

ENDF-102 and ENDF checking codes

M. Herman
National Nuclear Data Center
Brookhaven National Laboratory
Nuclear Data Week, Nov. 14-18, 2011

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U.S. DEPARTMENT OF
ENERGY

Office of
Science

ENDF-6 manual updates

(release together with ENDF/B-VII.1 in Dec. 2011)

- ENDF-102 Increment revision to Revision 2
- Extended set of MT numbers
- Two sentences describing the ordering of products were themselves out of order
- Fmts-32, Fmts-D: correction of Eq.15-18 (rep. C. Lubitz, 8/12/2010)
- Fmts-32, Fmts-D: correction of NLS (rep. C. Lubitz, 8/27/2010)
- MF33 - Correct length definition NT for LB=6
- MF33 - Correct length definition NT for LS=0
- Fmts-06 Correct typo (reported by C. Mattoon)
- Fmts-07 Correct typo (reported by C. Lubitz)
- Added units to kerma
- Correction of error related to MF32 LRF=7 format

CHECKR, FIZCON, PSYCHE updates

■ CHECKR

- Upgrade for MF1/MT458 extension
- Allow LFI>0 without delayed data for derived files
- Require EMAX=0 for spontaneous FP yield data
- Allow ZAP=0 for MT18 in MF8
- Allow new MTs, Fix MPAR checking in MF32

■ FIZCON

- Upgrade for MF1/MT458 extension
- Fix checking of NK in MF14, improve error counting
- Improve testing of cross-reaction covariances
- Disable testing for completeness in derived files, fix bug

CHECKR, FIZCON, PSYCHE updates

■ PSYCHE

- Redo residual energy correction for LCT=3
- Fix energy balance calculation depending on LCT
- Add sign to energy balance printout
- correct limits for printing E-balance of MT 5

Distribution

- NNDC will link Web downloads of the manual and checking codes to the current Subversion version
- Checking codes will be identified by the Subversion revision number. Currently:
 - CHECKR-**2128**
 - FIZCON-**2129**
 - PSYCHE-**1984**

MyENDF: uploading ENDF file for checking

The screenshot shows the National Nuclear Data Center (NNDC) website interface. At the top, there is a navigation bar with the NNDC logo, the text 'National Nuclear Data Center', and the Brookhaven National Laboratory logo. A search bar is located on the right side of the header.

The main content area is divided into several sections:

- Left Column:** A vertical stack of buttons for various data services: NSR, XUNDL, ENSDF, NuDat, Databases, MIRD, Sigma, CSISRS, ENDF, Chart of Nuclides, Networks, CSEWG, and USNDP.
- Right Column:** A section titled 'Nuclear Data Week at BNL' featuring a banner image and text: 'Nuclear Data Week at BNL', 'November 14-18, 2011', 'DNP 2011: Emerging Needs for Nuclear Data', 'ND2013', and 'Decay Heat'.
- Bottom Section:** A horizontal menu with tabs for 'Main', 'Structure & Decay', 'Reactions', 'Bibliography', 'Networks & Links', 'Publications', and 'Meetings'. Below this menu are four columns of links:

Databases	Codes	Evaluations	Tools
<ul style="list-style-type: none">> CSISRS alias EXFOR Nuclear Reaction Experimental Data> ENDF Evaluated Nuclear (reaction) Data File> IRDF International Reactor Dosimetry File> RIPL-3 Reference Input Parameter Library> Sigma ENDF Retrieval & Plotting	<ul style="list-style-type: none">> ABAREX Neutron Spherical Optical-Statistical-Model> Checking & Utility Codes> EMPIRE Nuclear Reaction Model Code> GEANT Simulation Toolkit> MCNP General Monte Carlo N-Particle Transport Code> PRECO-2006 Two-component Exciton Model> PREPRO-2010 Pre-processing	<ul style="list-style-type: none">> Atlas of Neutron Resonances Parameters & thermal values> Atomic Mass Evaluation> Covariances of Neutron Reactions <p>Manuals</p> <ul style="list-style-type: none">> ENDF Manuals and Tutorial> Introduction to ENDF Formats> ENDF-6 Formats	<ul style="list-style-type: none">> CapGam Thermal Neutron Capture γ-rays> NucRates MACS and Astrophysical Reaction Rates> MyENDF Integrated Web Tool for Evaluators> Q-value Calculator> USNDP/CSEWG GForge Collaboration Server

