

KARLSRUHE

CHARGED

PARTICLE

GROUP

Information

Nr. 1

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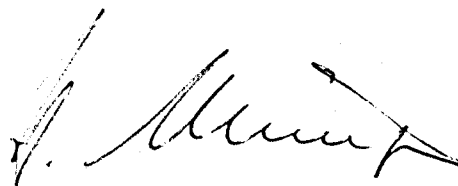
Last year it was decided to start with an international cooperation in the field of compilation, evaluation and dissemination of integral charged particle reaction data, like cross sections and thick target yields. For details see INDC(NDS)-69, which contains the conclusions of the Consultants' Meeting in Vienna (September 1975). It was also accepted that the Nuclear Data Section of the IAEA should annually convene such Meetings so that the groups actively engaged in handling charged particle reaction data could discuss pertinent subjects. It was proposed that in between the groups should inform each other about the progress of the work, necessary changes in the keywords etc.

At the Consultants' Meeting it was decided that the Charged-Particle-File (KACHAPAG-File) should be based on the EXFOR-format used for the compilation of Neutron-Data. This is possible only if several changes are introduced. At the meeting the proposed changes were discussed at length and many recommendations were formulated. Since we did not receive any objections we assume that these recommendations are generally accepted and that we can proceed with this new version of the EXFOR-format.

In addition to the changes in the codes considered in Vienna the following topic should be discussed: According to the rules given in LEXFOR, metastable states are denoted by Z-S-A-Mi. The number i can be omitted only if the sequence is uncertain. This nomenclature is possibly applicable for neutron reactions, where in general well investigated nuclides are formed. But LEXFOR gives no rules for which an excited state should be called a metastable state. In the case of charged particle induced reactions the nuclides formed are

normally not so well investigated and sometimes it is even not known whether the product is in the ground or the metastable state. Therefore additional information should be given for an unambiguous description of the product, for instance the half-life and/or the energy of the radiation emitted in the decay. Consequently we propose that the number of the metastable state is only optional and that the nuclide formed in the reaction should be unambiguously defined by the properties given under the keywords 'PART-DET' or 'RAD-DET'.

The EXFOR-dictionaries, which were developed for describing neutron data, contain many codes not used for the compilation of cross sections and thick target yields for charged particle induced reactions. For the convenience of compilers we have prepared a list of the codes actually applied in Karlsruhe. As can be seen from table 1 only 7 out of 23 dictionaries are used in full length (neglecting some minor changes). The codes of the other dictionaries applied up to now in the KACHAPAG-File are listed in table 2. This list already contains all the changes approved by the Consultants' Meeting of last year.



(Prof. Dr. H. Münzel)

