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IAEA Nuclear Data Section (NDS)
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WRENDA 81/82
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The World Request List for Nuclear Data Measurements, has been issued as report INDC(SEC)-78. This document lists nuclear reactions, mostly neutron reactions but also charged-particle reactions or half-lives, for which existing data have insufficient accuracy as to meet the requirements in the physics of fission reactors, safeguards and nuclear fusion. The requests included have been submitted by official bodies such as national nuclear data committees and serve as a guide to nuclear physicists and administrators when planning nuclear data measurement and evaluation programs.

Data indexes and bibliographies
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CINDA-81, the data index of neutron reaction data, has been published in 2 volumes in May and November 1981 (price: 580.- AS). The 1982 issue is in preparation. CINDA, like other IAEA publications, can be purchased from the IAEA Division of Publications or, at reduced price (290.- AS), through the Mission of your country at the IAEA. (A limited number of copies was distributed free of charge.) The present issues of CINDA cover the period from 1977 onwards. The earlier period (1935 to 1976) is included in the archival issue CINDA-A, which is still available (1050.- AS). In addition to the published CINDA books, up-to-date selective computer retrievals from the CINDA file, or tape copies of the entire file can be sent, cost free, upon request.

The Bibliography of integral charged-particle nuclear data was published by the US National Nuclear Data Center as BNL-NCS-50640, Fourth Edition, Supplement 1, March 1981. A limited number of copies is available free of charge. This is a supplement to the cumulative 1980 issue, BNL-NCS-50640, Fourth Edition, which can be purchased from the US National Technical Information Service, Springfield, USA-22161. This bibliography, or selective retrievals from it, is also available on magnetic tape, costfree, upon request.

Photonuclear data: An index to the literature published in 1980, was published by the USSR Photonuclear Data Center at the Moscow State University. A small number of copies is available free of charge.

An Index of Nuclear Data Libraries available from the IAEA Nuclear Data Section was issued as IAEA-NDS-7, Rev.1, Feb. 1982, edited by H.D. Lemmel. This index lists very briefly contents and documentation of the data libraries available. For most of the libraries more detailed documentation exists now within the IAEA-NDS-documentation series. Please contact us for more detailed information.

New nuclear data libraries received

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IAEA Nuclear Data Library, INDL/V: The IAEA Nuclear Data Section has started a library of evaluated neutron reaction data in ENDF/B-5 format. See document IAEA-NDS-31 for details and contents. This library is a collection of various evaluations from different origin. Those evaluations, for which the ENDF/B format was not found suitable, are included in the EXFOR-VIEN library; see document IAEA-NDS-34 for its contents.

Neutron dosimetry: The first version of the International Reactor Dosimetry File (IRDF-82) has been assembled in ENDF/B-5 format and documented by D.E. Cullen, N. Kocherov, P.M. McLaughlin in the document IAEA-NDS-41, Jan. 1982. The first part of the file contains recommended values of 48 neutron reactions in 38 materials that are used in neutron dosimetry by foil activation. The data were taken from ENDF/B-V Mod.1 and INDL/V. The second part of the file contains data for 10 benchmark neutron spectra. The documentation contains graphical plots of the data and tables of spectrum-averaged cross-sections derived. Magnetic tape and documentation are available upon request, free of charge.

The ENDF/B-V library of dosimetry reactions, originally issued in 1979, has been revised in 1981 (Mod.1), and the group data file was computed with a corrected version of the code RECENT. The new version was included in IRDF-82. Recipients of the 1979 version have been informed directly.

Radiation damage, gas production: A file of neutron cross-sections for gas production as retrieved from the ENDF/B-V library, containing data for 18 elements or isotopes, is available on magnetic tape or on microfiche. Its contents is summarized in the document IAEA-NDS-42.

Neutron threshold reactions: The USSR Nuclear Data Center at Obninsk issued an evaluated nuclear data library of 142 neutron-induced threshold reactions, BOSPOR-80. Recommended cross-sections for (n,p), (n, α) and (n,2n) reactions are given in steps of 0.1 MeV from threshold up to 20 MeV. The evaluation is based on the review by V.M. Bychkov, V.N. Manokhin, A.B. Pashchenko, V.I. Pljaskin: Cross-Sections for the (n,p), (n, α) and (n,2n) Threshold Reactions, report INDC(CCP)-146, translated into English by IAEA, July 1980, from Russian originals published in Jadernye Konstanty (1979). This library is being converted at IAEA into ENDF/B-5 format to be included in INDL/V (see above).

Threshold and Q values of nuclear reactions induced by neutrons, protons, deuterons, tritons, He-3 ions, alpha particles, and photons. By R.J. Howerton, March 1981, UCRL-50400 vol.24. Available as a set of 14 microfiches. The evaluation is based on the 1977 Wapstra and BOS nuclear mass data tables (At. Data and Nucl. Data Tables 19, 1977).

Neutron activation cross-sections: The ENDF/B-5 activation file with data for 69 nuclides is available on magnetic tape or on microfiche. Its contents is summarized in the document IAEA-NDS-38.

Resonance Integrals for neutron capture and fission reactions for all elements and isotopes, a compilation by E.M. Gryntakis and J.I. Kim, version of August 1981, superseding earlier versions. Available on magnetic tape.

SPOTS 4: Group data library and computer code preparing ENDF/B-4 data for input to LEOPARD, by Jung-Do Kim and Jong Tai Lee. Available on magnetic tape. Documentation: IAEA-NDS-36.

