviewed.
163	<i>50-Sn-125</i> <i>9.64 d</i>	JEF-2	Jul82/Jul99	FP	NT Modification of ENDF/B-5FP evaluation. Threshold reaction cross-sections reviewed.
164	<i>50-Sn-126</i> <i>10⁵ y</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
165	51-Sb-nat	JENDL-3.2	Mar89/Feb94	GP	NT
166	<i>51-Sb-119</i> <i>38.5 h</i>	EAF-3	JuL92/Nov96	FP	Cross-sections modified. DD data added.
167	<i>51-Sb-120m</i> <i>5.76 d</i>	EAF-3	JuL92/Nov96	FP	Cross-sections modified. DD data added.
168	51-Sb-121	JENDL-3.2	Mar89/Feb94/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
169	<i>51-Sb-122</i> <i>2.70 d</i>	EAF-3	Jul92/Nov96	FP	Threshold reaction cross-sections reviewed.
170	51-Sb-123	JENDL-3.2	Aug89/Feb94/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
171	<i>51-Sb-124</i> <i>60.3 d</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
172	<i>51-Sb-125</i> <i>2.77 y</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
173	<i>51-Sb-126</i> <i>12.4 d</i>	JEF-2	Jul82/Jul99	FP	NT Threshold reaction cross-sections reviewed.

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
174	<i>51-Sb-127</i> <i>3.85 d</i>	EAF-3	Jul92/Jul99	FP	NT, DD Threshold reaction cross-sections reviewed.
175	<i>52-Te-118</i> <i>6.0 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
176	<i>52-Te-119m</i> <i>4.7 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
177	52-Te-120	JENDL-3.2	Mar90/	FP	NT
178	<i>52-Te-121</i> <i>16.8 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
179	<i>52-Te-121m</i> <i>154 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
180	52-Te-122	JENDL-3.2	Mar90/Nov93/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
181	52-Te-123 1.24×10¹³ y	JENDL-3.2	Mar90/Sep93/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
182	<i>52-Te-123m</i> <i>119.7 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
183	52-Te-124	JENDL-3.2	Mar90/Nov93/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
184	52-Te-125	JENDL-3.2	Mar90/Nov93/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
185	<i>52-Te-125m</i> <i>57.4 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
186	52-Te-126	JENDL-3.2	Mar90/Nov93/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
187	<i>52-Te-127m</i> <i>109 d</i>	JENDL-3.2	Mar90/	FP	NT
188	52-Te-128 7.2×10²⁴ y	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
189	<i>52-Te-129m</i> <i>33.6 d</i>	JENDL-3.2	Mar90/	FP	NT
190	52-Te-130 2.7×10²¹ y	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
191	<i>52-Te-131m</i> <i>30 h</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
192	<i>52-Te-132</i> <i>76.3 h</i>	JEF-2	Jul82/Jul99	FP	NT Threshold reaction cross-sections reviewed.
193	<i>53-I-124</i> <i>4.15 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
194	<i>53-I-125</i> <i>59.41 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
195	<i>53-I-126</i> <i>13.11 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
196	53-I-127	JENDL-3.2	Mar90/Apr93/ Jul99	GP	NT Threshold reaction cross-sections reviewed.
197	<i>53-I-128</i> <i>25 m</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
198	<i>53-I-129</i> <i>1.57×10⁷ y</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
199	<i>53-I-130</i> <i>12.36 h</i>	JEF-2	Jul82/Jul99	FP	NT Modification of ENDF/B-5FP evaluation. Threshold reaction cross-sections reviewed.
200	<i>53-I-131</i> <i>8.02 d</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
201	<i>53-I-135</i> <i>6.61 h</i>	ADL-3	Jan94/	FP	Only sets of cross-sections given.

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
202	54-Xe-124	JENDL-3.2	Mar90/	FP	NT
203	54-Xe-126	JENDL-3.2	Mar90/	FP	NT
204	54-Xe-127 <i>36.4 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
205	54-Xe-128	JENDL-3.2	Mar90/Jul99	FP	NT
206	54-Xe-129	JENDL-3.2	Mar90/Jul99	FP	Threshold reaction cross-sections reviewed.
207	54-Xe-129m <i>8.89 d</i>	EAF-3	Jul92/Nov96	FP	NT Threshold reaction cross-sections reviewed. Cross-sections modified. DD data added.
208	54-Xe-130	JENDL-3.2	Mar90/Jul99	FP	NT
209	54-Xe-131	JENDL-3.2	Mar90/Jul99	FP	Threshold reaction cross-sections reviewed.
210	54-Xe-131m <i>11.9 d</i>	EAF-3	Jul92/Nov96	FP	NT Threshold reaction cross-sections reviewed. Cross-sections modified. DD data added.