Table 1

DICTIONARY	1	790715	SYSTEM-IDENTIFIERS	3	UNCHANGED
DICTIONARY	2	750990	INFORMATION IDENTIFIER KEYWORDS	3	CHANGED
DICTIONARY	3	751113	INSTITUTES	3	UNCHANGED
WITH THE FOLLOWING ADDITIONS:					
1USANAL			(FERMI NATIONAL LAB., BATAVIA, ILLINOIS)		
1USASTB			(STATE UNIVERSITY OF NEW YORK, ELLEN BROOK, N.Y.)		
2JAPNII			(NIIGATA UNIV., NIIGATA		
DICTIONARY	4	781119	TYPE OF REFERENCE	3	UNCHANGED
DICTIONARY	5	751111	JOURNALS	3	UNCHANGED
WITH THE FOLLOWING CHANGES AND ADDITIONS:					
NC			(NUOVO CIMENTO) NUOVO CIMENTO SER. A <sup>7</sup>		ZITY
			STARTING WITH VOL.1 (1955) UNTIL VOL.39 NO.4 (1965)		
NC/A			(NUOVO CIMENTO A) NUOVO CIMENTO SECTION A, SER.10		ZITY
			STARTING WITH VOL.40 NO.1 (1955) UNTIL VOL.70 (1970)		
			SER.11 STARTING WITH VOL.1 (1971)		
			NOTE = NC/A CONTAINS ELEMENTARY PARTICLE PHYSICS		
NC/B			(NUOVO CIMENTO B) NUOVO CIMENTO SECTION B, SER.10		ZITY
			STARTING WITH VOL.40 NO.1 (1955) UNTIL VOL.70 (1970)		
			SER.11 STARTING WITH VOL.1 (1971)		
PPS/A			(PROC.PHYS.SOC.(LONDON)SECT.A) PROCEEDINGS OF THE		ZUK
			PHYSICAL SOCIETY, LONDON, SECTION A		
PRS/A			(PROC.ROY.SOC.,LONDON,SER.A) PROCEEDINGS OF THE		ZUK
			ROYAL SOCIETY, LONDON, SERIES A, MATHEMATICAL AND		
			PHYSICAL SCIENCES		
DICTIONARY	6	751116		3	UNCHANGED
WITH THE FOLLOWING ADDITION:					
CERN-			(CERN EUROP.ORG.FOR NUCL.RES.) CERN EUROPEAN		ZZZZCER
DICTIONARY	7	751110	BOOKS AND CONFERENCES	3	UNCHANGED
DICTIONARY	8	730426	ELEMENTS	3	UNCHANGED
DICTIONARY	9	750527	COMPOUNDS	3	NOT USED
DICTIONARY	10	741602	QUANT-FIELD 3 (PROCESSES+PARAMS)	3	CHANGED
DICTIONARY	11	730717	QUANT-FIELD 3 (FUNCTION)	3	NOT USED
DICTIONARY	12	751106	QUANT-FIELD 3 (MODIFIERS)	3	CHANGED
DICTIONARY	13	741171	PARTICLES	3	CHANGED
DICTIONARY	14	751117	QUANTITIES	3	NOT USED
DICTIONARY	15	730722	STATUS	3	CHANGED
DICTIONARY	16	710476	FACILITY	3	CHANGED
DICTIONARY	17	710426	NEUTRON SOURCE	3	NOT USED
DICTIONARY	20		ADDITIONAL RESULTS/RELATED REFERENCES		NEW
DICTIONARY	21	730424	METHOD	3	CHANGED
DICTIONARY	22	730614	DETECTORS	3	CHANGED
DICTIONARY	23	730122	ANALYSIS	3	CHANGED
DICTIONARY	24	731110	DATA-READING KEYWORDS	3	CHANGED
DICTIONARY	25	750715	DATA UNIT KEYWORDS	3	SELECTED

