INTERNATIONAL ATOMIC ENERGY AGENCY

NUCLEAR DATA SERVICES

DOCUMENTATION SERIES OF THE IAEA NUCLEAR DATA SECTION

IAEA-NDS-88
Rev. 4, Feb 2002

ENDF/B-6 Standards Library 1987

by the U.S. National Nuclear Data Center

Summary of contents and documentation

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Abstract: The ENDF/B-6 Standards Library includes evaluated data for seven neutron reactions that are internationally recommended as reference standards for nuclear measurements. The reactions are H-1(n,n), He-3(n,p), Li-6(n,t), B-10(n,α), C(n,n), Au(n,γ), U-235(n,f). The data are available on CD-ROM from the IAEA Nuclear Data Section, free of charge on request or can be downloaded from link below.

ENDF/B-VI Standard Cross Sections

ENDF/B-VI Standards Uncertainties

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Online: TELNET or FTP: iaeand.iaea.or.at
username: IAEANDS for interactive Nuclear Data Information System
usernames: ANONYMOUS for FTP file transfer;
FENDL2 for FTP file transfer of FENDL-2.0;
RIPL for FTP file transfer of RIPL;
NDSONL for FTP access to files sent to NDIS "open" area.
Web: http://www-nds.iaea.or.at

Note:

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IAEA-NDS-reports are updated whenever there is additional information of relevance to the users of the data library.

For citations care should be taken that credit is given to the author of the data library and/or to the data center which issued the data library. The editor of the IAEA-NDS-report is usually not the author of the data library.

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Citation guidelines:

ENDF/B-6 Standards Library 1987

Summary of contents and documentation

This library was issued in October 1987 by the US National Nuclear Data Center at the Brookhaven National Laboratory (C.L. Dunford) on behalf of the US Cross-Section Evaluation Working Group. The International Nuclear Data Committee endorsed it for use as international reference standard for nuclear measurements. The data were included in the 1991 NEANDC/INDC Nuclear Standards File which was published and reviewed in the report NEANDC-311 (1992), H. Condé (ed.): Nuclear Data Standards for Nuclear Measurements.

The ENDF/B-6 standards supersede the ENDF/B-5 standards which were also included in the IAEA Technical Report No. 227: "Nuclear Data Standards for Nuclear Measurements".

The library has two files. The first is in ENDF-6 format which is documented in IAEA-NDS-76. The second file is in a free format. File 1 has 614 records, File 2 has 836 records.

The first file contains the cross-sections for seven reactions that are recommended as standards. The second file repeats some of these data together with cross-section uncertainties. It also gives values and uncertainties for cross-sections at 0.0253 eV (2200 m/s) for the main fissile isotopes.

Note: For the further development of the ENDF/B-6 Standards Library see the paper by W.P. Poenitz and A.D. Carlson: "The database of the standards and related cross-sections after ENDF/B-6," International Symposium on Nuclear Data Evaluation Methodology, Brookhaven, USA, 12-16 Oct. 1992, Proceedings by World Scientific, p. 75-87.

Table of contents

File 1

MAT	nuclide	MF/MT	reaction	No. of records
125	1-H-1	3/2 4/2	(n,n) (n,n)dσ/dΩ	264
225	2-He-3	3/103	(n,p)	32
325	3-Li-6	3/105	(n,t)	56
525	5-B-10	3/800 3/801	(n,α_{0+1}) (n,α_1)	59
600	6-C	3/2 4/2	(n,n) (n,n)dσ/dΩ	112
7925	79-Au-197	3/102	(n,γ)	38
9228	92-U-235	3/18	(n,f)	53

File 2

cross-sections and uncertainties for

3-Li-6(n,t)
3-Li-6(n,n)
5-B-10(n,α)
5-B-10(n,α_1)
5-B-10(n,n)
79-Au-197(n,γ)
92-U-235(n,f)

and values at 0.025 eV (2200 m/s) for

92-U-233, 235
94-Pu-239, 241
nu-bar of 98-Cf-252

References

MAT	nuclide	evaluated by	lab
125	1-H-1	Dodder, Hale unpublished	LANL
225	2-He-3	Hale unpublished	LANL
325	3-Li-6	Carlson, Hale, Peelle, Poenitz unpublished	NBS
525	5-B-10	Carlson, Hale, Peelle, Poenitz unpublished	NBS
600	6-C	C.Y. Fu, F.G. Perey BNL-NCS-51619	ORNL
7925	79-Au-197	Carlson, Hale, Peelle, Poenitz unpublished	NBS
9228	92-U-235	Carlson, Hale, Peelle, Poenitz unpublished	NBS

The 0.0253 eV values of the data for the main fissile isotopes are based on E.J. Axton's evaluation (European Applied Research Reports Nr. 5, 609, 1984) but deviate from these slightly.