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INTERNATIONAL ATOMIC ENERGY AGENCY

NUCLEAR DATA SERVICES

DOCUMENTATION SERIES OF THE IAEA NUCLEAR DATA SECTION

# ENDF/B-5 (Revision 2) Dosimetry File

## Summary of Contents and Documentation

**Abstract**

This document summarizes the contents and documentation of the ENDF/B-5 (Rev. 2) Dosimetry File released in October 1979 and modified in August 1981 and March 1984. The file contains data for 36 neutron reactions of 26 isotopes which are used for neutron flux dosimetry by foil activation. The entire file or selective retrievals from it can be obtained free of charge from the IAEA Nuclear Data Section.

N. DayDay, H.D. Lemmel, V.G. Pronyaev

Rev. 1 - September 1981
Rev. 2 - July 1984

# ENDF/B-V Dosimetry File

Point and Group Data

## CONTENTS

This evaluated data file contains neutron cross-sections for foil materials that are used for neutron flux dosimetry by foil activation.

The first version of the ENDF/B-V Dosimetry File was released in October 1979 by the National Nuclear Data Center (NNDC) at the Brookhaven National Laboratory, USA. In August 1981 data for ten nuclides were modified and one reaction was added. In March 1984 a new revision (Rev. 2) of the ENDF/B-V Dosimetry File was released. The list of all important modifications corresponding to the Revision 2 of the ENDF/B-V Dosimetry File is given in the Appendix. Included are now data for 36 neutron reactions of 26 isotopes as listed in the table of contents.

The file is available in the ENDF/B-5 normal format (internal library name EN5.2DOS) on tape or printed listing.

The cross-sections are given as resonance parameters in the resonance region and as point data above. The energy range is from $10^{-5}$ eV resp. from threshold up to 20 MeV.

## FORMAT

The ENDF/B-5 format is documented in ENDF-102, 2nd ed., Oct. 1979 (BNL-NCS-50496), rev. by R. Kinsey, available as microfiche IAEA-NDS-10/102.

For quick reference of the ENDF/B format (file numbers and reaction type numbers of the most important data types) refer to document IAEA-NDS-10.

## DOCUMENTS

B.A. Magurno; ENDF/B Dosimetry File for version V, Neutron Cross Sections for Reactor Dosimetry, IAEA-208, Vol. I, pp. 375-394

S.F. Mughabghab; Evaluation of the capture cross section of Au-197, ibid pp. 395-406

M. Divadeenam; Ni-58(n,p), (n,2n) and Ni-60(n,p) evaluation for ENDF/B-V, ibid, pp. 407-423

R. Kinsey; ENDF/B Summary Documentation, BNL-NCS-17541 (ENDF-201), 3rd edition (ENDF/B-V), July 1979

P.G. Young (comp.); Summary documentation of LASL nuclear data evaluations for ENDF/B-V, LA-7663-MS, January 1979

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| Isotope | Data Type | Mat. No. | Version (NMOD of material date of release) |
|---|---|---|---|
| 3-Li-6 | (n,Total He) | 6424 | Mod. 2, 84/3 |
| 5-B-10 | (n,Total He) | 6425 | Mod. 2, 84/3 |
| 11-Na-23 | (n,γ) | 6311 | 79/9 |
| 13-Al-27 | (n,p),(n,α) | 6313 | 79/9 |
| 16-S-32 | (n,p) | 6439 | 81/8 |
| 21-Sc-45 | (n,γ) | 6426 | Mod. 2, 84/3 |
| 22-Ti-46 | (n,p) | 6427 | Mod. 2, 81/8 |
| 22-Ti-47 | (n,np),(n,p) | 6428 | Mod. 2, 84/3 |
| 22-Ti-48 | (n,np),(n,p) | 6429 | Mod. 2, 81/8 |
| 25-Mn-55 | (n,2n) | 6325 | 79/9 |
| 26-Fe-54 | (n,p) | 6430 | Mod. 3, 84/3 |
| 26-Fe-56 | (n,p) | 6431 | 79/9 |
| 26-Fe-58 | (n,γ) | 6432 | Mod. 2, 81/8 |
| 27-Co-59 | (n,γ),(n,α),(n,2n) | 6327 | Mod. 2, 84/3 |
| 28-Ni-58 | (n,2n),(n,p) | 6433 | Mod. 3, 84/3 |
| 28-Ni-60 | (n,p) | 6434 | Mod. 2, 81/8 |
| 29-Cu-63 | (n,γ),(n,α) | 6435 | Mod. 2, 84/3 |
| 29-Cu-65 | (n,2n) | 6436 | 79/9 |
| 49-In-115 | (n,n'),(n,γ) | 6437 | Mod. 3, 84/3 |
| 53-I-127 | (n,2n) | 6438 | Mod. 2, 81/8 |
| 79-Au-197 | (n,γ) | 6379 | Mod. 2, 84/3 |
| 90-Th-232 | (n,f),(n,γ) | 6390 | Mod. 2, 84/3 |
| 92-U-235 | (n,f) | 6395 | Mod. 2, 84/3 |
| 92-U-238 | (n,f),(n,γ) | 6398 | Mod. 3, 84/3 |
| 93-Np-237 | (n,f) | 6337 | Mod. 3, 84/3 |
| 94-Pu-239 | (n,f) | 6399 | Mod. 2, 84/3 |

## APPENDIX

The following modifications have been introduced in the ENDF/B-V (Rev. 2) Dosimetry File in comparison to Rev. 1 version:

- resonance parameters and/or cross-sections were completely revised for materials 6337 (93-Np-237), 6390 (90-Th-232), 6398 (92-U-238), 6437 (49-In-115);

- covariances of resonance parameters or cross-sections were revised for materials 6395 (92-U-235), 6399 (94-Pu-239), 6424 (3-Li-6), 6425 (5-B-10), 6435 (29-Cu-63);

- small corrections of the cross-sections near threshold or for a few energy points were introduced for materials 6327 (27-Co-59), 6379 (79-Au-197), 6426 (21-Sc-45), 6428 (22-Ti-47), 6430 (26-Fe-54), 6433 (28-Ni-58).