Table 2

DICTION	2	750930 INFORMATION IDENTIFIER KEYWORDS	3
TITLE	KEYWORD OBLIGATORY EXCEPT WHEN NOT RELEVANT. FREE TEXT ONLY.		3 3
AUTHOR	KEYWORD + ALL NAMES IN PARENTHESES OBLIGATORY.		3
INSTITUTE	KEYWORD + CODED INFORMATION IN PARENTHESES OBLIGATORY. SEE DICTIONARY 3 FOR INSTITUTES.		3 3
REFERENCE	KEYWORD + CODED INFORMATION IN PARENTHESES OBLIGATORY. UP TO 6 SUBFIELDS IN CODE. SEE DICTIONARY 4 FOR REFERENCE-TYPE SEE DICTIONARY 5 FOR JOURNALS SEE DICTIONARY 6 FOR REPORTS SEE DICTIONARY 7 FOR CONFERENCES AND BOOKS		3 3 3 3 3 3 3
-----			
	'METHOD', 'FACILITY', 'DETECTOR', 'ANALYSIS'. AT LEAST ONE OF THESE KEYWORDS MUST BE PRESENT. IF A PERTINENT CODE IN THE RELEVANT DICTIONARY EXISTS, THEN KEYWORD AND CODE SHOULD BE GIVEN.		3 3 3 3
METHOD	KEYWORD OBLIGATORY EXCEPT WHEN NOT RELEVANT. FREE TEXT OR CODED INFORMATION IN PARENTHESES PLUS FREE TEXT. SEE DICTIONARY 21		3 3 3
FACILITY	THE FIRST SUBFIELD OF THE KEYWORD GIVING THE TYPE OF THE FACILITY (SEE DICT.18) IS OBLIGATORY EXCEPT WHEN NOT RELEVANT. THE SECOND SUBFIELD GIVING THE LOCATION OF THE FACILITY (SEE DICT.3) IS OPTIONAL. CODED INFORMATION IN PARENTHESES AND/OR FREE TEXT.		3 3 3 3
DETECTOR	KEYWORD OBLIGATORY EXCEPT WHEN NOT RELEVANT. FREE TEXT OR CODED INFORMATION IN PARENTHESES PLUS FREE TEXT. SEE DICTIONARY 22		3 3 3
ANALYSIS	KEYWORD OBLIGATORY EXCEPT WHEN NOT RELEVANT. FREE TEXT OR CODED INFORMATION IN PARENTHESES PLUS FREE TEXT. SEE DICTIONARY 23		3 3 3 3
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SAMPLE	KEYWORD OPTIONAL. FREE TEXT ONLY.		3 3
*COMMENT	THE PARTICLE OR NUCLIDE DETECTED MUST BE EVIDENT EITHER FROM 'REACTION', 'PART-DET', 'RAD-DET' OR 'DECAY-DATA'.		
* REACTION	KEYWORD + CODED INFORMATION IN PARENTHESES OBLIGATORY FOR CHARGED PARTICLE INDUCED REACTIONS. UP TO 9 SUBFIELDS (SF1(SF2,SF3)SF4,SF5,SF6,SF7,SF8,SF9) SF1 TARGET NUCLIDE Z-S-A(-MX) (SEE EXPLANATION BELOW) SF2 PROJECTILE (SEE DICT.13 AND EXPL.BELOW) SF3 OUTGOING PARTICLE(S) (SEE DICT.13 AND EXPL.BELOW) SF4 PRODUCT NUCLIDE Z-S-A(-MX) (SEE EXPLANATION BELOW) SF5 BRANCH (SEE DICT.10 + DICT.12) SF6 QUANTITY MEASURED (SEE DICT.10) SF7 PARTICLE, NOT USED FOR REACT. WITH CHARGED PARTICL. SF8 MODIFIER (SEE DICT.12) SF9 CLASSIFICATION (SEE DICT.12) DIFFERENT TYPES OF OUTGOING PARTICLES IN SF3 MUST BE SEPARATED BY + , E.G. 2N+P+A. THE NUCLIDE IS GIVEN IN THE FORM Z-S-A. IN GENERAL THIS MEANS THE GROUND-STATE OF THE NUCLIDE, WHICH COULD ALSO BE GIVEN EXPLICITLY BY Z-S-A-G. A METASTABLE STATE IS DEFINED BY Z-S-A-M. IF MORE THAN ONE METASTABLE STATE EXISTS THE NOTATION Z-S-A-M1, Z-S-A-M2 ETC. MAY BE		

USED. IN ANY CASE THE DEFINITION MUST BE UNAMBIGUOUS BY STATING ADDITIONAL PROPERTIES OF THE STATE, LIKE HALF-LIFE AND/OR RADIATION ENERGY. FOR SF2 AND SF3 PARTICLES HEAVIER THAN AN ALPHA PARTICLE ARE CODED IN THE SAME WAY AS IN SF1 AND SF4. IF SF5 TO SF9 CONTAIN MORE THAN ONE CODE A SLASH IS USED FOR SEPARATION.

PART-DET THE PARTICLE DETECTED MUST BE EVIDENT EITHER FROM 'ISO-QUANT' OR FROM 'PART-DET'. IF KEYWORD PRESENT, THEN CODED INFORMATION IN PARENTHESES OBLIGATORY. SEE DICTIONARY 13

RAD-DET KEYWORD AND CODED INFORMATION IN PARENTHESES ARE OBLIGATORY IF THE NUCLIDE OBSERVED IS NOT OBVIOUS FROM 'REACTION' OR 'DECAY-DATA'. THE FIRST SUBFIELD GIVES THE NUCLIDE AND THE ADDITIONAL SUBFIELDS THE TYPES OF THE RADIATION OBSERVED (SEE DICT.13). IF KEYWORD PRESENT, THE DATA FOR OBSERVED RADIATION HAS TO BE GIVEN UNDER 'DECAY-DATA'.

DECAY-DATA KEYWORD OPTIONAL. IF KEYWORD PRESENT, THEN CODED INFORMATION IN PARENTHESES OBLIGATORY. THE SUBFIELDS ARE SEPARATED BY COMMAS (SF1,SF2,...)  
 SF1 NUCLIDE Z-S-A(-MX) (SEE 'REACTION')  
 SF2 HALF-LIFE (FLOATING POINT NUMBER)  
 SF3 TYPE OF RADIATION (SEE DICT.13)  
 SF4 ENERGY OF RADIATION IN KEV (FLOATING POINT NUMBER)  
 SF5 ABUNDANCE OF RADIATION PER DECAY (FLOAT. PT. NUMB.)  
 SF... SF3,SF4 AND SF5 MAY BE REPEATED AS OFTEN AS NECESSARY  
 FREE TEXT OPTIONAL.