Neutron scattering lengths, a compilation with detailed introduction by L. Koester and H. Rauch (IAEA-Contract 2517), July 1981. Available on magnetic tape. A wall-chart of neutron scattering lengths can be purchased from H. Bittermann, Atominstitut, Schuettelstr. 115, A-1020 Wien, Austria, for 25 US\$.

Fission-Product Data: The Japanese Nuclear Data Committee issued the following reports with tabular data.
JAERI-M-9357 (1981). T. Yamamoto et al: JNDC Fission-Product Decay Data.
JAERI-M-9715 (1981). H. Ihara et al: JNDC FP Decay and Yield Data.
Evaluated Nuclear Structure Libraries ENSL and CDRL, by R.J. Howerton.
Documentation: IAEA-NDS-37.

Data handling and processing codes
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ENSDF-PPC: Physics processing codes for the Evaluated Nuclear Structure Data File, ENSDF, are available on magnetic tape. A summary, together with information on A-chain evaluations and ENSDF Dictionaries, is included in IAEA-NDS-40.

FEDGROUP-3: P. Vértes, Budapest, report KFKI-1981-34. Version 3 of the program system FEDGROUP for processing evaluated nuclear data in ENDF/B, KEDAK or UKNDL format to constants to be used in reactor physics calculations.

ENDF/B format: The differences between the formats of ENDF/B-4 and ENDF/B-5 are described in the report BNL-NCS-28949 Supplement (Nov. 1980).

S. Pearlstein: Supplement to the ENDF/B-V formats and procedures Manual for using ENDF/B-IV data.

ENDF/B processing codes: See document IAEA-NDS-39 by D.E. Cullen for a summary of ENDF/B Pre-processing codes. Users of the codes RESEND/RECENT should check back with us whether they use the correct version.

Selected new publications of interest
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** = document available from IAEA/NDS
* = limited number of copies available from IAEA/NDS
- = available from the originator, or the INIS Microfiche Service (IAEA, P.O. Box 100, A-1400 Vienna, Austria)
o = to be purchased from publisher

* Karlsruhe Chart of Nuclides, 5th edition, Nov. 1981, by W. Seelmann-Eggebert et al., quoting for the 287 natural nuclides isotopic abundance and thermal neutron cross-sections, and for nearly 2500 radionuclides and isomers decay-modes and, usually, half-life and radiation energies. Available as wall chart, or as desk copy with a report containing tables with basic data such as physics constants, standards for α , β , and γ energies, half-lives, conversion tables of units, etc.

** INDC(NDS)-127, Dec. 1981: Proposed Recommended List of Heavy Element Radionuclide Decay Data. Part I: Half-lives. Part II: Alpha spectra. A. Lorenz, editor.

** INDC(CCP)-166, 1981, G.V. Antsipov et al.: Nuclear Data Evaluation for Pu-239.

** INDC(FR)-42, 1980, H. Derrien et al.: Evaluation of Np-237 Neutron Cross-Sections.

** INDC(ROM)-12, 1980, G. Vasiliu et al.: Nuclear Data Evaluation for Pa-233.

- ** INDC(IND)-28, 1981, S. Ganesan et al.: Evaluation of Resonance Parameters for U-233.
- o Neutron Cross-Sections, Vol.1 Neutron Resonance Parameters and Thermal Cross-Sections, Part A: Z = 1-60, by S.F. Mughabghab, M. Divadeenam, N.E. Holden. Academic Press 1981, New York, London. This is the first part of the new edition of the handbook known under its former report code "BNL-325".
- o Handbooks on "The Stopping and Ranges of Ions in Matter": In this series edited by J.F. Ziegler, two more volumes have been published by Pergamon Press:
 - vol. 5: Stopping cross sections for energetic ions in all elements.
 - vol. 6: Range distributions for energetic ions in all elements.
 For the earlier volumes see IAEA Nuclear Data Newsletter No. 3.
- o Nuclear Reactions in Heavy Elements. A data handbook by V.M. Gorbachev et al., published by Pergamon Press.
- ** KFKI-1981-34. P. Vértes: FEDGROUP-3 (Compare above under "Data handling and processing codes.")
- o Nuclear Data for the Efficiency Calibration of Germanium Spectrometer Systems: Measurements from the Laboratories of the International Committee for Radionuclide Metrology, α -, β -, and γ -Ray Spectrometry Group. NBS Special Publication 626, Jan. 1982.
- BNL-NCS-51363, 2 vols. March 1961: Proceedings of the Conference on Nuclear Data Evaluation Methods and Procedures, BNL, 22-25 Sept. 1980.
- BNL-NCS-51364: Minutes of the Fifth Annual Meeting of the Panel on Reference Nuclear Data, BNL, 23-24 Oct. 1980.
- ECN-104, Nov. 1981: W.L. Zijp et al.,: Damage cross-section library DAMSIG81. (Supersedes ECN-36, DAMSIG77)
- * EUR-7164, (1981). W.L. Zijp, J.H. Baard: Nuclear data guide for reactor neutron metrology. Part I: Activation reactions (1979). Part II: Fission reactions (1979).
- ** INDC(NDS)-116, June 1981: Progress in Fission-Product Nuclear Data, No.7. M. Lammer, editor.
- * Fast Neutron Cross-Section Newsletter, Issue 2, edited by M.R. Bhat. This is not a publication but serves as a communication medium among researchers active in fast neutron physics.
- ** INDC(SEC)-79, June 1981: INDC Correspondents for the Exchange of Nuclear Data Information (= addresses of nuclear data physicists).
- ** INDC(SEC)-80, June 1981: Complete list of all INDC-documents.
- ** INDC(SEC)-81, May 1981: 1981 Compilation of National Nuclear Data Committees.

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