======================================================================= Mixer

Mixer

PROGRAM MIXER Mixer

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VERSION 76-1 (NOVEMBER 1976) Mixer

VERSION 81-1 (APRIL 1981) \*IBM VERSION Mixer

VERSION 82-1 (AUGUST 1982) \*COMPUTER INDEPENDENT VERSION Mixer

VERSION 84-1 (JUNE 1984) \*SPECIAL I/O ROUTINES TO GUARANTEE Mixer

ACCURACY OF ENERGY. Mixer

\*DOUBLE PRECISION TREATMENT OF ENERGY Mixer

(REQUIRED FOR NARROW RESONANCES). Mixer

VERSION 86-1 (JANUARY 1986)\*FORTRAN-77/H VERSION Mixer

VERSION 88-1 (JULY 1988) \*OPTION...INTERNALLY DEFINE ALL I/O Mixer

FILE NAMES (SEE, SUBROUTINE FILIO1 Mixer

AND FILIO2 FOR DETAILS). Mixer

\*IMPROVED BASED ON USER COMMENTS. Mixer

VERSION 89-1 (JANUARY 1989)\*PSYCHOANALYZED BY PROGRAM FREUD TO Mixer

INSURE PROGRAM WILL NOT DO ANYTHING Mixer

CRAZY. Mixer

\*UPDATED TO USE NEW PROGRAM CONVERT Mixer

KEYWORDS. Mixer

\*ADDED LIVERMORE CIVIC COMPILER Mixer

CONVENTIONS. Mixer

VERSION 92-1 (JANUARY 1992)\*UPDATED BASED ON USER COMMENTS Mixer

\*ADDED PHOTON CROSS SECTIONS Mixer

\*ADDED FORTRAN SAVE OPTION Mixer

\*OUTPUT IN ENDF/B-VI FORMAT Mixer

\*COMPLETELY CONSISTENT I/O ROUTINES - Mixer

TO MINIMIZE COMPUTER DEPENDENCE. Mixer

\*NOTE, CHANGE IN INPUT PARAMETER Mixer

FORMAT. Mixer

VERSION 94-1 (JANUARY 1994)\*VARIABLE ENDF/B DATA FILENAMES Mixer

TO ALLOW ACCESS TO FILE STRUCTURES Mixer

(WARNING - INPUT PARAMETER FORMAT Mixer

HAS BEEN CHANGED) Mixer

\*CLOSE ALL FILES BEFORE TERMINATING Mixer

(SEE, SUBROUTINE ENDIT) Mixer

\*INCREASED INCORE PAGE SIZE FROM Mixer

1002 TO 4008. Mixer

VERSION 96-1 (JANUARY 1996) \*COMPLETE RE-WRITE Mixer

\*IMPROVED COMPUTER INDEPENDENCE Mixer

\*ALL DOUBLE PRECISION Mixer

\*ON SCREEN OUTPUT Mixer

\*UNIFORM TREATMENT OF ENDF/B I/O Mixer

\*IMPROVED OUTPUT PRECISION Mixer

\*DEFINED SCRATCH FILE NAMES Mixer

\*INCREASED INCORE PAGE SIZE FROM Mixer

4008 TO 12000. Mixer

VERSION 99-1 (MARCH 1999) \*CORRECTED CHARACTER TO FLOATING Mixer

POINT READ FOR MORE DIGITS Mixer

\*UPDATED TEST FOR ENDF/B FORMAT Mixer

VERSION BASED ON RECENT FORMAT CHANGE Mixer

\*GENERAL IMPROVEMENTS BASED ON Mixer

USER FEEDBACK Mixer

VERSION 99-2 (JUNE 1999) \*ASSUME ENDF/B-VI, NOT V, IF MISSING Mixer

MF=1, MT-451. Mixer

VERS. 2000-1 (FEBRUARY 2000)\*GENERAL IMPROVEMENTS BASED ON Mixer

USER FEEDBACK Mixer

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

VERS. 2004-1 (MARCH 2004) \*ADDED INCLUDE FOR COMMON Mixer

\*INCREASED INCORE PAGE SIZE FROM Mixer

12000 TO 60000. Mixer

VERS. 2005-1 (OCT. 2005) \*CORRECTED MERGE ERROR Mixer

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

\*INCREASED INCORE PAGE SIZE FROM Mixer

60,000 TO 240,000. Mixer

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

VERS. 2008-1 (JUNE 2008) \*ADDED GRAMS OR ATOMS INPUT Mixer

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

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

\*32 and 64 bit Compatible Mixer

\*Added ERROR stop Mixer

VERS. 2015-1 (Jan. 2015) \*Extended OUT9. Mixer

\*Replaced ALL 3 way IF Statements. Mixer

Mixer

OWNED, MAINTAINED AND DISTRIBUTED BY Mixer

------------------------------------ Mixer

THE NUCLEAR DATA SECTION Mixer

INTERNATIONAL ATOMIC ENERGY AGENCY Mixer

P.O. BOX 100 Mixer

A-1400, VIENNA, AUSTRIA Mixer

EUROPE Mixer

Mixer

ORIGINALLY WRITTEN BY Mixer

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Dermott E. Cullen Mixer

Mixer

PRESENT CONTACT INFORMATION Mixer

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Website http://home.comcast.net/~redcullen1 Mixer

