International Atomic Energy Agency

Nuclear Data Newsletter

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IAEA Nuclear Data Section (NDS)
P.O. Box 100, A-1400 Vienna, Austria

Note: The quoted data, documents or codes are available costfree upon request (unless indicated otherwise).

New nuclear data libraries received

ENDL-82. The Evaluated Neutron Nuclear Data Library issued in 1982 by the Lawrence Livermore Laboratory, USA. It contains neutron reaction data for 94 isotopes, or elements with natural isotopic composition, superseding the previous version ENDL-78. Many evaluations have been updated and new evaluations added. In addition to the neutron cross-sections the evaluations include now explicit representations for energy and/or angular distributions and average energies for all secondary particles from neutron-induced reactions. As some of these data types are not defined in the ENDF/B format, the data are given in "ENDL Transmittal Format". A brief introduction to ENDL-82 is given by R.J. Howerton et al. in the report UCRL-50400 vol. 4 Rev. 1, Oct. 1981. The contents of the 1982 version, which has a size of 237 845 records, is given in the document IAEA-NDS-54. A brief user's guide to the "ENDL Transmittal Format" is given in IAEA-NDS-53. Magnetic tape copies of the entire library or selctive retrievals from it are available costfree upon request.

ACTL-82. The Evaluated Neutron Activation Cross-Section Library issued in 1982 by the Lawrence Livermore Laboratory, USA. It covers neutron activation cross-section data for 255 target nuclei and incident neutron energies up to 20 MeV, superseding the 1978 version. Both, stable and unstable target nuclei are included, and data for various activation reactions are given for each target nucleus, leading to a variety of activation products. The data are given in "ENDL Transmittal Format". The size of the library is 22 823 records. Magnetic tape copies of the entire library or selective retrievals from it are available costfree upon request. A brief summary of the contents of the library is given in the document IAEA-NDS-55.

ECPL-82. The Evaluated Charged-Particle Nuclear Data Library issued in 1982 by the Lawrence Livermore Laboratory, USA. It contains data for nuclear reactions induced by light charged particles p, d, t, He3, α of energies up to 20 MeV. Included are 14 target materials ranging from 1-H-1 to 8-O-16. The size of the library is 108 650 records. The data are given in "ENDL Transmittal Format". A summary of the contents of ECPL-82 is given in the document IAEA-NDS-56. Magnetic tape copies ofthe entire library or selective retrievals from it are available costfree upon request.

ENDF/B-4. This library released in 1974 by the US National Nuclear Data Center is still one of the most comprehensive evaluated neutron data libraries though some of its content is superseded by more recent evaluations. ENDF/B-4 is now available in two versions: the original version in compact form with resonance-parameters (216.885 records), and the RECENT output version where resonance-parameters were converted to cross-sections as function of energy (1.053.950 records). In the course of converting the library, some mistakes were detected in the version distributed by us earlier; the corrected version is available. Holders of ENDF/B-4 should verify that they have the corrected version. At present, a RECENT output version is being created also for the ENDF/B-5 Standards library.

IAEA Evaluated Neutron Data Library (INDL). This library is a collection of evaluations in ENDF/B format from different origin. Its content is documented in IAEA-NDS-31. The 1983 version is in preparation. Recent additons include evaluations for actinide isotopes, evaluations of threshold reactions contributed by the USSR Nuclear Data Center in Obninsk ("BOSPOR-80"), Obninsk evaluations of (n,2n) and (n,3n) cross-sections for heavy nuclei, and others.

INDL/F-83. An evaluated neutron reaction data library for INTOR calculations, compiled by V.G. Pronyaev, D.E. Cullen and P.K. McLaughlin. It contains neutron reaction data in ENDF/B-5 format for 23 materials (ranging from lithium to lead) that are important for calculations related to the International Tokamak Fusion Reactor (INTOR). The data are documented and plotted in IAEA-NDS-57. The library is available on magnetic tape in two versions: 'INDL/F-83' which includes data in form of resonance-parameters, and 'INDL/F-83-R' with resonance-parameters converted to linearly interpolable cross-sections.