211	54-Xe-132	JENDL-3.2	Mar90/Jul99	FP	NT
212	<i>54-Xe-133</i> <i>5.25 d</i>	ENDF/B-6	Apr74/Jul99	FP	Threshold reaction cross-sections reviewed.
213	<i>54-Xe-133m</i> <i>2.19 d</i>	EAF-3	Jul92/Nov96	FP	NT Threshold reaction cross-sections reviewed. Cross-sections modified. DD data added.
214	54-Xe-134	JENDL-3.2	Mar90/Jul99	FP	NT
215	<i>54-Xe-135</i> <i>9.10 h</i>	JENDL-3.2	Mar90/Jul99	FP	Threshold reaction cross-sections reviewed.
216	54-Xe-136	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
217	<i>55-Cs-131</i> <i>9.69 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
218	<i>55-Cs-132</i> <i>6.47 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
219	55-Cs-133	JENDL-3.2	Mar90/Jul99	GP	NT
220	<i>55-Cs-134</i> <i>2.06 y</i>	JENDL-3.2	Mar90/Jul99	FP	Threshold reaction cross-sections reviewed.
221	<i>55-Cs-135</i> <i>2×10⁶ y</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
222	<i>55-Cs-136</i> <i>13.16 d</i>	JENDL-3.2	Mar90/Jul99	FP	NT
223	<i>55-Cs-137</i> <i>30.17 y</i>	JENDL-3.2	Mar90/Mar93/ Jul99	FP	Threshold reaction cross-sections reviewed. NT Threshold reaction cross-sections reviewed.
224	56-Ba-130	JENDL-3.2	Mar90/	FP	NT
225	<i>56-Ba-131</i> <i>11.5 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
226	56-Ba-132	JENDL-3.2	Mar90/	FP	NT
227	<i>56-Ba-133</i> <i>10.5 y</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
228	<i>56-Ba-133m</i> <i>38.9 h</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
229	56-Ba-134	JENDL-3.2	Mar90/Jul99	FP	NT
230	56-Ba-135	JENDL-3.2	Mar90/Nov93/ Jul99	FP	Threshold reaction cross-sections reviewed.
231	<i>56-Ba-135m</i> <i>28.7 h</i>	EAF-3	Jul92/Nov96	FP	NT Threshold reaction cross-sections reviewed. Cross-sections modified. DD data added.

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
232	56-Ba-136	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
233	56-Ba-137	JENDL-3.2	Mar90/Oct93/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
234	56-Ba-138	JENDL-3.2	Mar90/Oct93/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
235	<i>56-Ba-139</i> <i>83.06 m</i>	EAF-3	Jul92/Nov96/ Jul99	FP	Cross-sections modified. DD data added.
236	<i>56-Ba-140</i> <i>12.75 d</i>	JEF-2	Jul82/Jul99	FP	NT Threshold reaction cross-sections reviewed.
237	<i>57-La-137</i> <i>6.×10⁴ y</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
238	57-La-138 1.05×10¹¹ y	JENDL-3.2	Mar90/Nov93	GP	NT
239	57-La-139	JENDL-3.2	Mar90/Nov93/ Jul99	GP	NT Threshold reaction cross-sections reviewed.
240	<i>57-La-140</i> <i>40.272 h</i>	EAF-3	Jul92/Nov96/ Jul99	FP	DD data added. Threshold reaction cross-sections reviewed.
241	58-Ce-136	EAF-3	Jul92/	FP	Only sets of cross-sections given.
242	<i>58-Ce-137m</i> <i>34.4 h</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
243	58-Ce-138	EAF-3	Jul92/	FP	Only sets of cross-sections given.
244	<i>58-Ce-139</i> <i>137.6 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
245	58-Ce-140	JENDL-3.2	Mar90/Nov93/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
246	<i>58-Ce-141</i> <i>32.50 d</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
247	58-Ce-142	JENDL-3.2	Mar90/Sep93/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
248	<i>58-Ce-143</i> <i>33.0 h</i>	EAF-3	Jul92/Nov96/ Jul99	FP	DD data added. Threshold reaction cross-sections reviewed.
249	<i>58-Ce-144</i> <i>284.8 d</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
250	59-Pr-141	JENDL-3.2	Mar90/Sep93/ Jul99	GP	NT Threshold reaction cross-sections reviewed.
251	<i>59-Pr-142</i> <i>19.13 h</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
252	<i>59-Pr-143</i> <i>13.75 d</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
253	<i>60-Nd-140</i> <i>3.37 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
254	<i>60-Nd-141</i> <i>2.5 h</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
255	60-Nd-142	JENDL-3.2	Mar90/Nov93/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
256	60-Nd-143	JENDL-3.2	Mar90/Nov93/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
257	60-Nd-144 2.29×10¹⁵ y	JENDL-3.2	Mar90/Oct93/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
258	60-Nd-145	JENDL-3.2	Mar90/Oct93/ Jul99	FP	NT Threshold reaction cross-sections reviewed..