MyENDF: uploading ENDF file for checking

The screenshot shows the National Nuclear Data Center (NNDC) website interface. At the top, there is a navigation bar with the NNDC logo, the text "National Nuclear Data Center", and the Brookhaven National Laboratory logo. A search bar is visible on the right. The main content area features a central graphic of a Chart of Nuclides with various tool buttons overlaid, including NSR, XUNDL, ENSDF, NuDat, Databases, MIRD, Sigma, CSISRS, ENDF, Chart of Nuclides, Empire, Atlas of n Resonances, Nuclear Wallet Cards, Tools and Publications, Nuclear Data Sheets, Networks, CSEWG, and USNDP. To the right, there is a banner for "Nuclear Data Week at BNL" with a date of November 14-18, 2011. Below the banner, there are links for "DNP 2011: Emerging Needs for Nuclear Data", "ND2013", and "Decay Heat". A horizontal navigation menu is located below the banner, with the "Reactions" tab highlighted by a red circle. The "Reactions" menu is expanded, showing four columns of links: Databases (CSISRS alias, EXFOR, ENDF, IRDF, RIPL-3, Sigma), Codes (ABAREX, Checking & Utility Codes, EMPIRE, GEANT, MCNP, PRECO-2006, PREPRO-2010), Evaluations (Atlas of Neutron Resonances, Atomic Mass, Covariances), and Tools (CapGam, NucRates, MyENDF, Q-value Calculator, USNDP/CSEWG GForge).

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MyENDF: uploading ENDF file for checking

The screenshot shows the National Nuclear Data Center (NNDC) website. The top navigation bar includes the NNDC logo, the text "National Nuclear Data Center", the Brookhaven National Laboratory logo, and a "Site Index -" search box with a "Go" button. The main content area features a central graphic of a Chart of Nuclides with various tool icons overlaid, including NSR, XUNDL, ENSDF, NuDat, Databases, MIRD, Sigma, CSISRS, ENDF, Empire, Atlas of n Resonances, Nuclear Wallet Cards, Tools and Publications, Nuclear Data Sheets, Networks, CSEWG, and USNDP. To the right, there is a banner for "Nuclear Data Week at BNL" with a date of November 14-18, 2011, and links for "DNP 2011: Emerging Needs for Nuclear Data", "ND2013", and "Decay Heat".

The navigation menu at the bottom includes "Main", "Structure & Decay", "Reactions" (circled in red), "Bibliography", "Networks & Links", "Publications", and "Meetings".

The "Reactions" section is expanded, showing four columns of links:

- Databases**
 - > CSISRS alias EXFOR Nuclear Reaction Experimental Data
 - > ENDF Evaluated Nuclear (reaction) Data File
 - > IRDF International Reactor Dosimetry File
 - > RIPL-3 Reference Input Parameter Library
 - > Sigma ENDF Retrieval & Plotting
- Codes**
 - > ABAREX Neutron Spherical Optical-Statistical-Model
 - > Checking & Utility Codes
 - > EMPIRE Nuclear Reaction Model Code
 - > GEANT Simulation Toolkit
 - > MCNP General Monte Carlo N-Particle Transport Code
 - > PRECO-2006 Two-component Exciton Model
 - > PREPRO-2010 Pre-processing
- Evaluations**
 - > Atlas of Neutron Resonances Parameters & thermal values
 - > Atomic Mass Evaluation
 - > Covariances of Neutron Reactions
- Manuals**
 - > ENDF Manuals and Tutorial
 - > Introduction to ENDF Formats
 - > ENDF-6 Formats
- Tools**
 - > CapGam Thermal Neutron Capture γ -rays
 - > NucRates MACS and Astrophysical Reaction Rates
 - > MyENDF Integrated Web Tool for Evaluators (circled in red)
 - > Q-value Calculator
 - > USNDP/CSEWG GForge Collaboration Server

