

NUCLEAR DATA SERVICES

DOCUMENTATION SERIES OF THE IAEA NUCLEAR DATA SECTION

IAEA-NDS-0025 Rev. 2

ENDF/B-5

Fission Products Library Revision 2

Summary Documentation

Abstract

This document summarizes contents and documentation of the 1984 version of the Fission Products Nuclear Data File of the ENDF/B-5 Library (Rev. 2) maintained by the National Nuclear Data Center (NNDC) at the Brookhaven National Laboratory, USA. This file contains numerical neutron reaction data and decay data for 877 fission product nuclides. The entire file or selective retrievals from it can be obtained on magnetic tape from the IAEA Nuclear Data Section.

0. Schwerer, V.G. Pronyaev, H.D. Lemmel October 1981, Revised July 1984

Revised by P.K.McLaughlin IAEA/NDS Jan. 2005

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.

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Note:

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Citation guideline:

ENDF/B-5 Fission Products Library Revision 2

Contents of present document:

I. Introduction

- II. Index of the 28 fission product evaluations from ENDF/B-5 General Purpose File, ("EN5-FP1")
- III. Index of the 877 materials ("EN5.2-FP2")

I. INTRODUCTION

The fission products part of the ENDF/B-5 Library includes neutron reaction data (cross sections and various differential data) and decay data for 877 nuclides. The data available from the IAEA Nuclear Data Section are given in 2 separate files:

- 1) 28 fission product nuclides from the ENDF/B-5 General Purpose File. These are complete evaluations of all relevant neutron-induced reactions plus some decay data. This file will be abbreviated in this document by 'EN5-FP1'.
- 2) the ENDF/B-5 Fission Product File consisting of 877 nuclides (metastable states are counted as different nuclides). For these, some neutron reaction data (but no

complete

evaluations) and/or decay data are given. Of this file, four materials containing

decay

data only, were revised; the revisions were distributed in March 1984. These revised materials are MAT 9279 (42-Mo-93g), 9607 (53-I-128g), 9869 (66-Dy-165g), 9870 (66-Dy-165m). This file, updated by these four materials, is referred to in this document as 'EN5.2-FP2'.

The differences between the two files 'EN5-FP1' and 'EN5.2-FP2' are summarized on the table on the following page. Note, that the 28 nuclides, of 'EN5-FP1' are also included in 'EN5.2-FP2', but with different data-types.

For 13 isotopes of Zr, Ba, Gd, Dy no data are available in either of the two files.

Available: Both parts of the ENDF/B-5 Fission Products Library are available

- in the original form containing resonance-parameters where applicable;
- in "RECENT output" form, where NDS converted resonance-parameters to cross-section data;
- in "edited" form convenient for reading of listings but not suitable for computer processing.

ENDF/B-5 (Rev. 2) Fission Product Data Main features of the 2 sub-files EN5-FP1 and EN5-FP2

	EN5-FP1	EN5. 2-FP2
Official Name of File	General Purpose Fission Product Data (from ENDF/B-V General Purpose File)	ENDF/B-V Fission Product File
Date of distribution	April 1979	Original version July 1980, Rev. 2 March 1984
No. of materials	28	877 MAT numbers, for 34 of them no data are given
Contents	Complete evaluations of all relevant n-induced reactions. For 6 materials, also decay data are given	Some cross sections(& differentia data) and/or decay data
MAT. NO.S	4 digits, starting with <u>1</u>	4 digits, starting with 9
Common materials:	All 28 materials from EN5-FP1 occur also (and uncorrelated) MA	in EN5.2-FP2, but with different AT numbers
Materials common to General Purpose File: Contents		No cross sections. For 21 materiagiven in EN5-FP1, only a referenceto EN5-FP1 is given. For the 6materials having decay data inEN5-FP1 plus one additionalmaterial decay data are given. *)
Total no. of records	31486	105 140
ENDF tape nos.	509, 510	566 (March 1984 modifications)
Documentation	ENDF-201, 3rd ed. (July 1979). Extensive documentation at the beginning of each material.	Short documentation at the beginning of each material

ENDF/B format

A complete description of the ENDF/B format, including all physical definitions required for the processing of more complicated data types (e.g. differential data) is given in the report BNL-NCS-50496 (ENDF-102)

- 2nd edition (Oct. 1975) for ENDF/B-4
- 3rd edition (1980) for ENDF/B-5.

For quick reference of the ENDF/B format (File Numbers and Reaction Type Numbers of the most important data types) see the document IAEA-NDS-10.

Note: Listings of all ENDF/B format data can also be requested in "edited format". Such listings provide all necessary quantity headings, units, etc. and are self-explanatory.

II. Description of the 28 fission product evaluations from ENDF/B-5 General Purpose File (EN5-FP1)

extracted from the report BNL-NCS-17541 (ENDF-201)t 'ENDF/B Summary Documentation 3rd edition July 1979 compiled by R. Kinsey.