Mixer

PURPOSE Mixer

------- Mixer

THIS PROGRAM IS DESIGNED TO CALCULATE THE ENERGY DEPENDENT CROSS Mixer

SECTION FOR A COMPOSITE MIXTURE OF UP TO 10 DIFFERENT MATERIALS. Mixer

Mixer

THE PRESENT VERSION WILL ONLY CALCULATE THE CROSS SECTION FOR ONE Mixer

FINAL REACTION (ENDF/B SECTION), E.G. TOTAL CROSS SECTION, BUT NOT Mixer

ANY OTHER REACTION. Mixer

Mixer

NOTE, THIS PROGRAM WILL NOT COMBINE ALL REACTIONS FOR A MIXTURE Mixer

OF MATERIALS DURING A SINGLE RUN - ONLY ONE REACTION WILL BE Mixer

CREATED PER RUN. Mixer

Mixer

EVALUATED DATA FORMAT Mixer

--------------------- Mixer

THE CROSS SECTIONS ARE READ FROM THE ENDF/B FORMAT AND THE Mixer

COMPOSITE CROSS SECTION IS CONVERTED TO AN EQUIVALENT BARNS/ATOM Mixer

FORM AND OUTPUT IN THE ENDF/B FORMAT WITH AN EQUIVALENT ATOMIC Mixer

WEIGHT. THE USER MUST SPECIFY THE COMPOSITION BY GIVING THE ZA, Mixer

MT AND GRAMS OR ATOMS OF EACH CONSTITUENT. IN ADDITION THE USER Mixer

IDENTIFY THE COMPOSITE CROSS SECTION BY SPECIFYING THE ZA, MAT Mixer

AND MT TO BE USED IN THE ENDF/B FORMATTED OUTPUT. Mixer

Mixer

SINCE ONLY THE CROSS SECTIONS IN FILE 3 AND 23 ARE USED, AND THE Mixer

FORMAT FOR FILE 3/23 IS THE SAME IN ALL VERSIONS ON ENDF/B, THIS Mixer

PROGRAM MAY BE USED WITH ANY VERSION OF ENDF/B DATA (I.E., Mixer

ENDF/B-I, II, III, IV, V OR VI). DURING A SINGLE RUN IT MAY EVEN Mixer

BE USED TO READ AND COMBINE EVALUATIONS WHICH ARE IN DIFFERENT Mixer

VERSIONS OF THE ENDF/B FORMAT. Mixer

Mixer

ENDF/B FORMATTED OUTPUT WILL BE IN THE ENDF/B-VI FORMAT REGARDLESS Mixer

OF THE FORMAT OF THE INPUT ENDF/B DATA. THIS WILL ONLY EFFECT THE Mixer

HOLLERITH SECTION (MF=1, MT=451). THE FORMAT OF CROSS SECTIONS Mixer