MyENDF: integrated Web-tool for evaluators

by V.Zerkin, IAEA-NDS, 2010-2011



Upload your ENDF data file, run remotely ENDF utilities, plot and compare your data with EXFOR and ENDF databases

Checkr, Fizcon, Stanef, Psyche, Inter, Prepro, Endver, ZVView, Web-EXFOR-ENDF

Submit in new Window

Your name (optional):

Your ENDF File: n-040_Zr_090.endf

Your ENDF file. Examples: [text](#) web-links: [txt](#) [e6](#) [b5std](#) [zip](#) [CGI](#) [ftp](#)

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Web and Database Programming: Viktor Zerkin, NDS, International Atomic Energy Agency (V.Zerkin@iaea.org)

Last updated: 10/31/2011 15:49:07

myENDF - check and preprocess your evaluation on line

ENDF-uploading system

by V.Zerkin, IAEA-NDS, November 2010 - March 2011

<--- under development --->

Request #7

Username: Mike

Uploading... File: **n-040_Zr_090.endf** size:2Mb (1413288 bytes)

ENDF file copy: EE4up00007.txt size:2Mb (1413288 bytes)

...Found Material(s): 1

1) MAT=4025 ZA=40090 Target=Zr-90 AWR=89.1324 NSUB=10 LISO=0 EMAX=2.0E7 ZSYNAM= 40-Zr- 90 ALAB=EMPIRE EDATE= EVAL-SEP11 ---MF:

Section: Descriptive Data and Directory, MF=1, MT=451

...Materials:1 Sections:149

...See: [\[your file\]](#) (original file: n-040_Zr_090.endf) [\[working ENDF File\]](#)

Run utilities

Programs, parameters, run, results	Timeout: <input type="text" value="300"/> sec	Your Files [refresh]
Check-3 Run 3 standard checking codes: CHECKR, FIZCON, STANEF		EE4up00007.endf-mfmt 3130 19:56:45 EE4up00007.endf 1413288 19:56:45
<input checked="" type="checkbox"/> CHECKR v-8.11, Jan-2011 Format Checking Code		x EE4up00007.endf.checkr 204 20:06:07
<input checked="" type="checkbox"/> FIZCON v-8.07, Jan-2011 Procedures & Simple Physics Checking Code		x EE4up00007.endf.checkr.err 42 20:06:07 x EE4up00007.endf.checkr.inp 42 20:06:07
<input checked="" type="checkbox"/> STANEF v-8.04, Jan-2011 Create directory, add tape label, convert numeric fields to binary format		x EE4up00007.endf.checkr.tt 7036 20:06:07 x EE4up00007.endf.checkr.ttl 9 20:06:07
Input File: EE4up00007.endf ENDF Tape Number: <input type="text" value="1"/> ENDF Tape Label: \$Rev:: 368 \$ \$Date:: 2011-09-12\$ checkr+ fizcon- stanef+		x EE4up00007.endf.fizcon 1452 20:06:07 x EE4up00007.endf.fizcon.err 42 20:06:07 x EE4up00007.endf.fizcon.inp 42 20:06:07 x EE4up00007.endf.fizcon.tt 7061 20:06:07 x EE4up00007.endf.fizcon.ttl 9 20:06:07
Run [result] [terminal]		x EE4up00007.endf.stanef 1413288 20:06:16 x EE4up00007.endf.stanef.err 36 20:06:07 x EE4up00007.endf.stanef.inp 85 20:06:07
<input checked="" type="checkbox"/> PSYCHE v-8.00, Aug-2008 More complicated physics checking code		x EE4up00007.endf.stanef.tt 7057 20:06:07 x EE4up00007.endf.stanef.ttl 9 20:06:07
<input checked="" type="checkbox"/> INTER v-8.0, Oct-2009 Calculate selected cross sections and integrals (run after PREPRO)		
<input type="checkbox"/> PREPRO 2010 Pre-processing ENDF files. Produces data in pointwise format: linearized ENDF file with reconstructed resonances using Doppler broadening at a given temperature		
Input File: EE4up00007.endf Reconstruct cross sections at the temperature <input type="text" value="293.6"/> (Kelvin) with accuracy <input type="text" value="0.1"/> (per-cent)		Total files: 17, length: 2852832
Run		