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INDXENDF

A PC code for indexing

nuclear data files in ENDF-6 format

by

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Abstract: The PC code INDXENDF which creates visual or printed indexes of nuclear data files in ENDF-6 format, is available from the IAEA Nuclear Data Section on a PC diskette, free of charge upon request. The present document describes the features of this code. (H.D. Lemmel).

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This PC codes indexes ENDF-6 formatted data files that are on the hard disk of a PC. It is user friendly, and the user just has to follow the instructions appearing on the screen.

For further details see the attached documentation by the authors.

The code is in its first version, and it is assumed that the authors will add additional features to the code. Any suggestions will be most welcome.

Traps: Note that the data file on the hard disk must have the correct end-of-file record. If this is not present, the present version of the code will stay in an endless loop.

H.D. Lemmel

A PC-VISUAL CATALOGUE FOR DATA IN ENDF/B FORMAT

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Abstract

This paper presents a video-catalogue for libraries in ENDF/B VI format (Evaluated Nuclear Data File/Brookhaven Version VI) which can be run on an IBM-PC computer.

This catalogue can be of interest for nuclear and reactor physics researchers. It is user friendly. The input is the filename of ENDF/B data and the output two files giving:

(a) the list of materials with corresponding laboratory, author and date of evaluation;

(b) information about the MF and MT numbers for each material.

The program is written in C language, whose capability of providing windows and "interrupts" along with its speediness and portability has been greatly explored. The system allows output of options (a) and (b) either on screen, printer or hard disk.

1. INTRODUCTION

This work is a continuation of the activites of nuclear data cataloguing of the Nuclear Data Center (CDN) of the "Instituto de Estudos Avançados(IEAv)". In preceeding publications (Corcuera et al. (1980), Corcuera & Moraes (1984), Moraes & Corcuera (1986)), informations about data libraries were represented on paper hard copy catalogues. The system described in this paper is a visual computerized presentation of data in the format of ENDF/B-VI (Rose & Dunford (1990)). Advantages of this way of presenting the information are: speed, a nice environment and fewer possibilities to introduce errors.

2. SCREEN SEQUENCE DISPLAY

The file "INDXENDF.EXE" is the executable code and file "XXXXX.ZZZ" is the ENDF/B data; both should be on the hard drive of your computer. By typing "INDXENDF" the first screen appears, see Fig. 1. It is self explanatory and it gives a brief outline of the program capabilities.

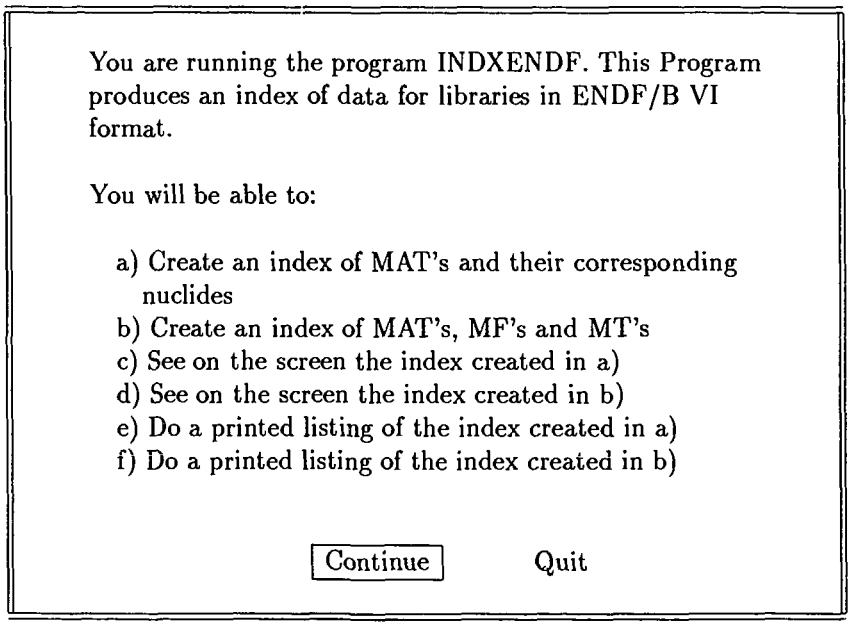

Fig. 1. Screen with general information about the program.