MONITOR KEYWORD OBLIGATORY EXCEPT WHEN NOT RELEVANT. CODED INFORMATION UP TO 13 SUBFIELDS IN PARENTHESES PLUS FREE TEXT.  
 SF1 TO SF4 MONITOR REACTION, NOTATION AS GIVEN IN 'REACTION' SF1 TO SF4.  
 SF5 ACCESSION NUMBER OF MONITOR REACTION IN EXFOR FILE  
 SF6 FIRST AUTHOR OF PUBLICATION, ADDITIONAL AUTHORS ARE NOTED BY +. EXAMPLE, LANGE+,  
 SF7 TO SF11 OR SF12 REFERENCE, NOTATION AS GIVEN IN 'REFERENCE'.  
 NEXT SUBFIELD (SF12 OR SF13) OPTIONAL INFORMATION ABOUT THE DATA, AS EVALUATED OR RECOMMENDED DATA (SEE DICT.12)

REL-REF KEYWORD OPTIONAL. CODED INFORMATION UP TO 8 SUBFIELDS IN PARENTHESES PLUS FREE TEXT.  
 SF1 THE REASON FOR CITING THE REFERENCE (SEE DICT.20). IF THE CODE 'N' IS USED A FREE TEXT IS OBLIGATORY.  
 SF2 FIRST AUTHOR OF PUBLICATION, ADDITIONAL AUTHORS ARE NOTED BY +  
 SF3 TO SF8 REFERENCE, NOTATION AS GIVEN IN 'REFERENCE'  
 THE KEYWORD 'REL-REF' REFERS TO PUBLICATIONS WHICH ARE RELEVANT TO AN ENTRY OR A SUBENTRY, FOR INSTANCE TO THOSE PUBLICATIONS WHICH ARE INCLUDED IN AN EVALUATION.  
 ADD-RES KEYWORD 'ADDITIONAL RESULTS' OPTIONAL. FREE TEXT OR CODED INFORMATION IN PARENTHESES PLUS FREE TEXT (SEE

CORRECTION DICT.2)). KEYWORD OPTIONAL. FREE TEXT ONLY 3  
 ERR-ANALYS KEYWORD OBLIGATORY EXCEPT WHEN NOT RELEVANT. 3  
 FREE TEXT, OR HEADING OF RELEVANT ERROR-COLUMN IN 3  
 PARENTHESES PLUS FREE TEXT 3  
 COMMENT KEYWORD OPTIONAL. FREE TEXT ONLY 3  
 MISC-CCL KEYWORD OPTIONAL. IF KEYWORD PRESENT THEN COLUMN- 3  
 HEADING 'MISC', 'MISC1' OR 'MISC2' ETC. IN PARENTHESES 3  
 IS OBLIGATORY. 3  
 FLAG KEYWORD OPTIONAL. IF KEYWORD PRESENT THEN THE FLAG 3  
 NUMBER IN PARENTHESES IS OBLIGATORY. 3  
 STATUS KEYWORD OBLIGATORY EXCEPT WHEN THE SOURCE OF THE DATA 3  
 IS GIVEN UNDER 'REFERENCE' AND NO OTHER 'STATUS' 3  
 INFORMATION APPLIES. CODE FROM DICT 16 IN PARENTHESES 3  
 PLUS FREE TEXT. FREE TEXT ALONE IF NO CODE APPLIES. 3  
 HISTORY KEYWORD + CODED INFORMATION IN PARENTHESES OBLIGATORY 3  
 GIVING A DATE IN THE FORM YYMMDD PLUS A ONE CHARACTER 3  
 ACTION-CODE. THE DATE IS OBLIGATORY, THE ACTION-CODE IS 3  
 OPTIONAL. THE ALLOWED ACTION-CODES ARE FOLLOWING 3  
 R - DATA RECEIVED AT THE CENTRE 3  
 C - COMPILED AT THE CENTRE 3  
 L - ENTERED INTO LIBRARY 3  
 T - CONVERTED FROM PREVIOUS COMPILATION 3  
 E - TRANSMITTED TO OTHER CENTRES 3  
 A - IMPORTANT ALTERATIONS 3  
 U - UNIMPORTANT ALTERATIONS 3  
 D - ENTRY OR SUBENTRY DELETED. THIS MUST BE FOLLOWED BY 3  
 FREE TEXT JUSTIFYING THE DELETION 3