(MF=3) IS THE SAME IN ALL VERSION OF THE ENDF/B FORMAT. Mixer

Mixer

IN ORDER TO GUARANTEE PROPER OPERATION OF THIS PROGRAM THE DATA Mixer

MUST BE PROPERLY CODED IN THE ENDF/B FORMAT. NO ERROR CHECKING IS Mixer

PERFORMED. IT IS PARTICULARLY IMPORTANT THAT THE FOLLOWING DATA Mixer

BE CORRECT Mixer

Mixer

(1) ZA, MF, MT - MUST BE CORRECT IN ORDER TO ALLOW PROGRAM TO Mixer

SELECT THE APPROPRIATE SECTIONS TO BE COMBINED. Mixer

(2) AWRE - ATOMIC WEIGHT RATIO MUST BE CORRECT TO ALLOW PROGRAM Mixer

TO CONVERT THE USER SPECIFIED GRAMS INTO ATOMS FOR Mixer

PROPER ATOM RATIO MIXING. Mixer

(3) (ENERGIES, CROSS SECTIONS) - MUST BE CORRECT, LINEARLY Mixer

======== Mixer

INTERPOLABLE, IN ASCENDING ENERGY ORDER OF (E, BARNS). Mixer

============ Mixer

Mixer

TO CONVERT ENDF/B FORMATTED DATA TO THE REQUIRED INPUT FORM Mixer

THE FOLLOWING PROGRAMS MAY BE USED, Mixer

LINEAR - CONVERT TABULATED CROSS SECTIONS TO LINEARLY Mixer

INTERPOLABLE FORM. Mixer

RECENT - RECONSTRUCT RESONANCE CONTRIBUTION, ADD TO BACKGROUND Mixer

CROSS SECTION AND OUTPUT THE COMBINATION IN LINEARLY Mixer

INTERPOLABLE FORM. Mixer

SIGMA1 - DOPPLER BROADEN CROSS SECTIONS TO ANY TEMPERATURE AND Mixer

OUTPUT THE RESULT IN LINEARLY INTERPOLABLE FORM. Mixer

Mixer

DOCUMENTATION Mixer

------------- Mixer

THE FACT THAT THIS PROGRAM HAS COMBINED THE DATA IS DOCUMENTED Mixer

IN THE OUTPUT ENDF/B FORMAT IN THE HOLLERITH SECTION BY FIRST Mixer

IDENTIFYING THE VERSION OF THIS PROGRAM THAT WAS USED, IN THE FORM Mixer

Mixer

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*( PROGRAM MIXER 2015-1) \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Mixer