Data handling and pre-processing codes

ENDF/B Pre-processing Codes: The 1983 versions of the ENDF/B pre-processing codes are now available. The new versions include significant improvements in performance and computer compatibility. This set of codes includes: LINEAR, RECENT, SIGMA1, GROUPIE, EVALPLOT, MERGER, DICTION and CONVERT.

Charts of Nuclides

The Karlsruhe Chart of Nuclides, 5th edition, Nov. 1981, by W. Seelmann-Eggebert et al. (compare Nuclear Data Newsletter No. 4) is still available upon request, free of charge, in either of two versions: wall chart or desk copy.

A microfiche version of a chart of nuclides was produced by the US National Nuclear Data Center ("Computope Chart"). A limited number of

copies is available costfree upon request. This chart is based upon ENSDF 1982, ENDF/B-5, the most recent versions of the NNDC books on "Neutron Cross-Sections" (BNL-325), atomic masses by Wapstra 1977, and isotopic abundances by Holden 1981.

Data indexes and bibliographies

CINDA-83. The data index of neutron reaction data is being published (sales price 800.- AS). CINDA, like other IAEA publications, can be purchased from the IAEA Division of Publications or, at reduced price (400.- AS) through the Mission of your country at the IAEA. (A limited number of copies can be made available costfree to developing countries). In addition to the published CINDA books, up-to-date selective computer retrievals from the CINDA file can be provided, costfree, upon request.

The Bibliography of integral charged particle nuclear data was, unfortunately, discontinued with its last 1982 issue, BNL-NCS-50640, Fourth Ed. Suppl.2. Selective retrievals from the computer file can be provided, costfree, upon request.

Photonuclear data. The USSR Photonuclear Data Center in Moscow continues to publish annual indexes to the literature on photonuclear data. A small number of copies is available free of charge.

A Brief Index of Nuclear Data Libraries held at the IAEA Nuclear Data Section is available as IAEA-NDS-7. More detailed documentations exist for most of the data libraries; please contact us for more specific information.

Announcement of a Meeting

A Specialists' Meeting on Yields and Decay Data of Fission Product Nuclides will be held at the Brookhaven National Laboratory, USA, 24-27 October 1983. Please contact us for more specific information.

Selected new publications of interest

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

o Nuclear Data for Science and Technology. Proceedings of the International Conference 6-10 September 1982 in Antwerp, Belgium. K.H. Böckhoff, editor. D. Reidel Publishing Company, Dordrecht, Netherlands.

* Nuclear Theory for Applications - 1980. Document IAEA-SMR-68 (1980). Proceedings of the Advanced Training Course on Applications of Nuclear Theory to Nuclear Data Calculations for Reactor Design, Int. Centre for Theoretical Physics Trieste, 22 Jan.- 18 March 1980.

** INDC(IND)-30. Proceedings, Workshop on Nuclear Data Evaluation, Processing and Testing, Kalpakkam, India, 4-5 Aug. 1981. S. Ganesan, editor.

** INDC(NDS)-133. A. Lorenz, ed., Summary Report on the IAEA Advisory Group Meeting on Nuclear Structure and Decay Data, Zeist, Netherlands, 11-14 May 1982.

** INDC(NDS)-139. A. Lorenz, ed., Proposed Recommended List of Heavy Element Radionuclide Decay Data, December 1982 Edition. Included are half-lives, alpha spectra and gamma-ray spectra.

** INDC(NDS)-145. A. Lorenz, Nuclear Decay Data for Radionuclides used as Calibration Standards (April 1983).

** INDC(SEC)-85. List of Documents received by the INDC Secretariat. Included is an index to all INDC documents, and a list of related other documents that were received recently (May 1983).