259	60-Nd-146	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
260	<i>60-Nd-147</i> <i>10.98 d</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
261	60-Nd-148	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
262	60-Nd-150 1.4×10¹⁹ y	JENDL-3.2	Mar90/Oct93/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
263	<i>61-Pm-143</i> <i>265 d</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
264	<i>61-Pm-144</i> <i>1.0 y</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
265	<i>61-Pm-145</i> <i>17.7 y</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
266	<i>61-Pm-146</i> <i>5.53 y</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
267	<i>61-Pm-147</i> <i>2.62 y</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
268	<i>61-Pm-148</i> <i>5.37 d</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
269	<i>61-Pm-148m</i> <i>41.3 d</i>	JENDL-3.2	Mar90/Dec97	FP	NT
270	<i>61-Pm-149</i> <i>53.1 h</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
271	<i>61-Pm-150</i> <i>2.7 h</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
272	<i>61-Pm-151</i> <i>28.4 h</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
273	62-Sm-144	ENDF/B-6	Feb80/Jan92	FP	NT
274	<i>62-Sm-145</i> <i>340 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
275	<i>62-Sm-146</i> <i>1.03×10⁸ y</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
276	62-Sm-147 1.06×10¹¹ y	FOND-2.2	Mar90/Aug93/ Jul99	FP	NT Modification of JENDL-3.2 evaluation. Threshold reaction cross-sections reviewed.
277	62-Sm-148 7×10¹⁵ y	FOND-2.2	Sep87/Apr97/ Jul99	FP	NT Modification of JENDL-3.2 evaluation. Threshold reaction cross-sections reviewed.
278	62-Sm-149	FOND-2.2	Mar90/Jul99/ Aug99	FP	NT Modification of JENDL-3.2 evaluation.. Threshold reaction cross-sections reviewed.
279	62-Sm-150	JENDL-3.2	Mar90/Jun94/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
280	<i>62-Sm-151</i> <i>93 y</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
281	62-Sm-152	JENDL-3.2	Mar90/Jun94/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
282	<i>62-Sm-153</i> <i>47.26 h</i>	JENDL-3.2	Mar90/Jul99	FP	NT Threshold reaction cross-sections reviewed.
283	62-Sm-154	JENDL-3.2	Mar90/Jun94/ Jul99	FP	NT Threshold reaction cross-sections reviewed.
284	63-Eu-nat	JENDL-3.2	Mar89/Nov93	GP	NT, GAM
285	<i>63-Eu-145</i> <i>5.93 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
286	<i>63-Eu-146</i> <i>4.51 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
287	<i>63-Eu-147</i> <i>24.6 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
288	<i>63-Eu-148</i> <i>55.6 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
289	<i>63-Eu-149</i> <i>93.1 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
290	<i>63-Eu-150</i> <i>36.9 y</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
291	63-Eu-151	JENDL-3.2	Mar89/	FP	NT
292	<i>63-Eu-152</i> <i>13.33 y</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
293	63-Eu-153	JENDL-3.2	Mar89/Jan94/ Jul99	FP	NT
294	<i>63-Eu-154</i> <i>8.8 y</i>	JENDL-3.2	Dec90/Nov93/ Jul99	FP	Threshold reaction cross-sections reviewed. NT
295	<i>63-Eu-155</i> <i>4.761 y</i>	JENDL-3.2	Mar90/Nov93/ Jul99	FP	Threshold reaction cross-sections reviewed. NT
296	<i>63-Eu-156</i> <i>15.2 d</i>	JEF-2	Jul82/Apr89/ Jul99	FP	Threshold reaction cross-sections reviewed. NT
297	<i>63-Eu-157</i> <i>15.18 h</i>	EAF-3	Jul92/	FP	Threshold reaction cross-sections reviewed. Only sets of cross-sections given.