DICT 18 75002 QUANT-FIELD 1 (PROCESSES-REACT) 3

TOT TOTAL REACTION CROSS SECTION INCLUDING SCATTERING  
 NON NONELASTIC = TOTAL REACTION CROSS SECTION EXCEPT  
 ABS ABSORPTION = TOTAL REACTION CROSS SECTION EXCEPT  
 SCATTERING

-----3

GEM GAMMA-EMISSION, SHOULD BE APPLIED ONLY IF THE CODE  
 G+X IS USED IN SF3 OF 'REACTION' (OUTGOING PARTICLES)  
 NEM NEUTRON-EMISSION, SHOULD BE APPLIED ONLY IF THE CODE  
 N+X IS USED IN SF3 OF 'REACTION' (OUTGOING PARTICLES)  
 PEM PROTON EMISSION, SHOULD BE APPLIED ONLY IF THE CODE  
 P+X IS USED IN SF3 OF 'REACTION' (OUTGOING PARTICLES)  
 AEM ALPHA-EMISSION, SHOULD BE APPLIED ONLY IF THE CODE  
 A+X IS USED IN SF3 OF 'REACTION' (OUTGOING PARTICLES)  
 SIG (SIGMA) CROSS SECTION FOR THE FORMATION OF THE  
 SPECIFIED PRODUCT NUCLIDE OR THE SPECIFIED REACTION-  
 TYPE (X,Y)  
 TTY (THICK-TARGET-YIELD) THICK-TARGET-YIELD FOR THE  
 SPECIFIED PRODUCT NUCLIDE  
 FY (FISSION YIELD) INDEPENDENT, CUMULATIVE AND TOTAL CHAIN  
 YIELD SEE MODIFIER (DICT.12)  
 PY (PRODUCT YIELD) IN CASE OF CHARGED PARTICLE REACTIONS  
 THIS CODE IS USED WHENEVER 'SIG', 'TTY' OR 'FY'  
 CANNOT BE APPLIED, E.G. AVERAGE CROSS SECTION FOR A  
 LIMITED ENERGY RANGE. EXPLANATORY FREE TEXT IS  
 OBLIGATORY.

RAW	(RAW DATA (SEE TEXT))	3
REL	(RELATIVE DATA) TO BE COMBINED WITH ARBITRARY UNITS, OTHERWISE USE FCT.	3
FCT	(DATA TIMES A FACTOR (SEE TEXT))	3
AV	(AVERAGE)	3
PAR	PARTIAL = LEAVING THE RESIDUAL NUCLEUS IN A SPECIFIC LEVEL OR EMITTING A SPECIFIC GAMMA OR PARTICLE GROUP	3
PR	PRCMT	3
DL	DELAYED	3
CN	PARTIAL CROSS-SECTION VIA COMPOUND NUCLEUS	3
DI	PARTIAL CROSS-SECTION VIA DIRECT INTERACTION	3
M+	INCLUDING FORMATION VIA ISOMERIC TRANSITION	
M-	EXCLUDING FORMATION VIA ISOMERIC TRANSITION	
(M)	INCLUSION/EXCLUSION OF FORMATION VIA ISOMERIC TRANSITION UNCERTAIN (COMMENT BY THE COMPILER)	
BIN	BINARY	3
TER	TERNARY	
IND	INDEPENDENT YIELD OF THE PRODUCT NUCLIDE VIA DIRECT FORMATION ONLY	
CUM	CUMULATIVE YIELD, I.E. YIELD OF THE PRODUCT NUCLIDE VIA DIRECT FORMATION AND RADIOACTIVE DECAY, EXCLUDING ISOMERIC TRANSITION.	
(CUM)	APPLICATION OF THE CODE 'CUM' IS UNCERTAIN (COMMENT BY THE COMPILER)	
*COMMENT	THE MODIFIER IND AND CUM ARE USED FOR ALL KINDS OF NUCLEAR REACTIONS.	
*		

-----3  
 CODES FOR CLASSIFICATION USED IN SF9 OF 'REACTION'  
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EXP	EXPERIMENTAL DATA
THEC	CALCULATIONS BASED ON THEORY
EVAL	EVALUATED DATA
RECCM	RECOMMENDED DATA