** INDC(SEC)-87. Address list of INDC Correspondents for the Exchange of Nuclear Data Information (May 1983).

** INDC(NDS)-129. Proceedings, IAEA Consultants' Meeting on Uranium and Plutonium Isotope Resonance Parameters, Vienna, 28 Sept.- 2 Oct. 1981.

** INDC(CCP)-184 (August 1982). V.M. Bychkov, V.I. Pljaskin, E.F. Toshinskaja: Evaluation of (n,2n) and (n,3n) cross-sections for heavy nuclei with allowance for non-equilibrium processes. The evaluated data are available on magnetic tape upon request.

** INDC(CCP)-185 (1981). L.P. Abagjan, M.S. Jutskevich: Evaluated neutron data for thermal reactor calculations (KORT).

** Summary of Neutron Scattering Lengths. Report Jül-1755 (Dec. 1981) by L. Koester, H. Rauch, M. Herkens, K. Schröder. Also available: data compilation on magnetic tape; wall chart of recommended values (compare Nuclear Data Newsletter No. 4).

** Benchmark Tests of JENDL-1. Report JAERI-1275 by Y. Kikuchi et al.

* PTB-FMRB-84. W. Mannhart: A small guide to generating covariances of experimental data (June 1981).

- EPRI-NP-2510 (July 1982) = BNL-NCS-31451. B.A. Magurno et al.: Guidebook for the ENDF/B-5 Nuclear Data Files. This includes graphical plots of ENDF/B-5 data and tables of derived parameters.

** INDC(GDR)-17 (May 1982). H. Märten et al.: The high-energy part of the Cf-252 spontaneous-fission neutron spectrum.

* INDC(ITY)-9 (1982). G. Maino et al.: Evaluation of Cm-247 neutron cross-sections from 10^{-5} eV to 15 MeV.

** IAEA-TECDOC-263. Nuclear Data for Radiation Damage Assessment and Related Safety Aspects. Proceedings of a Meeting held in Vienna 1981.

** INDC(CCP)-186. G.M. Novoselov, V.M. Kolomiets: Unambiguous parametrization of neutron cross-sections in the low-energy region.

** INDC(CCP)-187 (1982). A.B. Gusev et al.: Library of neutron group cross-sections for radiative capture of fission fragments.

** INDC(CCP)-188 (1982). P.P. Dmitriev, G.A. Molin: Radionuclide yields for thick targets at 22 MeV proton energy.

Surplus documents available costfree from the IAEA Nuclear Data Section

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INDC(CCP)-142 Evaluation of Nuclear Data for Pu-242 in Neutron Energy Range from 10^{-3} eV to 15 MeV, V.A. Konshin et al. (1979).

LA-9303-M (ENDF-324), Vol. I, II The NJOY Nuclear Data Processing System. Vol. I: User's Manual, Vol. II: The NJOY, RECONR, BROADR, HEATR, and THERMR Modules.

IAEA-153 The evaluation of neutron nuclear data. Proceedings of a panel held in Vienna 1971.

IAEA-169 Vol. I, II, III, Fission Product Nuclear Data. Proceedings of a panel held in Bologna 1973.

IAEA-190 Vol. I, II, Nuclear Theory in Neutron Nuclear Data Evaluation. Proceedings of a Consultants' Meeting held at Trieste 1975.

IAEA-199 Atomic and Molecular Data for Fusion. Proceedings of an Advisory Group Meeting held at Culham 1976.

IAEA-207 Differential and Integral Nuclear Data Requirements for Shielding Calculations. Proceedings of a Specialists' Meeting held in Vienna 1976.

IAEA-208 Vol. I, II, Neutron Cross Sections for Reactor Dosimetry. Proceedings of a Consultants' Meeting held in Vienna 1976.

IAEA-213 Vol. II, Fission Product Nuclear Data - 1977. Proceedings of an Advisory Group Meeting held in Petten.

INDC(CCP)-183 Establishment of the BOSPOR-80 Machine Library of Evaluated Threshold Reaction Cross-Sections and its Testing by Means of Integral Experiments, V.M. Bychkov et al (1981).