298	<i>64-Gd-148</i> <i>74.6 y</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
299	<i>64-Gd-149</i> <i>9.28 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
300	<i>64-Gd-150</i> <i>1.8×10⁶ y</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
301	<i>64-Gd-151</i> <i>120 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
302	64-Gd-152 1.1×10¹⁴ y	JENDL-3.2	Mar90/	FP	NT
303	<i>64-Gd-153</i> <i>239.47 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
304	64-Gd-154	JENDL-3.2	Mar90/Jul99	FP	NT
305	64-Gd-155	ENDF/B-6	Jun77/Jul99	FP	Threshold reaction cross-sections reviewed. NT
306	64-Gd-156	JENDL-3.2	Mar90/Jul99	FP	Threshold reaction cross-sections reviewed. NT
307	64-Gd-157	JENDL-3.2	Mar90/Jul99	FP	Threshold reaction cross-sections reviewed. NT
308	64-Gd-158	JENDL-3.2	Mar90/Jul99	FP	Threshold reaction cross-sections reviewed. NT
309	64-Gd-160	JENDL-3.2	Mar90/Jul99	FP	Threshold reaction cross-sections reviewed. NT
310	<i>65-Tb-157</i> <i>99 y</i>	AF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
311	<i>65-Tb-158</i> <i>180 y</i>	EAF-3	Jul92/Nov96	FP	Cross-sections modified. DD data added.
312	65-Tb-159	JENDL-3.2	Mar90/Jul99	GP	NT
313	<i>65-Tb-160</i> <i>73.3 d</i>	JEF-2	Jun82/Jul99	FP	Threshold reaction cross-sections reviewed. NT
314	<i>65-Tb-161</i> <i>6.90 d</i>	EAF-3	Jul92/Jul99	FP	Threshold reaction cross-sections reviewed. Only sets of cross-sections given. Threshold reaction cross-sections reviewed.
315	66-Dy-nat	FOND-2	Nov89/	GP	Only set of resonance parameters given.
316	<i>66-Dy-154</i> <i>3.0×10⁶ y</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
317	<i>66-Dy-155</i> <i>10.0 h</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
318	66-Dy-156	EAF-3	Jul92/	FP	Only sets of cross-sections given.
319	66-Dy-158	EAF-3	Jul92/	FP	Only sets of cross-sections given.
320	<i>66-Dy-159</i> <i>144.4 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
321	66-Dy-160	JEF-2	Jun82/Jul99	FP	NT
322	66-Dy-161	JEF-2	Jun82/Jul99	FP	Threshold reaction cross-sections reviewed. NT
323	66-Dy-162	JEF-2	Jun82/Jul99	FP	Threshold reaction cross-sections reviewed. NT
324	66-Dy-163	JEF-2	Jun82/Jul99	FP	Threshold reaction cross-sections reviewed. NT
325	66-Dy-164	JEF-2	Jun82/Jul99	FP	Threshold reaction cross-sections reviewed. NT
326	<i>66-Dy-165</i> <i>2.35 h</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
327	<i>66-Dy-166</i> <i>81.5 h</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
328	<i>67-Ho-163</i> <i>4750 y</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
329	67-Ho-165	ENDF/B-5	Apr74/Jul80	GP	NT
330	<i>67-Ho-166</i> <i>26.8 h</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
331	<i>67-Ho-166m</i> <i>1 200 y</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
332	68-Er-nat	FOND-2	Dec76/Nov89	GP	Only set of resonance parameters for stable isotopes given.
333	68-Er-162	BROND-2	Dec76/Nov89	FP	NT, DD
334	68-Er-164	BROND-2	Dec76/Nov89	FP	NT, DD
335	<i>68-Er-165</i> <i>10.3 h</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
336	68-Er-166	BROND-2	Dec76/Nov89	FP	NT, DD
337	68-Er-167	BROND-2	Dec76/Nov89	FP	NT, DD
338	68-Er-168	BROND-2	Dec76/Nov89	FP	NT, DD
339	<i>68-Er-169</i> <i>9.40 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
340	68-Er-170	BROND-2	Dec76/Nov89	FP	NT, DD
341	<i>68-Er-171</i> <i>7.52 h</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
342	<i>68-Er-172</i> <i>49 h</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
343	<i>69-Tm-167</i> <i>9.25 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
344	<i>69-Tm-168</i> <i>93.1 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
345	69-Tm-169	EAF-3	Jul92/	FP	Only sets of cross-sections given.
346	<i>69-Tm-170</i> <i>128.6 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
347	<i>69-Tm-171</i> <i>1.92 y</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given..
348	<i>69-Tm-172</i> <i>63.6 h</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
349	70-Yb-168	EAF-3	Jul92/	FP	Only sets of cross-sections given..
350	<i>70-Yb-169</i> <i>32.0 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
351	70-Yb-170	EAF-3	Jul92/	FP	Only sets of cross-sections given.
352	70-Yb-171	EAF-3	Jul92/	FP	Only sets of cross-sections given.
353	70-Yb-172	EAF-3	Jul92/	FP	Neutron data represented only by reaction cross-sections.
354	70-Yb-173	EAF-3	Jul92/	FP	Only sets of cross-sections given.
355	70-Yb-174	EAF-3	Jul92/	FP	Only sets of cross-sections given.
