======================================================================= Activate

Activate

PROGRAM ACTIVATE Activate

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VERS. 2000-1 (APRIL 2000) \*INITIAL VERSION. Activate

VERS. 2002-1 (MAY 2002) \*OPTIONAL INPUT PARAMETERS Activate

VERS. 2004-1 (JAN. 2004) \*CORRECTED ERROR - FIRST RECORD AFTER Activate

MF=10 WAS MISSING. Activate

\*ADDED INCLUDE TO DEFINE COMMON Activate

\*INCREASED MAX. POINTS FROM 100,000 Activate

TO 1,000,000. Activate

VERS. 2007-1 (JAN. 2007) \*CHECKED AGAINST ALL ENDF/B-VII Activate

VERS. 2007-2 (DEC. 2007) \*72 CHARACTER FILE NAMES. Activate

VERS. 2010-1 (Apr. 2010) \*General update based on user feedback Activate

VERS. 2012-1 (Aug. 2012) \*Added CODENAME Activate

\*Added ERROR stop Activate

\*32 and 64 bit Compatible Activate

VERS. 2015-1 (Jan. 2015) \*Corrected ERROR for missing or extra Activate

SEND and MEND lines. Activate

\*Changed MF=8 pointer from MF=9 to 10. Activate

\*INCREASED MAX. POINTS to 3,000,000. Activate

\*Added Consistency checks, e.g., Activate

Any MT in MF=9 requires data in MF=3. Activate

\*Extended OUT9 - OUT10 is not used. Activate

\*Only processes ONE ENDF Tape - this Activate

restriction is necessary to insure Activate

compatibility with ALL PREPRO codes. Activate

\*Changed to current ENDF sequence Activate

number convention, e.g., reset number Activate

for each section (MAT/MF/MT). Activate

\*Replaced ALL 3 way IF statements. Activate

Activate

Acknowledgement 2015 Activate

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Currently almost all improvements to this code are based upon Activate

feedback from code users who report problems. This feedback Activate

benefits ALL users of this code, and ALL users are encouraged Activate

to report problems. Activate

Activate

Improvements on the 2015 version of this code based on user Activate

feedback, including IMPORTANT feedback from Andrej Trkov, up Activate

to and including Feb. 2015. Activate

Activate

OWNED, MAINTAINED AND DISTRIBUTED BY Activate

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THE NUCLEAR DATA SECTION Activate