Mixer

THIS IS FOLLOWED BY THE TWO LINE IDENTIFICATION INPUT BY THE USER. Mixer

THIS IS FOLLOWED BY COMPOSITION INPUT BY THE USER. Mixer

Mixer

NEUTRON OR PHOTON DATA Mixer

---------------------- Mixer

THIS PROGRAM WILL ALLOW YOU TO PROCESS EITHER NEUTRON OR PHOTON Mixer

CROSS SECTIONS - BUT YOU CANNOT MIX THE TWO TYPES TOGETHER. BY Mixer

INPUT YOU CAN SPECIFY THE OUTPUT MF = 3 (NEUTRONS) OR 23 (PHOTONS) Mixer

WHATEVER TYPE YOU SPECIFIED FOR OUTPUT IS THE ONLY TYPE OF DATA Mixer

WHICH WILL BE PROCESSED BY THIS PROGRAM. Mixer

Mixer

DEFINING THE COMPOSITION Mixer

------------------------ Mixer

THE USER MAY SPECIFY UP TO 10 DIFFERENT SECTIONS OF DATA TO BE Mixer

COMBINED, EACH SECTION IDENTIFIED BY ZA AND MT NUMBER. THE Mixer

AMOUNT OF EACH MATERIAL IS SPECIFIED BY DEFINING THE NUMBER OF Mixer

GRAMS OF EACH MATERIAL IN THE COMPOSITE MIXTURE. THIS CAN BE Mixer

DERIVED FROM THE VOLUME FRACTION SIMPLY BY MULTIPLYING THE STP Mixer

DENSITY OF EACH MATERIAL BY ITS VOLUME FRACTION. NOTE, DO NOT Mixer

INPUT ATOM FRACTIONS. Mixer

Mixer

THE LIST OF SECTIONS TO BE COMBINED MAY BE SPECIFIED IN ANY Mixer

ORDER, I.E. THEY NEED NOT BE IN ZA ORDER OR THE ORDER THAT THE Mixer

EVALUATED DATA APPEARS ON THE ENDF/B FORMATTED TAPE. Mixer

Mixer

IF ANY REQUESTED SECTION OF DATA IS NOT FOUND ON THE ORIGINAL Mixer

ENDF/B FORMATTED FILE, THE PROGRAM WILL PRINT A LIST OF THE Mixer

MISSING SECTIONS AND TERMINATE. IF ALL REQUESTED SECTIONS ARE Mixer

FOUND THE PROGRAM WILL PRODUCE A COMPOSITE SECTION USING THE Mixer

UNION OF ALL ENERGIES FOUND IN ANY SECTION. THE COMPOSITE SECTION Mixer

WILL NOT BE THINNED. Mixer

Mixer

PRIOR TO LATER USE IN ANY APPLICATION THE NUMBER OF ENERGY POINTS Mixer

IN THE COMPOSITE CROSS SECTION MAY BE MINIMIZED BY USING PROGRAM Mixer

LINEAR, UCRL-50400, VOL. 17, PART B TO THIN THE DATA. Mixer

Mixer

ONLY LINEARLY INTERPOLABLE DATA Mixer

------------------------------- Mixer

THE CROSS SECTIONS TO BE COMBINED MUST BE IN LINEARLY INTERPOLABLE Mixer

TABULATED FORM (I. E., FILE 3 OR 23, INTERPOLATION LAW 2). Mixer

Mixer

TO CONVERT TABULATED CROSS SECTIONS TO LINEARLY INTERPOLABLE FORM Mixer

SEE, PROGRAM LINEAR, UCRL-50400, VOL. 17, PART A. Mixer

Mixer

TO CONVERT RESONANCE PARAMETERS TO LINEARLY INTERPOLABLE FORM SEE, Mixer

PROGRAM RECENT, UCRL-50400, VOL. 17, PART C. Mixer

Mixer

TO DOPPLER BROADEN LINEARLY INTERPOLABLE DATA TO ANY TEMPERATURE Mixer

SEE PROGRAM SIGMA1, UCRL-50400, VOL. 17, PART B. Mixer

Mixer