G	(GAMMAS) EXCEPT DECAY GAMMAS	3
N	(NEUTRONS)	3
P	(PROTONS)	3
D	(DEUTERONS)	3
T	(TRITONS)	3
HE3	(HE-3)	3
A	(ALPHAS) HE-4	3
FF	(FISSION FRAGMENTS)	3
-----3		
DG	(DECAY GAMMAS) USED FOR GAMMAS EMITTED FROM METASTABLE STATES AND FOR GAMMAS FOLLOWING A PARTICLE-EMITTING DECAY (E.G. BETA DECAY)	3
AR	(ANNIHILATION RADIATION)	3
B-	(DECAY BETA-)	3
B	(DECAY BETAS) UNSPECIFIED WHETHER B+ OR B-	3
B+	(DECAY BETA+) POSITRONS	3
E	(ELECTRONS) OTHER THAN DECAY BETAS	3
RCL	(RECOIL NUCLEUS)	3
RSD	(RESIDUAL NUCLEUS)	3
PN	(PROMPT NEUTRONS)	3
DN	(DELAYED NEUTRONS)	3
XR	(X-RAYS)	3
X	(UNDEFINED OUTGOING PARTICLES) IF THE AUTHOR DOES NOT STATE THE KIND AND NUMBER OF THE OUTGOING PARTICLES IN CHARGED PARTICLE INDUCED REACTIONS OR IF AMBIGUITY EXISTS IN RESPECT TO THE REACTION TYPES INVOLVED.	
EC	(ELECTRON CAPTURE)	
SF	(SPONTANEOUS FISSION)	



PRELM (PRELIMINARY DATA) DATA LABELLED BY AUTHOR AS PRELIMINARY  
 FREE TEXT= AUTHOR'S INFORMATION ABOUT FINALIZING THE DATA.  
 ALSO TO BE USED FOR 'DATA NOT TO BE QUOTED PRIOR TO PUBLICATION'.  
 SPSSD (DATA SUPERSEDED) DATA SUPERSEDED BY AUTHOR'S REVISION,  
 AND REVISED DATA ENTERED IN LIBRARY.  
 FREE TEXT= CROSS-REFERENCE TO SUPERSEDING DATA TABLE  
 DEP (DEPENDENT DATA)  
 FREE TEXT= CROSS-REFERENCE TO THE INDEPENDENT DATA FROM WHICH DEPENDENT DATA WERE OBTAINED.  
 EXAMPLE= GAMMA-WIDTH WHEN OBTAINED BY SUBTRACTION FROM INDEPENDENTLY MEASURED TOTAL-WIDTHS AND NEUTRON-WIDTHS.  
 APRVD (APPROVED BY AUTHOR) PROOF-COPY WAS APPROVED BY AUTHOR AND AUTHOR'S CORRECTIONS HAVE BEEN ENTERED.  
 FREE TEXT= NAME AND DATE OF APPROVAL  
 UNOBT (DATA UNOBTAINABLE FROM AUTHOR)  
 FREE TEXT= EXPLANATION WHY UNOBTAINABLE  
 OUTDT (NORMALIZATION OUT-OF-DATE)  
 FREE TEXT= REASON OR CROSS-REFERENCE TO RENORMALIZED DATA TABLE  
 RNCRM (DATA RENORMALIZED) DATA RENORMALIZED BY OTHER THAN AUTHOR.  
 FREE TEXT= EXPLANATION OF RENORMALIZATION AND CROSS-REFERENCE TO AUTHOR'S ORIGINAL DATA.  
 NOTE= ONLY TO BE USED FOR NON-TRIVIAL RENORMALIZATION BY AN EVALUATOR. COMPILATION CENTRES SHOULD GENERALLY STORE THE AUTHOR'S ORIGINAL NORMALIZATION.  
 COMP DATA OBTAINED FROM PUBLICATION BY THE COMPILER, CHECKED, BUT NOT APPROVED BY THE AUTHOR  
 CURVE DATA OBTAINED FROM A CURVE WITH A DATA-POINT READER  
 CPX-CURVE DATA OBTAINED FROM A CURVE WITH A DATA-POINT READER BY K.F.MCGOWAN ET AL., PUBLISHED IN  
 CRNL-CPX-1 (1964) FOR REACTIONS WITH MN,FE,CO  
 CRNL-CPX-2 (1964) FOR REACTIONS WITH NI, CU  
 NUCL.DATA,A1,203 (1966) FOR REACTIONS WITH LI,BE,B  
 NUCL.DATA,A2,1 (1966) FOR REACTIONS WITH C  
 NUCL.DATA,A3,123 (1967) FOR REACTIONS WITH N,O