INTERNATIONAL ATOMIC ENERGY AGENCY Activate

P.O. BOX 100 Activate

A-1400, VIENNA, AUSTRIA Activate

EUROPE Activate

Activate

ORIGINALLY WRITTEN BY Activate

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AUTHORS MESSAGE Activate

--------------- Activate

THE REPORT DESCRIBED ABOVE IS THE LATEST PUBLISHED DOCUMENTATION Activate

FOR THIS PROGRAM. HOWEVER, THE COMMENTS BELOW SHOULD BE CONSIDERED Activate

THE LATEST DOCUMENTATION INCLUDING ALL RECENT IMPROVEMENTS. PLEASE Activate

READ ALL OF THESE COMMENTS BEFORE IMPLEMENTATION. Activate

Activate

AT THE PRESENT TIME WE ARE ATTEMPTING TO DEVELOP A SET OF COMPUTER Activate

INDEPENDENT PROGRAMS THAT CAN EASILY BE IMPLEMENTED ON ANY ONE Activate

OF A WIDE VARIETY OF COMPUTERS. IN ORDER TO ASSIST IN THIS PROJECT Activate

IT WOULD BE APPECIATED IF YOU WOULD NOTIFY THE AUTHOR OF ANY Activate

COMPILER DIAGNOSTICS, OPERATING PROBLEMS OR SUGGESTIONS ON HOW TO Activate

IMPROVE THIS PROGRAM. HOPEFULLY, IN THIS WAY FUTURE VERSIONS OF Activate

THIS PROGRAM WILL BE COMPLETELY COMPATIBLE FOR USE ON YOUR Activate

COMPUTER. Activate

Activate

PURPOSE Activate

------- Activate

THIS PROGRAM IS DESIGNED TO CREATE FILE 10 ACTIVATION CROSS Activate

SECTIONS BY COMBINING FILE 3 CROSS SECTIONS AND FILE 9 MULTIPLIERS Activate

Activate

IN THE FOLLOWING DISCUSSION FOR SIMPLICITY THE ENDF TERMINOLOGY Activate

---ENDF TAPE---WILL BE USED. IN FACT THE ACTUAL MEDIUM MAY BE Activate

TAPE, CARDS, DISK OR ANY OTHER MEDIUM. Activate

Activate

ASSUMPTIONS Activate

----------- Activate

IT IS ASSUMED THAT THE FILE 3 AND 9 DATA HAVE BEEN LINEARIZED Activate

BEFORE THIS CODE IS USED - FILE 3 AND 9 DATA CAN BE LINEARIZED Activate

USING PROGRAM LINEAR. Activate

Activate

IT IS ASSUMED THAT THE FILE 9 MULTIPLIERS ARE FAIRLY SMOOTH VERSUS Activate

ENERGY, AND THAT THE ACTIVATION CROSS SECTIONS FOR FILE 10 CAN BE Activate

DEFINED AT EXACTLY THE SAME ENERGIES AS THE FILE 3 CROSS SECTIONS, Activate

AND THAT THESE NEED MERELY BE MULTIPLIED BY THE FILE 9 TO DEFINE Activate

THE FILE 10 ACTIVATION CROSS SECTIONS. Activate

Activate

ENDF FORMAT Activate

----------- Activate

THIS PROGRAM ONLY USES THE ENDF BCD OR CARD IMAGE FORMAT (AS Activate

OPPOSED TO THE BINARY FORMAT) AND CAN HANDLE DATA IN ANY VERSION Activate

OF THE ENDF FORMAT (I.E., ENDF-1, 2, 3, 4, 5 OR 6 FORMAT). Activate

Activate

IT IS ASSUMED THAT THE DATA IS CORRECTLY CODED IN THE ENDF Activate

FORMAT AND NO ERROR CHECKING IS PERFORMED. IN PARTICULAR IT IS Activate

ASSUMED THAT THE MAT, MF AND MT ON EACH LINE IS CORRECT. SEQUENCE Activate

NUMBERS (COLUMNS 76-80) ARE IGNORED ON INPUT, BUT WILL BE Activate

CORRECTLY OUTPUT ON ALL LINES. THE FORMAT OF SECTION MF=1, MT=451 Activate

AND ALL SECTIONS OF MF=3 MUST BE CORRECT. THE PROGRAM COPIES ALL Activate

OTHER SECTION OF DATA AS HOLLERITH AND AS SUCH IS INSENSITIVE TO Activate

THE CORRECTNESS OR INCORRECTNESS OF ALL OTHER SECTIONS. Activate

Activate

OUTPUT FORMAT Activate

------------- Activate

ALL ENERGIES WILL BE OUTPUT IN F (INSTEAD OF E) FORMAT IN ORDER Activate

TO ALLOW ENERGIES TO BE WRITTEN WITH UP TO 9 DIGITS OF ACCURACY. Activate

COMPARISON OF THE NORMAL ENDF CONVENTION OF 6 DIGITS TO THE 9 Activate

DIGIT OUTPUT FROM THIS PROGRAM DEMONSTRATED THAT FAILURE TO USE Activate

THE 9 DIGIT OUTPUT CAN LEAD TO LARGE ERRORS IN THE DATA DUE TO Activate

TRUNCATION OF ENERGIES TO 6 DIGITS DURING OUTPUT. Activate

Activate

CONTENTS OF OUTPUT Activate

------------------ Activate

ENTIRE EVALUATIONS ARE OUTPUT, NOT JUST THE PROCESSED DATA, E.G., Activate

ANGULAR AND ENERGY DISTRIBUTIONS ARE ALSO INCLUDED. Activate

Activate

DOCUMENTATION Activate

------------- Activate

THE FACT THAT THIS PROGRAM HAS OPERATED ON THE DATA IS DOCUMENTED Activate

BY THE ADDITION OF 3 COMMENT LINES AT THE END OF EACH HOLLERITH Activate

SECTION IN THE FORM Activate

Activate

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* PROGRAM ACTIVATE (2015-1) \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Activate