PAGING SYSTEM Mixer

------------- Mixer

THERE IS NO LIMIT TO THE THE NUMBER OF DATA POINTS IN EACH OF THE Mixer

SECTIONS TO BE COMBINED, NOR IS THERE A LIMIT TO THE NUMBER OF Mixer

DATA POINTS IN THE COMPOSITE MIXTURE CROSS SECTION. Mixer

Mixer

ALL REQUIRED SECTIONS OF DATA ARE READ FROM THE ORIGINAL ENDF/B Mixer

FORMATTED FILE. ANY SECTION OF 60000 OR FEWER POINTS WILL BE Mixer

TOTALLY CORE RESIDENT. LARGER SECTIONS ARE LOADED INTO A PAGING Mixer

SYSTEM USING A SCRATCH FILE WITH ONLY 60000 POINTS PER SECTION Mixer

CORE RESIDENT AT ANY ONE TIME. SIMILARLY THE COMPOSITE SECTION Mixer

WILL BE TOTALLY CORE RESIDENT IF IT CONTAINS 60000 OR FEWER POINTS Mixer

AND LARGER COMPOSITE SECTIONS WILL BE LOADED INTO A PAGING Mixer

SYSTEM WHERE ONLY 60000 POINTS ARE CORE RESIDENT AT ANY TIME. SINC Mixer

A PAGING SYSTEM MAY BE USED BY ANY SECTION OF DATA THERE IS NO Mixer

LIMIT TO THE SIZE OF EITHER THE ORIGINAL SECTIONS, NOR TO THE Mixer

COMPOSITE SECTION, E.G. A SECTION MAY CONTAIN 100,000 ENERGIES Mixer

AND CROSS SECTIONS TO DESCRIBE A GIVEN REACTION. Mixer

Mixer

PAGE SIZE Mixer

--------- Mixer

THE PAGE SIZE USED IN THIS PROGRAM IS DEFINED BY THE PARAMETER Mixer

NPAGE AND THE DIMENSIONS OF THE ARRAYS XTAB AND YTAB. IN ORDER Mixer

TO ADAPT THIS PROGRAM FOR USE ON ANY COMPUTER THE PAGE SIZE MAY Mixer

BE INCREASED OR DECREASED BUT THE FOLLOWING RULES MUST BE FOLLOWED Mixer

==== Mixer

Mixer

(1) NPAGE - MUST BE A MULTIPLE OF 3 IN ORDER TO ALLOW THE PROGRAM Mixer

TO READ FULL CARDS OF ENDF/B DATA (3 POINTS PER LINE). FAILURE Mixer

TO FOLLOW THIS RULE CAN LEAD TO LOSS OF DATA AND/OR PROGRAM Mixer

ERRORS DURING EXECUTION. Mixer

(3) YTAB - THE DIMENSION OF YTAB MUST BE (NPAGE,11). Mixer

(4) XTAB - THE DIMENSION OF XTAB MUST BE (NPAGE,11). Mixer

Mixer

DOPPLER BROADENING Mixer

------------------ Mixer

THE COMPOSITE CROSS SECTION OUTPUT FROM THIS PROGRAM SHOULD NOT Mixer

BE DOPPLER BROADENED USING PROGRAM SIGMA1, OR THE EQUIVALENT. THE Mixer

ATOMIC WEIGHT USED TO IDENTIFY THE COMPOSITE MIXTURE IS BASED ON Mixer

THE ATOM FRACTION OF EACH CONSTITUENT AND CANNOT BE USED TO Mixer

CHARACTERIZE THE BROADENING OF ANY GIVEN RESONANCE IN THE MIXTURE Mixer

DUE TO THE CONTRIBUTION OF ONE CONSTITUENT. IN ORDER TO CONSIDER Mixer

DOPPLER BROADENING FIRST USE PROGRAM SIGMA1 TO BROADEN THE CROSS Mixer

SECTION FOR EACH OF THE CONSTITUENTS AND THEN COMBINE THE Mixer

BROADENED DATA USING PROGRAM MIXER. Mixer

Mixer

EXAMPLE USE Mixer

----------- Mixer