If the user chooses to continue he/she should proceed in sequential order, as shown on Fig. 2:

- type the filename where ENDF/B format data is (Fig. 3);
- type the filename where MAT's index will be kept (Fig.4);
- type the filename where MF's and MT's index will be kept (Fig. 5);

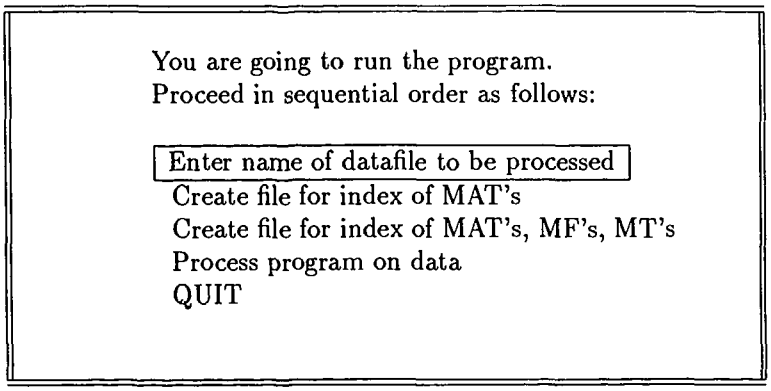

Fig. 2. Screen with the sequential order.

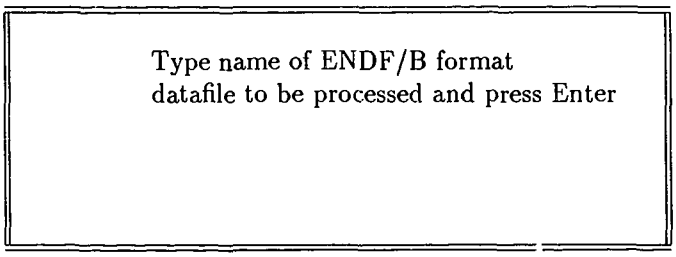

Fig. 3. Screen to enter the name of ENDF/B format datafile.

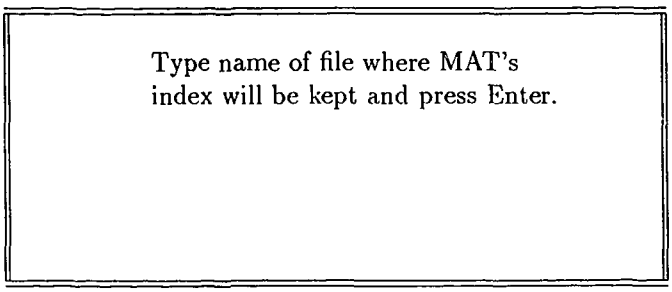

Fig. 4 - Screen to enter the filename of MAT's index file.

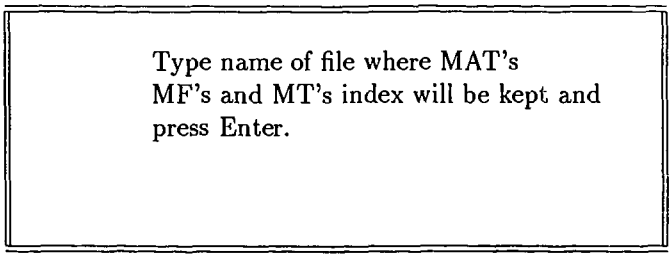

Fig. 5. Screen to enter the name of MAT's, MF's, MT's index file.

This is all the data needed as input. The program will process the information in some minutes (one and a half minutes for the ENDF/B Activation file which is about 1.3 M-bytes). When ready the system will return the name of the library processed (Fig. 6). Next screen (Fig. 7) shows the possible options for the output. The output on the screen looks like Fig. 7 for the MAT's index and like Fig. 8 for the MF's, MT's index file.