FILE 10 ACTIVATION CROSS SECTIONS HAVE BEEN DEFINED BY COMBINING Activate

FILE 3 CROSS SECTIONS AND FILE 9 MULTIPLIERS. FILE 9 DELETED. Activate

Activate

THE ORDER OF SIMILAR COMMENTS (FROM RECENT, SIGMA1 AND GROUPIE) Activate

REPRESENTS A COMPLETE HISTORY OF ALL OPERATIONS PERFORMED ON Activate

THE DATA BY THESE PROGRAMS. Activate

Activate

THESE COMMENT LINES ARE ONLY ADDED TO EXISTING HOLLERITH SECTIONS, Activate

I.E., THIS PROGRAM WILL NOT CREATE A HOLLERITH SECTION. THE FORMAT Activate

OF THE HOLLERITH SECTION IN ENDF-5 DIFFERS FROM THE THAT OF Activate

EARLIER VERSIONS OF ENDF. BY READING AN EXISTING MF=1, MT=451 Activate

IT IS POSSIBLE FOR THIS PROGRAM TO DETERMINE WHICH VERSION OF Activate

THE ENDF FORMAT THE DATA IS IN. WITHOUT HAVING A SECTION OF Activate

MF=1, MT=451 PRESENT IT IS IMPOSSIBLE FOR THIS PROGRAM TO Activate

DETERMINE WHICH VERSION OF THE ENDF FORMAT THE DATA IS IN, AND Activate

AS SUCH IT IS IMPOSSIBLE FOR THE PROGRAM TO DETERMINE WHAT FORMAT Activate

SHOULD BE USED TO CREATE A HOLLERITH SECTION. Activate

Activate

REACTION INDEX Activate

-------------- Activate

THIS PROGRAM DOES NOT USE THE REACTION INDEX WHICH IS GIVEN IN Activate

SECTION MF=1, MT=451 OF EACH EVALUATION. Activate

Activate

THIS PROGRAM DOES NOT UPDATE THE REACTION INDEX IN MF=1, MT=451. Activate

THIS CONVENTION HAS BEEN ADOPTED BECAUSE MOST USERS DO NOT Activate

REQUIRE A CORRECT REACTION INDEX FOR THEIR APPLICATIONS AND IT WAS Activate

NOT CONSIDERED WORTHWHILE TO INCLUDE THE OVERHEAD OF CONSTRUCTING Activate

A CORRECT REACTION INDEX IN THIS PROGRAM. HOWEVER, IF YOU REQUIRE Activate

A REACTION INDEX FOR YOUR APPLICATIONS, AFTER RUNNING THIS PROGRAM Activate

YOU MAY USE PROGRAM DICTIN TO CREATE A CORRECT REACTION INDEX. Activate

Activate

SECTION SIZE Activate

------------ Activate

SECTIONS OF MF=9 MULTIPLIERS ARE LIMITED TO A MAXIMUM OF 3,000,000 Activate

ENERGY POINTS. Activate

Activate

THERE IS NO LIMIT ON THE NUMBER OF ENERGY POINTS IN MF=3 AND 10 Activate

TABLES = THIS DATA IS READ AS CHARACTERS, ONE LINE AT A TIME. Activate

Activate

SELECTION OF DATA Activate

----------------- Activate

THE PROGRAM PROCESSES ALL ENDF DATA ON ONE ENDF TAPE. Activate

Activate

2015 - IT NOW ONLY DOES ONE ENDF TAPE. Activate

Activate

PROGRAM OPERATION Activate

----------------- Activate

PASS #1 Activate

------- Activate

THE ENTIRE MAT IS COPIED TO A SCRATCH FILE IN THE ENDF ASCII Activate

FORMAT AND WHILE COPYING IT TO SCRATCH MF=3, 9, AND 10 ARE ALSO Activate

COPIED TO SEPERATE SCRATCH FILES, I.E., THERE ARE A TOTAL OF 4 Activate

SCRATCH FILES - SEE THEIR DEFINITIONS BELOW. Activate

Activate

PASS #2 Activate

------- Activate

IF NO MF=9 MULTIPLIERS ARE FOUND DURING PASS #1, THE ENTIRE MAT Activate

IS COPIED FROM SCRATCH TO THE OUTPUT FILE, WITHOUT ANY CHECKS. Activate

Activate

IF MF=9 MULTIPLIERS ARE FOUND THEY ARE USED WITH MF=3 CROSS Activate

SECTIONS TO CREATE MF=10 ACTIVATION CROSS SECTIONS. Activate

Activate

FOR ANY SECTION OF MF=10 DATA FOR WHICH NO MF=9 MULTIPLIERS ARE Activate