THE OUTPUT FROM THIS PROGRAM HAS BEEN FOUND TO BE EXTREMELY Mixer

USEFUL IN THE FOLLOWING APPLICATIONS... Mixer

Mixer

(1) CALCULATE A COMPOSITE TOTAL CROSS SECTON FOR LATER USE AS Mixer

A WEIGHTING FUNCTION IN SELF-SHIELDING THE CROSS SECTIONS Mixer

OF EACH CONSTITUENT OF THE MIXTURE SEPARATELY. Mixer

Mixer

PROGRAM GROUPIE CAN USE THE CALCULATED COMPOSITE TOTAL CROSS Mixer

SECTION AS THE TOTAL CROSS SECTION FOR EACH CONSTITUENT OF Mixer

THE MIXTURE IN ORDER TO CALCULATE SELF-SHIELDED CROSS SECTION Mixer

FOR EACH CONSTITUENT OF THE MIXTURE. Mixer

Mixer

(2) CALCULATE COMPOSITE TOTAL AND FISSION CROSS SECTIONS IN Mixer

ORDER TO CALCULATE THE TRANSMISSION AND SELF-INDICATION Mixer

THROUGH COMPOSITE MATERIALS. GENERALLY IN THIS CASE THE Mixer

TOTAL CROSS SECTION WILL BE CALCULATED FOR THE COMPOSITION Mixer

OF THE SAMPLE AND THE FISSION CROSS SECTION WILL BE Mixer

CALCULATED FOR THE COMPOSITION OF THE FISSION CHAMBER Mixer

(WHICH GENERALLY WILL HAVE A DIFFERENT COMPOSITION THAN THE Mixer

SAMPLE). Mixer

Mixer

PROGRAM VIRGIN CAN USE THE OUTPUT FROM THIS PROGRAM TO Mixer

PERFORM TRANSMISSION AND SELF-INDICATION CALCULATIONS. Mixer

PROGRAM VIRGIN WILL ANALYTICALLY CALCULATE THE UNCOLLIDED Mixer

(I.E. VIRGIN) FLUX TRANSMITTED AND REACTION RATE DUE TO ANY Mixer

TABULATED LINEARLY INTERPOLABLE INCIDENT SPECTRUM. RESULTS Mixer

WILL BE PRESENTLY FOR UP TO 10 DIFFERENT SAMPLE THICKNESSES Mixer

AND BINNED INTO ENERGY GROUPS IN ORDER TO SIMULATE AN Mixer

EXPERIMENTAL MEASUREMENT. Mixer

Mixer

(3) THE OUTPUT FROM THIS PROGRAM IS VERY USEFUL TO PLOT IN ORDER Mixer

TO SEE THE IMPORTANCE OF SPECIFIC CROSS SECTION FEATURES IN Mixer

THE COMPOSITE CROSS SECTION. Mixer

Mixer

PROGRAM COMPLOT CAN BE USED TO PLOT THE OUTPUT FROM THIS Mixer

PROGRAM AND IF REQUIRED EXAMINE ANY PARTICULAR ENERGY RANGE Mixer

IN DETAIL. IN ORDER TO DO THIS THE (ZA, MT) EQUIVALENCE OPTION Mixer

OF PROGRAM COMPLOT SHOULD BE USED. TO COMPARE ANY CONSTITUENT Mixer

CROSS SECTION TO THE COMPOSITE CROSS SECTION THE INPUT TO Mixer

COMPLOT SHOULD EQUATE THE (ZA,MT) OF THE COMPOSITE TO THE Mixer

(ZA,MT) OF ONE CONSTITUENT AND THE MULTIPLIER INPUT TO Mixer

COMPLOT SHOULD BE THE ATOM FRACTION FOR THE CONSTITUENT (THE Mixer

ATOM FRACTIONS ARE DEFINED IN THE OUTPUT LISTING FROM PROGRAM Mixer

MIXER). Mixer

Mixer

INPUT FILES Mixer

----------- Mixer

UNIT DESCRIPTION Mixer

---- ----------- Mixer

2 INPUT CARDS (BCD - 80 CHARACTERS/RECORD) Mixer

10 ORIGINAL EVALUATED DATA IN ENDF/B FORMAT Mixer