COCKROFT-WALTON ACCELERATOR  
 LINAC (LINEAR ACCELERATOR)  
 VOG (VAN DE GRAEFF)  
 TAND (TANDEM VAN DE GRAEFF)  
 CYGFF (CYCLOGRAEFF)  
 CYCLO (CYCLOTRON)  
 SYNCH (SYNCHROTRON)  
 ISOCYC (ISOTHERMOUS-CYCLOTRON, AVF-CYCLOTRON)  
 SYNCYC (SYNCHROCYCLOTRON)  
 MICRT (MICROTRON)  
 DYNAM (DYNAMITRON)



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DICTION

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751110 DATA-HEADING KEYWORDS

EN-CM	INCIDENT NEUTRON ENERGY, LAB-SYSTEM MEANING OF THIS 'EN' SHOULD BE INTENDED TO BE 'ENERGY OF INCIDENT PARTICLE, LAB-SYSTEM'. THIS EXTENSION SHOULD APPLY TO THE EN-CM CODES. * * CONTAIN 'EN', LIKE 'EN-CM'.	A3
EN-APRX	APPROXIMATE VALUE OF INCIDENT NEUTRON ENERGY	3
EN-CM	INCIDENT NEUTRON ENERGY, C-M-SYSTEM	A3
EN-MIN	LOW LIMIT OF INCIDENT N-ENERGY RANGE, LAB-SYSTEM	A3
EN-CM-MIN	LOW LIMIT OF INCIDENT N-ENERGY RANGE, C-M-SYSTEM	A3
EN-MAX	HIGH LIMIT OF INCIDENT N-ENERGY RANGE, LAB-SYSTEM	A3
EN-CM-MAX	HIGH LIMIT OF INCIDENT N-ENERGY RANGE, C-M-SYSTEM	A3
EN-ERR	ERROR OF MONOCHROMATIC INCIDENT-NEUTRON ENERGY OR UNCERTAINTY OF THE CENTRAL ENERGY IN AN INCIDENT NEUTRON-SPECTRUM.	B3 3
EN-ERR1	ENERGY ERROR, IF MORE THAN ONE ERROR IS GIVEN. EXPLANATION UNDER 'ERR-ANALYS'.	B3 3
EN-ERR2	SECOND ENERGY ERROR, IF MORE THAN ONE ERROR IS GIVEN. EXPLANATION UNDER 'ERR-ANALYS'	B3 3
+EN-ERR	+ UNSYMMETRIC ENERGY-ERROR	B3
-EN-ERR	- UNSYMMETRIC ENERGY-ERROR	B3
EN-NRM	NORMALIZATION ENERGY. TO BE USED WHEN A DATA SET IS NORMALIZED TO ONE ENERGY ONLY.	3 3
E	ENERGY OF OUTGOING PARTICLE, LAB-SYSTEM	E3
E1	ENERGY OF OUTGOING PARTICLE, AS DEFINED IN BIB-SECT'N	E3
E2	ENERGY OF OUTGOING PARTICLE, AS DEFINED IN BIB-SECT'N	E3
E-APRX	APPROXIMATE VALUE OF OUTGOING PARTICLE ENERGY, LAB-SYS	E3
E-CM	ENERGY OF OUTGOING PARTICLE, C-M-SYSTEM	E3
E-MIN	LOW LIMIT OF OUTGOING-PARTICLE E-RANGE, LAB-SYSTEM	E3
E-CM-MIN	LOW LIMIT OF OUTGOING-PARTICLE E-RANGE, C-M-SYSTEM	E3
E-MAX	HIGH LIMIT OF OUTGOING-PARTICLE E-RANGE, LAB-SYSTEM	E3
E-CM-MAX	HIGH LIMIT OF OUTGOING-PARTICLE E-RANGE, C-M-SYSTEM	E3
E-RSL	OUTGOING-PARTICLE ENERGY-RESOLUTION	F3
E-ERR	OUTGOING-PARTICLE ENERGY-ERROR	F3
+E-ERR	+UNSYMMETRIC OUTGOING-PARTICLE ENERGY-ERROR	F3
-E-ERR	-UNSYMMETRIC OUTGOING-PARTICLE ENERGY-ERROR	F3
E-EXC	EXCITATION-ENERGY	E3
DATA	HEADING FOR COLUMN GIVING THE QUANTITY SPECIFIED UNDER 'ISC-QUANT' OR 'REACTION'.	3
DATA-APRX	APPROXIMATE VALUE OF DATUM	3
DATA-MIN	LOW LIMIT OF DATUM	3
DATA-MAX	HIGH LIMIT OF DATUM	3
DATA-ERR	DATA-ERROR. EXPLANATION TO BE GIVEN UNDER 'ERR-ANALYS'	3
DATA-ERR1	FIRST DATA-ERROR, IF MORE THAN ONE ERROR-COL IS GIVEN. EXPLANATION UNDER 'ERR-ANALYS'	3 3
DATA-ERR2	SECOND DATA-ERROR, IF MORE THAN ONE ERROR-COL IS GIVEN. EXPLANATION UNDER 'ERR-ANALYS'	3 3
DATA-ERR3	THIRD DATA-ERROR, IF MORE THAN ONE ERROR-COL IS GIVEN. EXPLANATION UNDER 'ERR-ANALYS'	3 3
+DATA-ERR	+ UNSYMMETRIC DATA-ERROR. EXPLANATN UNDER 'ERR-ANALYS'	3
-DATA-ERR	- UNSYMMETRIC DATA-ERROR. EXPLANATN UNDER 'ERR-ANALYS'	3
RATIC	HEADING FOR COLUMN GIVING THE RATIO SPECIFIED UNDER 'ISC-QUANT' OR 'REACTION' OR THE QUANTITY/STANDARD RATIO.	3
RATIO-MIN	LOW LIMIT OF RATIO	3
RATIO-MAX	HIGH LIMIT OF RATIO	3