FOUND, THE ORIGINAL MF=10 IS OUTPUT. Activate

Activate

FOR CONSISTENCY ALL MF=9 MULTIPLIERS ARE DELETED, I.E., THEY ARE Activate

NOT INCLUDED IN THE OUTPUT. Activate

Activate

KEEP EVALUATED DATA POINTS Activate

-------------------------- Activate

THE FILE 10 OUTPUT WILL BE AT EXACTLY THE SAME ENERGY POINTS AS Activate

THE FILE 3 CROSS SECTIONS USED TO DEFINE THE FILE 10 ACTIVATION Activate

CROSS SECTIONS. Activate

Activate

INPUT FILES Activate

----------- Activate

UNIT DESCRIPTION Activate

---- ----------- Activate

2 INPUT LINES (BCD - 80 CHARACTERS/RECORD) Activate

10 ORIGINAL ENDF DATA (BCD - 80 CHARACTERS/RECORD) Activate

Activate

OUTPUT FILES Activate

------------ Activate

UNIT DESCRIPTION Activate

---- ----------- Activate

3 OUTPUT REPORT (BCD - 120 CHARACTERS/RECORD) Activate

11 FINAL ENDF DATA (BCD - 80 CHARACTERS/RECORD) Activate

Activate

SCRATCH FILES Activate

------------- Activate

UNIT DESCRIPTION Activate

---- ----------- Activate

12 SCRATCH FILE FOR ALL MAT (BCD - 80 CHARACTERS/RECORD) Activate

14 SCRATCH FILE FOR MF=3 DATA (BCD - 80 CHARACTERS/RECORD) Activate

15 SCRATCH FILE FOR MF=9 DATA (BCD - 80 CHARACTERS/RECORD) Activate

16 SCRATCH FILE FOR MF=10 DATA (BCD - 80 CHARACTERS/RECORD) Activate

Activate

OPTIONAL STANDARD FILE NAMES (SEE SUBROUTINE FILEIO) Activate

---------------------------------------------------- Activate

UNIT FILE NAME Activate

---- ---------- Activate

2 ACTIVATE.INP Activate

3 ACTIVATE.LST Activate

10 ENDFB.IN Activate

11 ENDFB.OUT Activate

12 (SCRATCH) Activate

14 (SCRATCH) Activate

15 (SCRATCH) Activate

Activate

INPUT PARAMETERS Activate

---------------- Activate

Activate

LINE COLS. DESCRIPTION Activate

---- ----- ----------- Activate

1 1-72 ENDF INPUT DATA FILENAME Activate

(STANDARD OPTION = ENDFB.IN) Activate

2 1-72 ENDF OUTPUT DATA FILENAME Activate

(STANDARD OPTION = ENDFB.OUT) Activate

Activate

ONE PAIR OF INPUT LINES MAY BE USED, TO PROCESS ANY ENDF TAPE. Activate

Activate

2015 - NOW ONLY DOES ONE ENDF TAPE. Activate

Activate

EXAMPLE INPUT NO. 1 Activate

------------------- Activate

PROCESS ENDF TAPE NAMED ACTIVATE.IN AND NAME THE OUTPUT FILE Activate

ACTIVATE.OUT. Activate

Activate

IN THIS CASE THE FOLLOWING 2 INPUT LINES ARE REQUIRED Activate

Activate

ACTIVATE.IN Activate

ACTIVATE.OUT Activate

Activate

EXAMPLE INPUT NO. 2 Activate

------------------- Activate

SAME AS THE ABOVE CASE, EXCEPT THAT IN THIS CASE THE ORIGINAL Activate

TAPE IS IN A DIRECTORY NAMED \ENDFB6\ORIGINAL, AND THE Activate

RESULTS WILL BE WRITTEN INTO A DIRECTORY NAMED \ENDFB6\ACTIVATE. Activate

Activate

IN THIS CASE THE FOLLOWING 6 INPUT LINES ARE REQUIRED Activate

Activate

\ENDFB6\ORIGINAL\ACTIVATE.IN Activate

\ENDFB6\ACTIVATE\ACTIVATE.OUT Activate

Activate

EXAMPLE INPUT NO. 3 Activate

------------------- Activate

IF THERE IS NO ACTIVATE.INP FILE, OR THE FILENAMES ARE BLANK Activate

THIS CODE WILL USE THE DEFAULT NAMES, Activate

Activate

ENDFB.IN Activate

ENDFB.OUT Activate

Activate

======================================================================= Activate