(BCD - 80 CHARACTERS/RECORD) Mixer

Mixer

OUTPUT FILES Mixer

------------ Mixer

UNIT DESCRIPTION Mixer

---- ----------- Mixer

3 OUTPUT LISTING (BCD - 120 CHARACTERS/RECORD) Mixer

11 COMPOSITE EVALUATED DATA IN ENDF/B FORMAT Mixer

(BCD - 80 CHARACTERS/RECORD) Mixer

Mixer

SCRATCH FILES Mixer

------------- Mixer

UNIT DESCRIPTION Mixer

---- ----------- Mixer

12 SCRATCH FILE FOR EACH OF THE 10 SECTIONS WHICH Mixer

13 WILL BE ADDED TOGETHER TO DEFINE THE FINAL Mixer

. SECTION (BINARY - 60000 AND 480000 WORDS/RECORD) Mixer

. . Mixer

. . Mixer

20 . Mixer

21 . Mixer

22 SCRATCH FILE FOR COMBINED SECTION. Mixer

(BINARY - 2004 WORDS/RECORD) Mixer

Mixer

STANDARD FILE NAMES (SEE SUBROUTINES FILIO1 AND FILIO2) Mixer

---------------------------------------------------------------- Mixer

UNIT FILE NAME Mixer

---- ---------- Mixer

2 MIXER.INP Mixer

3 MIXER.LST Mixer

10 ENDFB.IN Mixer

11 ENDFB.OUT Mixer

12-22 (SCRATCH) Mixer

Mixer

INPUT CARDS Mixer

----------- Mixer

LINE COLS. FORMAT NAME DESCRIPTION Mixer

---- ----- ------ ------- ---------- Mixer

1-2 1-66 16A4,A2 TITLE TWO LINE TITLE DESCRIBING PROBLEM Mixer

(THIS TITLE IS USED TO IDENTIFY THE Mixer

OUTPUT LISTING AND IS ALSO WRITTEN Mixer

IN MF=1, MT=451 (HOLLERITH SECTION) Mixer

OF THE ENDF/B FORMATTED OUTPUT TO Mixer

IDENTIFY THE COMPOSITE MIXTURE). Mixer

3 1-72 ENDF/B INPUT DATA FILENAME Mixer

(STANDARD OPTION = ENDFB.IN) Mixer

4 1-72 ENDF/B OUTPUT DATA FILENAME Mixer

(STANDARD OPTION = ENDFB.OUT) Mixer

5 1-11 I11 IZAOUT ZA IDENTIFICATION FOR COMBINATION Mixer

5 12-17 I6 MATOUT MAT IDENTIFICATION FOR COMBINATION Mixer

5 18-19 I2 MFOUT MF IDENTIFICATION FOR COMBINATION Mixer

5 20-22 I3 MTOUT MT IDENTIFICATION FOR COMBINATION Mixer

5 23-33 I11 DEFINE INPUT DENSITY Mixer

= 0 = GRAMS = BACKWARDS COMPATIBLE Mixer

> 0 = ATOMS = NEW IN 2008 Mixer

6-N 1-11 I11 IZAGET ZA (1000\*Z+A) OF MATERIAL Mixer

6-N 12-22 I11 MTGET MT OF REACTION Mixer

6-N 23-33 E11.4 DENSE MATERIAL DENSITY (ATOMS OR GRAMS) Mixer

Mixer

THE SIXTH LINE IS REPEATED FOR EACH SECTION (FROM 2 TO 10). Mixer

SINCE THE ENDF/B FORMATTED OUTPUT IS IN BARNS/ATOM FORM A MINIMUM Mixer

OF TWO SECTIONS MUST BE COMBINED (I.E., IF ONLY ONE SECTION IS Mixer

SPECIFIED THE OUTPUT WOULD BE IDENTICAL TO THE INPUT AND AS SUCH Mixer

THE PROGRAM WILL CONSIDER THIS TO BE AN ERROR AND NOT PERFORM THE Mixer

CALCULATION). THE LIST OF SECTIONS IS TERMINATED BY A BLANK LINE. Mixer

Mixer