INDC-35 Minutes of the Eleventh INDC Meeting 1980.

INDC(SEC)-80 List of Documents Received by the INDC Secretariat (1981).

INDC(NDS)-114 Proceedings of the IAEA Consultants' Meeting on Neutron Source Properties, Debrecen 1980.

INDC-36 INDC/NEANDC Nuclear Standards File, 1980 Version.

INDC(CCP)-166 Nuclear Data Evaluation for Pu-239 in the Energy Region 10^{-5}eV - 15 MeV, G.V. Antsipov et al. (1981).

INDC(NDS)-131 4th Meeting of the Coordinated Research Project on the Intercomparison of Evaluations of Actinide Neutron Nuclear Data, Vienna 1981. Summary Report

JAERI-M-9999 Proceedings of the 1981 Seminar on Nuclear Data. Japanese Nuclear Data Committee.

INDC(EUR)-15 Nuclear Data Guide for Neutron Metrology, 1979 ed., W.L. Zijp and J.H. Board.

INDC(NDS)-126 4th Coordinated Research Meeting on the Measurement and Evaluation of Transactinium Isotope Nuclear Data, Vienna 1981. Summary Report

INDC(NDS)-107 Proceedings of the Consultants' Meeting on Delayed Neutron Properties, Vienna 1979.

INDC-37 Minutes of the Twelfth INDC Meeting Vienna 1981.

INDC(CCP)-163 Addendum Translation of Selected Reports on Neutron Spectrum Unfolding, Kh. Ya. Bondars et al.

INDC(CCP)-180 Absolute Measurements of the ^{235}U and ^{238}U Fission Cross-Sections in the ^{252}Cf Fission Neutron Spectrum, V.M. Adamov et al. (1976).

IAEA-TECDOC-232, Transactinium Isotope Nuclear Data - 1979. Proceedings of an Advisory Group Meeting held in Cadarache.

LA-6518-MS Light Element Standard Cross Sections for ENDF/B-IV.

BNL-17541 (ENDF-201), 2nd edition 1975. ENDF/B Summary Documentation.

BNL-325, 3rd ed., Vol. I. Neutron Cross Sections: Resonance Parameters.

JÜL-1003-AC Vol. I, II, III, Die -Linien der Radionuklide, G. Erdtmann and and W. Soyka (1973).

KFKI-1981-34 FEDGROUP-3. A Program System for processing evaluated nuclear data in ENDF/B, KEDAK or UKNDL format to constants to be used in reactor physics calculation.

BNL-NCS-50640, 4th ed., Supplement 1 (March 1981); 4th ed., Part 2 (March 1980); 3rd ed. (March 1979); 2nd ed. (March 1978): The Bibliography of Integral Charged Particle Nuclear Data.

KFK-120 Neutron Cross Sections for Fast Reactor Materials, Part I: Evaluation, J.J. Schmidt (1966).

KFK-2233 Graphical Representation of the German Nuclear Data Library KEDAK, Part I: Nonfissile Materials, B. Goel (1975).

AWRE-O-40/73 A Guide to GALAXY 3 * Part 1.

AWRE-O-56/73 A Guide to GALAXY 3 * Part 2. GALAXY 3 is an IBM program to compute spectrum-weighted, group averaged cross sections from data in UKNDL format.

AWRE-O-70/63 The Aldermaston Nuclear Data Library as of May 1963. Format description of the UKNDL File.

AAEC/TM-587 The AAEC Fission Product Cross Section Libraries FISPROD. POINTXSL and FISPROD. GROUPXSL, E.K. Rose (1971).

The remaining copies of above documents will be distributed upon request, free of charge. Write to:

IAEA Nuclear Data Section
P.O. Box 100
A-1400 Vienna, Austria

Nuclear Data Section (NDS), International Atomic Energy Agency
P.O. Box 100, A-1400 Vienna, Austria

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