356	<i>70-Yb-175</i> <i>4.2 d</i>	EAF-3	Jul92/	FP	Only sets of cross-sections given.
357	70-Yb-176	EAF-3	Jul92/	FP	Only sets of cross-sections given.
358	<i>71-Lu-173</i> <i>1.37 y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
359	<i>71-Lu-174</i> <i>3.31 y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
360	<i>71-Lu-174m</i> <i>142 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
361	71-Lu-175	ENDF/B-5	Jul67/	GP	NT
362	71-Lu-176 3.8×10^{10} y	ENDF/B-5	Jul67/	GP	NT
363	<i>71-Lu-177</i> <i>6.71 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
364	<i>71-Lu-177m</i> <i>160.1 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
365	72-Hf-nat	ENDL-82	Oct82/Dec92	GP	NT, GP
366	<i>72-Hf-172</i> <i>1.87 y</i>	ADL-3	Jan94/	ACT	Only sets of cross-sections given.
367	<i>72-Hf-173</i> <i>23.6 h</i>	ADL-3	Jan94/	ACT	Only sets of cross-sections given.
368	72-Hf-174 2.0×10^{15} y	JENDL-3	Dec82/Dec83	GP	NT
369	<i>72-Hf-175</i> <i>70.0 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
370	72-Hf-176	JENDL-3	Dec82/Dec83	GP	NT
371	72-Hf-177	JENDL-3	Dec82/Dec83	GP	NT
372	72-Hf-178	JENDL-3	Dec82/Jan84	GP	NT.
373	<i>72-Hf-178n</i> <i>31 y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
374	72-Hf-179	JENDL-3	Dec82/Dec83	GP	NT.
375	<i>72-Hf-179n</i> <i>25 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
376	72-Hf-180	JENDL-3	Dec82/Dec83	GP	NT
377	<i>72-Hf-181</i> <i>42.39 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
378	<i>72-Hf-182</i> <i>9×10^6 y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
379	<i>73-Ta-179</i> <i>665 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
380	73-Ta-180 8.15 h	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
381	73-Ta-180m $>10^{15}$ y	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
382	73-Ta-181	ENDL-72	Jan72/Dec92	GP	NT, GAM
383	<i>73-Ta-182</i> <i>114.43 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
384	<i>73-Ta-183</i> <i>5.0 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
385	<i>74-W-178</i> <i>22 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
386	74-W-180	BROND-2	May83/May90	ACT	Only set of resonance parameters given.
387	<i>74-W-181</i> <i>121.2 d</i>	EAF-3	Jul92/	ACT	
388	74-W-182	BROND-2	May83/May90	ACT	NT, GAM
389	74-W-183	BROND-2	May83/May90	ACT	NT, GAM
390	74-W-184	BROND-2	May83/May90	ACT	NT, GAM
391	<i>74-W-185</i> <i>75.1 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
392	74-W-186	BROND-2	May83/May90	ACT	NT, GAM
393	<i>74-W-187</i> <i>23.72 h</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
394	<i>74-W-188</i> <i>69 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
395	75-Re-nat	FOND-2	Jan88/Sep91	GP	NT
396	<i>75-Re-183</i> <i>71 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
397	<i>75-Re-184</i> <i>38.0 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
398	<i>75-Re-184m</i> <i>169 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
399	75-Re-185	FOND-2	Jan68/Dec92	ACT	NT
400	<i>75-Re-186</i> <i>89.25 h</i>	EAF-3	Jul92/	ACT	Modification of ENDF/B-5 evaluation. Only sets of cross-sections given.
401	<i>75-Re-186m</i> <i>2×10⁵ y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
402	75-Re-187 5×10¹⁰ y	FOND-2	Jan68/Dec92	ACT	NT
403	<i>75-Re-188</i> <i>16.96 h</i>	EAF-3	Jul92/	ACT	Modification of ENDF/B-5 evaluation. Only sets of cross-sections given.