THE LIST OF SECTIONS TO BE COMBINED MAY BE SPECIFIED IN ANY Mixer

ORDER, I.E. THEY NEED NOT BE IN ZA ORDER OR THE ORDER THAT THE Mixer

EVALUATED DATA APPEARS ON THE ENDF/B FORMATTED TAPE. Mixer

Mixer

EXAMPLE INPUT NO. 1 Mixer

------------------- Mixer

CREATE THE TOTAL CROSS SECTION (MT=1) FOR STAINLESS STEEL AND Mixer

IDENTIFY THE COMBINED MATERIAL WITH ZA=26800 AND MAT=4000, Mixer

THE COMPOSITION BY VOLUME OF THE STEEL WILL BE... Mixer

Mixer

THE DATA FROM \ENDFB6\K300\LIBRARY.DAT AND WRITE DATA TO Mixer

\MIXER\STEEL.DAT Mixer

Mixer

IRON - 74.8 PER-CENT Mixer

CHROMIUM - 16.0 Mixer

NICKEL - 6.0 Mixer

MANGANESE - 2.0 Mixer

SILICON - 1.0 Mixer

CARBON - 0.2 Mixer

Mixer

THE INPUT MUST SPECIFY THE COMPOSITION BY GRAMS OR ATOMS. THIS IS Mixer

DEFINED AS THE PRODUCT OF THE STANDARD DENSITY (GRAMS) Mixer

TIMES THE VOLUME FRACTION. FOR THIS EXAMPLE THE FOLLOWING 12 Mixer

INPUT CARDS ARE REQUIRED.... Mixer

Mixer

STAINLESS STEEL. COMPOSITION BY PER-CENT VOLUME IS 74.8-IRON, Mixer

16-CHROME, 6-NICKEL, 2-MANGANESE, 1-SILICON, 0.2-CARBON Mixer

\ENDFB6\K300\LIBRARY.DAT Mixer

\MIXER\STEEL.DAT Mixer

26800 4000 3 1 0 Mixer

26000 1 5.88676 (NOTE, GRAMS INPUT FOR EACH Mixer

24000 1 1.150448 CONSTITUENT, E.G. FOR IRON THE Mixer

28000 1 0.533928 STP DENSITY IS 7.87 GRAMS. Mixer

25055 1 0.1486 THE INPUT VALUE OF 5.88676 IS Mixer

14000 1 0.0233 0.748 X 7.87,I.E. VOLUME Mixer

6012 1 0.0044958 FRACTION TIMES STP DENSITY). Mixer

(BLANK LINE TERMINATES INPUT LIST) Mixer

Mixer

EXAMPLE INPUT NO. 2 Mixer

------------------- Mixer

THE SAME EXAMPLE AS THE ABOVE PROBLEM, ONLY USE THE STANDARD Mixer

ENDF/B DATA FILENAMES - ENDFB.IN AND ENDFB.OUT (THIS CAN BE Mixer

DONE BY LEAVING THE THIRD AND FOURTH INPUT LINES BLANK). Mixer

FOR THIS EXAMPLE THE FOLLOWING 12 INPUT CARDS ARE REQUIRED.... Mixer

Mixer

STAINLESS STEEL. COMPOSITION BY PER-CENT VOLUME IS 74.8-IRON, Mixer

16-CHROME, 6-NICKEL, 2-MANGANESE, 1-SILICON, 0.2-CARBON Mixer

(NOTE - THIS LINE IS REALLY BLANK) Mixer

(NOTE - THIS LINE IS REALLY BLANK) Mixer

26800 4000 3 1 Mixer

26000 1 5.88676 (NOTE, GRAMS INPUT FOR EACH Mixer

24000 1 1.150448 CONSTITUENT, E.G. FOR IRON THE Mixer

28000 1 0.533928 STP DENSITY IS 7.87 GRAMS. Mixer

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14000 1 0.0233 0.748 X 7.87,I.E. VOLUME Mixer

6012 1 0.0044958 FRACTION TIMES STP DENSITY). Mixer

(BLANK LINE TERMINATES INPUT LIST) Mixer

Mixer

======================================================================= Mixer