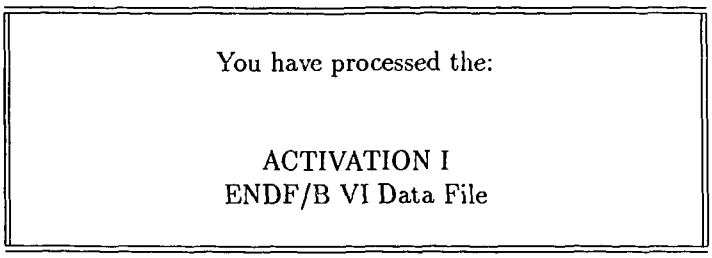

Fig. 6. Name of ENDF/B format data file processed.

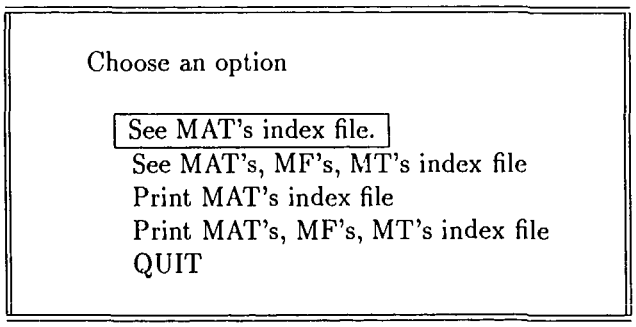

Fig. 7. Output options.

ACTIVATION I

NUCLIDE	MAT	DESCRIPTION
1-H - 2	128	LANL,AWRE EVAL-NOV67 L.STEWART (LASL) A.HORSLEY (AWRE) LA-3271 (1968) DIST-MAY90
3-LI- 7	328	LANL EVAL-AUG88 P.G. YOUNG DIST-JAN90
4-BE- 9	425	LLNL EVAL-JAN86 PERKINGS, PLECHATY, HOWERTON DIST-JAN90
29-CU-63	2925	ORNL EVAL-NOV89 HETRICK,FU,LARSON ORNL/TM-9083,ENDF-337 DIST-APR90
29-CU-65	2931	ORNL EVAL-NOV89 HETRICK,FU,LARSON ORNL/TM-9083,ENDF-337 DIST-APR90

Fig. 8. The MAT's index file on screen.

ACTIVATION I		
1-H - 2 MAT = 128 LANL,AWRE EVAL-NOV67 L.STEWART (LASL) A.HORSLEY (AWRE) LA-3271 (1968) DIST-MAY90		
MF = 1 General information		
MT	Definition	No of records
451	(z,information)	87
	MF Subtotal =	88
MF = 3 Reaction cross sections		
MT	Definition	No of records
102	(z,gamma)	36

Fig. 9. The MAT's, MF's, MT's index file.

3. ABOUT THE SYSTEM

The source code has been writen in C, it has about 2,500 lines, the routines for windowing were based on the paper of: Hummel(1988), Al Stevems(1989), Lafore(1987), Borland International(1988a, 1988b), Schildt(1988, 1989).

The compiled program has about 42 k-bytes. The extra hard disk space needed depends upon the size of the ENDF/B data file to be processed (e.g. the Activation file is about 1.3 M-bytes, the General Propose ENDF/B-VI is divided in four parts, each one being about 12 M-bytes).

To run the program the "datafile" and the "EXE" file should be on the hard-drive. The program may be run on IBM/XT, AT, 386, 486, or compatibles with 640 kB RAM.

4. CONCLUSIONS

The System presents a very useful tool to obtain information about data in ENDF/B format. It answers questions like:

- which nuclides are in the library ?
- what is the corresponding MAT number ?
- who is the author, laboratory and data of evaluation ?
- which are the reactions for a particular nuclide.

The advantages of a visual catalogue over a paper hard copy are: it is more agreeable, easier and faster to use.

A more complex data base management system is being developed, it will have aditional capabilities like access to the data themselves and operation of deletions, insertion and updating.

The program can be obtained from the NDS-IAEA free of charge.

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