Key to lab codes

BNL Brookhaven National Laboratory, USA

ANL -Argonne National Laboratory, USA

LLL -Lawrence Livermore Laboratory, USA

BAW -Babcock and Willcox, USA

HEDL- Hanford Engineering and Development Laboratory, USA

INEL- Idaho Nuclear Engineering Laboratory, USA

RCN -Netherlands Energy Research Foundation, Netherlands

			Date of	
			evaluation	
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	No.		evaluation	
36-Kr- 78	1330	BNL	Dec78	A. Prince
36-Kr- 80	1331	BNL	Dec78	A. Prince
36-Kr- 82	1332	BNL	Dec78	A. Prince
36-Kr- 83	1333	BNL	Dec78	A. Prince
36-Kr- 84	1334	BNL	Apr78	A. Prince
36-Kr- 86	1336	BNL	Jun75	A. Prince
41-Nb- 93	1189	ANL,LLL	May74	R. Howerton(LLL) and A. Smith
43-Tc- 99	1308	HEDL,BAW	Nov78	Schenter, Livolsi, Schmittroth et al.
45-Rh-103	1310	HEDL,BAW	Nov78	Schenter, Livolsi, Schmittroth et al.
47-Ag-107	1371	HEDL,BNL	Nov78	Schenter, Bhat, Prince, Johnsont et al.
47-Ag-109	1373	HEDL,BNL	Nov78	Schenter, Bhat, Prince, Johnsont et al.
48-Cd-113	1318	BNL,HEDL	Nov78	Pearlstein, Mann, Schenter
54-Xe-124	1335	BNL	Mar78	M.R.Bhat and S.F. Mughabghab
54-Xe-126	1339	BNL	Mar78	M.R.Bhat and S.F. Mughabghab
54-Xe-128	1348	BNL	Mar78	M.R.Bhat and S.F. Mughabghab
54-Xe-129	1349	BNL	Mar78	M.R.Bhat and S.F. Mughabghab
54-Xe-130	1350	BNL	Mar78	M.R.Bhat and S.F. Mughabghab
54-Xe-131	1351	BNL	Mar78	M.R.Bhat and S.F. Mughabghab
54-Xe-132	1352	BNL	Mar78	M.R.Bhat and S.F. Mughabghab
54-Xe-134	1354	BNL	Mar78	M.R.Bhat and S.F. Mughabghab
54-Xe-135	1294	BNW	May75	B.R.Leonard, Jr. and K.B.Stewart
54-Xe-136	1356	BNL	Mar78	M.R.Bhat and S.F. Mughabghab
55-Cs-133	1355	HEDL,BNL	Nov78	Schenter,Bhat,Prince,Johnsont et al.
62-Sm-149	1319	HEDL,BNW	Nov78	Schenter,Leonard,Stewart, et al.
63-Eu-151	1357	BNL	Dec77	S.F. Mughabghab
63-Eu-152	1292	BNL	Jun75	H. Takahashi
63-Eu-153	1359	BNL	Feb78	S.F. Mughabghab
<u>63-Eu-154</u>	1293	BNL	Jun75	H. Takahashi

III. Index of the 877 materials included in the file EN5.2-FP2

Key to lab codes (see page 4).

The "DATE" given in col. 5 is the date of evaluation or last revision as extracted from the file by computer. (Note that the date of the last revision was apparently not updated in some cases; compare last column).

Only data for materials with MAT=9279 (42-Mo-93g), 9607 (53-I-128g), 9869 (99-Dy-165g), 9870 (66-Dy-165m) and containing decay data were revised.

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LAB	HEDL, INEL	HEDL	HEDL	INEL	HEDL, INEL	INEL	INEL	INEL	HEDL	HEDL	HEDL	HEDL	HEDL	HEUL	HEDL		INEL	INEL	HEDI TNEI	INEL	INEL	INEL	TNFI	INEL	INEL	HEDL	HEDL	HEDL	HEDL	HEDL	HEDL, INEL
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AUTHOR	CHENTER, SCHMITTROTH, AND REICH M. MANN, AND F. SCHMITTROTH, AND REICH M. MANN, AND F. SCHMITTROTH, AND REICH REICH REICH REICH REICH REICH M. MANN AND F. SCHMITTROTH REICH M. MANN AND F. SCHMITTROTH F. M. MANN AND F. SCHMITTROTH F. M. MANN AND F. SCHMITTROTH M. MANN AND F. SCHMITTROTH F. M. MANN AND F. SCHMITTROTH F. SCHENTER AND F. SCHMITTROTH R. E. SCHENTER AND F. SCHMITTROTH F. M. MANN AND
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AUTHOR	F. M. MANN AND F. SCHMITTROTH M. MANN AND F. SCHMITTROTH M. MANN AND F. SCHMITTROTH SCHENTER, SCHMITTROTH SCHENTER, SCHMITTROTH SCHENTER, SCHMITTROTH, AND REICH SCHENTER, SCHMITTROTH, AND REICH SCHENTER, SCHMITTROTH, AND REICH SCHENTER, SCHMITTROTH M. MANN AND F. SCHMITTROTH M. MANN AND F. SCHMITTROTH F. M. MANN AND F. SCHMITTROTH F.
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INTERNATIONAL ATOMIC ENERGY AGENCY NUCLEAR DATA SERVICES

DOCUMENTATION SERIES OF THE IAEA NUCLEAR DATA SECTION

IAEA-NDS-0025 Rev.2/Suppl.

1986 Modifications

A modification to the ENDF/B-5 fission product files was received in 1986. It contained:

1. New evaluations

for 47-Ag-107 MAT 1407 replacing MAT 1371 for 47-Ag-109 MAT 1409 replacing MAT 1373

 <u>Minor modifications</u> (not affecting the numerical data) 43-Tc-99 MAT 1308 Mod. 2
 54-Xe-132 MAT 1352 Mod. 2
 54-Xe-135 MAT 1294 Mod. 1
 63-Eu-152 MAT 1292 Mod. 2
 63-Eu-154 MAT 1293 Mod. 1

A computer-produced listing of the differences between the old versions and the new modified versions of the files is contained in the document IAEA-NDS-0065.

(H.D. Lemmel, May 1986)