404	<i>75-Re-189</i> <i>24.3 h</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
405	76-Os-nat	BROND-2	Jan90/	GP	NT, GP
406	76-Os-184	FOND-2	Jul92/	ACT	NT, DD
407	<i>76-Os-185</i> <i>94 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
408	76-Os-186 2×10¹⁵ y	FOND-2	Jul92/	ACT	NT, DD
409	76-Os-187	FOND-2	Jul92/	ACT	NT, DD
410	76-Os-188	FOND-2	Jul92/	ACT	NT, DD
411	76-Os-189	FOND-2	Jul92/	ACT	NT, DD
412	76-Os-190	FOND-2	Jul92/	ACT	NT, DD
413	<i>76-Os-191</i> <i>15.4 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
414	76-Os-192	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
415	<i>76-Os-193</i> <i>30.11 h</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
416	<i>76-Os-194</i> <i>6.0 y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
417	77-Ir-nat	BROND-2	Jan90/	GP	NT, GAM
418	<i>77-Ir-189</i> <i>13.3 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
419	<i>77-Ir-190</i> <i>11.8 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
420	77-Ir-191	FOND-2	Jan90/Nov93	ACT	NT, DD
421	<i>77-Ir-192</i> <i>73.83 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
422	<i>77-Ir-192n</i> <i>241 y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
423	77-Ir-193	FOND-2	Jan90/Jan93	ACT	NT, DD
424	<i>77-Ir-193m</i> <i>10.53 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
425	<i>77-Ir-194m</i> <i>171 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
426	78-Pt-nat	ENDL-78	Oct82/Apr91	GP	NT, GP
427	78-Pt-190 6.5×10¹¹ y	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
428	<i>78-Pt-191</i> <i>2.8 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
429	78-Pt-192	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
430	<i>78-Pt-193</i> <i>50 y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
431	<i>78-Pt-193m</i> <i>4.33 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
432	78-Pt-194	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
433	78-Pt-195	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
434	<i>78-Pt-195m</i> <i>4.02 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
435	78-Pt-196	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
436	<i>78-Pt-197</i> <i>18.3 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
437	78-Pt-198	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
438	<i>79-Au-195</i> <i>196.1 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
439	<i>79-Au-196</i> <i>6.2 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
440	79-Au-197	ENDF/B-6 Rev. 1	Jan84/Jul91	GP ACT	NT, DD, GAM, COV Cross section for the (n,γ) reaction in the 0.2-2.5 MeV region was used as a standard.
441	<i>79-Au-198</i> <i>2.6943 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
442	<i>79-Au-198m</i> <i>2.30 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
443	<i>79-Au-199</i> <i>3.139 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
444	<i>80-Hg-194</i> <i>520 y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
445	<i>80-Hg-195</i> <i>9.5 h</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
446	<i>80-Hg-195m</i> <i>40 h</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
447	80-Hg-196	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
448	<i>80-Hg-197</i> <i>64.1 h</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
449	<i>80-Hg-197m</i> <i>23.8 h</i>	ADL-3	Jan94/	ACT	Only sets of cross-sections given.
450	80-Hg-198	EAF-3	Jul92/	ACT	Only sets of cross-sections given.

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
451	80-Hg-199	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
452	80-Hg-200	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
453	80-Hg-201	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
454	80-Hg-202	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
455	<i>80-Hg-203</i> <i>46.59 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
456	80-Hg-204	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
457	<i>81-Tl-201</i> <i>73.1 h</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
458	<i>81-Tl-202</i> <i>12.23 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
459	81-Tl-203	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
460	<i>81-Tl-204</i> <i>3.78 y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
461	81-Tl-205	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
462	82-Pb-nat	JENDL-3.0	Jul87/	GP	NT, GAM
463	<i>82-Pb-202</i> <i>5.25×10⁴ y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
464	<i>82-Pb-203</i> <i>51.9 h</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
465	82-Pb-204	JENDL-3.0	Jul87/	ACT	NT, GAM
466	<i>82-Pb-205</i> <i>1.5×10⁷ y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
467	82-Pb-206	JENDL-3.0	Jul87/	ACT	NT, GAM
468	82-Pb-207	JENDL-3.0	Jul87/	ACT	NT, GAM
469	82-Pb-208	JENDL-3.0	Jul87/	ACT	NT, GAM
470	<i>82-Pb-209</i> <i>3.253 h</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
471	<i>82-Pb-210</i> <i>22.3 y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given..
472	<i>83-Bi-207</i> <i>31.55 y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
473	<i>83-Bi-208</i> <i>3.68×10⁵ y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
474	83-Bi-209	BROND-2	Nov90/	GP	NT, GAM
475	<i>83-Bi-210</i> <i>5.013 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
476	<i>83-Bi-210m</i> <i>3.0×10⁶ y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
477	<i>84-Po-208</i> <i>2.898 y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
478	<i>84-Po-209</i> <i>102 y</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
479	<i>84-Po-210</i> <i>138.38 d</i>	EAF-3	Jul92/	ACT	Only sets of cross-sections given.