RATIC-ERR	RATIC-ERROR	3
RATIC-ERR1	FIRST RATIC-ERROR, IF MORE THAN ONE RATIC-ERROR IS GIVEN. EXPLANATION UNDER 'ERR-ANALYS'	3
RATIC-ERR2	SECOND RATIC-ERROR, IF MORE THAN ONE RATIC-ERROR IS GIVEN. EXPLANATION UNDER 'ERR-ANALYS'	3
+RATIC-ERR	+UNSYMMETRIC RATIC-ERROR. EXPLANATION UNDER 'ERR-ANALYS'	3
-RATIC-ERR	-UNSYMMETRIC RATIC-ERROR. EXPLANATION UNDER 'ERR-ANALYS'	3
SUM	HEADING FOR COLUMN GIVING THE SUM SPECIFIED UNDER 'REACTION'.	3
SUM-ERR	SUM-ERROR. EXPLANATION TO BE GIVEN UNDER 'ERR-ANALYS'	3
+SUM-ERR	+UNSYMMETRIC SUM-ERROR. EXPLANATION UNDER 'ERR-ANALYS'	3
-SUM-ERR	-UNSYMMETRIC SUM-ERROR. EXPLANATION UNDER 'ERR-ANALYS'	3
MONIT	HEADING FOR THE COLUMN GIVING VALUES FOR THE MONITOR.	3
FLAG	FLAG. MEANING OF FLAGS GIVEN UNDER THIS HEADING TO BE EXPLAINED IN BIB-SECTION UNDER 'FLAG'	3
MISC	HEADING FOR A COLUMN WITH SUPPLEMENTARY INFORMATION FOR WHICH NO DATA-HEADING KEYWORD HAS BEEN DEFINED. EXPLANATION TO BE GIVEN UNDER 'MISC-COL' KEYWORD	3
MISC1	FIRST MISCELLANEOUS COLUMN - IF MORE THAN ONE IS GIVEN SAME USAGE AS -MISC-(SEE ABOVE)	3
MISC2	SECOND MISCELLANEOUS COLUMN -IF MORE THAN ONE IS GIVEN SAME USAGE AS -MISC-(SEE ABOVE)	3
MISC3	THIRD MISCELLANEOUS COLUMN - IF MORE THAN ONE IS GIVEN SAME USAGE AS -MISC-(SEE ABOVE)	3
-----		3
NOTE=	THE CHARACTERS AND DIGITS IN COL.66 ARE USED FOR COMPUTERIZED CHECKING OF COLUMN-SEQUENCE. SEE MANUAL.	3