480	<i>88-Ra-223</i> <i>11.43 d</i>	JENDL-3.2	Aug88/	ACT	NT
481	<i>88-Ra-224</i> <i>3.66 d</i>	JENDL-3.2	Aug88/	ACT	NT
482	<i>88-Ra-225</i> <i>14.8 d</i>	JENDL-3.2	Aug88/	ACT	NT
483	<i>88-Ra-226</i> <i>1600 y</i>	JENDL-3.2	Aug88/Nov93	ACT	NT

ACTINIDES

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
1	<i>89-Ac-225</i> <i>10.0 d</i>	JENDL-3.2	Aug88/	MA	NT
2	<i>89-Ac-226</i> <i>29 h</i>	JENDL-3.2	Aug88/	MA	NT
3	<i>89-Ac-227</i> <i>21.773 y</i>	JENDL-3.2	Aug88/	MA	NT
4	<i>90-Th-227</i> <i>18.72 d</i>	JENDL-3.2	Aug88/Jun94	MA	NT
5	<i>90-Th-228</i> <i>1.913 y</i>	JENDL-3.2	Jun87/Jun94	MA	NT
6	<i>90-Th-229</i> <i>7 880 y</i>	JENDL-3.2	Aug88/Jun94	MA	NT
7	<i>90-Th-230</i> <i>7.54×10⁴ y</i>	JENDL-3.2	Jul87/Jun94	MA	NT
8	90-Th-232 <i>1.405×10¹⁰ y</i>	ENDF/B-6	Dec77/	GP	NT, GAM, COV
9	<i>90-Th-233</i> <i>22.3 m</i>	JENDL-3.2	Jul87/Jun94	MA	NT
10	<i>90-Th-234</i> <i>24.10 d</i>	JENDL-3.2	Jul87/Jun94	MA	NT
11	<i>91-Pa-231</i> <i>3.276×10⁴ y</i>	FOND-2.2	Mar87/Aug96	GP	NT Modification of capture cross-section for JENDL-3.2 evaluation.
12	<i>91-Pa-232</i> <i>1.31 d</i>	JENDL-3.2	Aug88/Jun94	MA	NT
13	<i>91-Pa-233</i> <i>27.0 d</i>	FOND-2	May78/	GP	NT, Modification of ENDF/B-5 evaluation.
14	<i>92-U-232</i> <i>68.9 y</i>	JENDL-3.2	Mar87/Mar94	GP	NT
15	<i>92-U-233</i> <i>1.592×10⁵ y</i>	BROND-2	Mar90/Jun90	GP	NT
16	92-U-234 <i>2.455×10⁵ y</i>	FOND-2	Jul78/	GP	NT, DD Modification of ENDF/B-5 evaluation.
17	92-U-235 <i>7.038×10⁸ y</i>	ENDF/B-6 Rev. 2	Nov89/Feb93	GP	NT, GAM, COV Cross-section for the (n, fis) reaction in the 100 keV-20 MeV energy region recommended as a standard.
18	<i>92-U-236</i> <i>2.342×10⁷ y</i>	ENDF/B-6	Oct89/	GP	NT, DD
19	<i>92-U-237</i> <i>6.72 d</i>	JENDL-3.2	Mar93/	MA	NT
20	92-U-238 <i>4.468×10⁹ y</i>	BROND-2	Jan80/Feb93	GP	NT, DD Cross-section for the (n, fis) reaction in the energy region up to 20 MeV recommended as a standard.
21	<i>93-Np-236</i> <i>1.54×10⁵ y</i>	JENDL-3.2	Mar93/	MA	NT
22	<i>93-Np-237</i> <i>2.144×10⁶ y</i>	JENDL-3.2	Nov87/Apr00	GP	NT, DD Modification of the data for the (n,3n) reaction.
23	<i>93-Np-238</i> <i>2.117 d</i>	JENDL-3.2	Mar93/	MA	NT
24	<i>93-Np-239</i> <i>2.355 d</i>	ENDF/B-6	Dec88/	GP	NT

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
25	<i>94-Pu-236</i> <i>2.858 y</i>	ENDF/B-6	Apr78/	MA	NT, DD
26	<i>94-Pu-237</i> <i>45.2 d</i>	ENDF/B-6	Apr78/	MA	NT, DD
27	<i>94-Pu-238</i> <i>87.74 y</i>	BROND-2	Feb87/Feb93	MA	NT
28	<i>94-Pu-239</i> <i>2.411×10⁴ y</i>	FOND-2	Mar87/Nov98	GP	NT, GAM Modification of JENDL-3 evaluation: data from the LIPAR-5 library adopted in the energy region below 200 eV.
29	<i>94-Pu-240</i> <i>6 563 y</i>	FOND-2	Dec80/Jan93	GP	NT, GAM Modification of BROND-2 evaluation.
30	<i>94-Pu-241</i> <i>14.35 y</i>	FOND-2	Feb79/Jan93	GP	NT, GAM Modification of BROND-2 evaluation.
31	<i>94-Pu-242</i> <i>3.750×10⁵ y</i>	BROND-2	Dec80/Apr91	GP	NT, GAM
32	<i>94-Pu-243</i> <i>4.956 h</i>	ENDF/B-6	Jul76/	MA	NT, DD, GAM
33	<i>94-Pu-244</i> <i>8.00×10⁷ y</i>	ENDF/B-6	Apr78/	MA	NT, DD
34	<i>95-Am-241</i> <i>432.2 y</i>	BROND-3	Feb97/Apr00	GP	NT, DD, GAM, COV Correction made to isomeric ratio for capture cross-section.
35	<i>95-Am-242</i> <i>16 h</i>	JENDL-3.2	Mar80/	GP	NT
36	<i>95-Am-242m</i> <i>141 y</i>	BROND-2	Oct90/Dec98	GP	NT Modification of BROND-2 evaluation.
37	<i>95-Am-243</i> <i>7 370 y</i>	JENDL-3.2	Mar88/	GP	NT
38	<i>95-Am-244</i> <i>10.1 h</i>	JENDL-3.2	Mar88/	MA	NT
39	<i>95-Am-244m</i> <i>26 m</i>	JENDL-3.2	Mar88/	MA	NT
40	<i>96-Cm-241</i> <i>32.8 d</i>	JENDL-3.2	Mar89/	MA	NT
41	<i>96-Cm-242</i> <i>162.94 d</i>	JENDL-3.2	Mar89/	MA	NT
42	<i>96-Cm-243</i> <i>29.1 y</i>	JENDL-3.2	Mar89/	MA	NT
43	<i>96-Cm-244</i> <i>18.10 y</i>	JENDL-3.2	Mar89/	MA	NT
44	<i>96-Cm-245</i> <i>8 500 y</i>	JENDL-3.2	Mar89/Sep92	MA	NT
45	<i>96-Cm-246</i> <i>4 730 y</i>	JENDL-3.2	Mar87/	MA	NT
46	<i>96-Cm-247</i> <i>1.56×10⁷ y</i>	JENDL-3.2	Mar89/	MA	NT
47	<i>96-Cm-248</i> <i>3.40×10⁵ y</i>	JENDL-3.2	Mar84/	MA	NT
48	<i>96-Cm-249</i> <i>64.15 m</i>	JENDL-3.2	Mar84/Sep92	MA	NT
49	<i>96-Cm-250</i> <i>~9700 y</i>	JENDL-3.2	Aug87/Jul94	MA	NT
50	<i>97-Bk-249</i> <i>320 d</i>	ENDF/B-6	Jun86/	MA	NT

No.	NUCLIDE	SOURCE	EVAL/REV	STATUS	Composition of data and brief comments
51	<i>97-Bk-250</i> <i>3.217 h</i>	JENDL-3.2	Mar87/	MA	NT
52	<i>98-Cf-249</i> <i>350.6 y</i>	ENDF/B-6	Apr89/	MA	NT
53	<i>98-Cf-250</i> <i>13.08 y</i>	ENDF/B-6	Jul76/	MA	NT, DD, GAM
54	<i>98-Cf-251</i> <i>898 y</i>	ENDF/B-6	Jul76/	MA	NT, DD, GAM
55	<i>98-Cf-252</i> <i>2.645 y</i>	ENDF/B-6	Jul76/Aug91	MA	NT, DD, GAM
56	<i>98-Cf-253</i> <i>17.81 d</i>	ENDF/B-6	Dec75	MA	NT
57	<i>98-Cf-254</i> <i>60.5 d</i>	JENDL-3.2	Aug87/Jun94	MA	NT
58	<i>99-Es-253</i> <i>20.47 d</i>	ENDF/B-6	Jul76/	MA	NT
59	<i>99-Es-254</i> <i>275.7 d</i>	JENDL-3.2	Aug87/Jun94	MA	NT
60	<i>99-Es-255</i> <i>39.8 d</i>	JENDL-3.2	Aug87/Jun94	MA	NT
61	<i>100-Fm-255</i> <i>20.1 h</i>	JENDL-3.2	Aug87/Jun94	MA	NT

Availability of data

The latest release of the Library is available from the Sectoral Fund for Algorithms and Programs at the following address:

Institute for Physics and Power Engineering, Sectoral Fund for Algorithms and Programs,
Bondarenko Square 1, Kaluga Region, 249033, Russia
(Web: <http://ultra.ippe.obninsk.ru:8097>;
E-mail: ofap@ippe.rssi.ru, with copy of the request to abbn@ippe.rssi.ru).

The 1999 release of FOND-2.2 Library is available online from IAEA Nuclear Data Section Web server (<http://www-nds.iaea.org/reports/nds-199.pdf>) through hyperlink to data in this report or on CD-ROM on the request.

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