Memo 4C-3/345

23 November 1989

To: Distribution

From: M. Lammer

Subject: CINDA Manual update

Apart from minor corrections I have also made some more substantial changes to the CINDA manual, which are included here for information.

There was an action on me (no. 16 in Memo CP-D/200) to check the manual and formulate changes which were decided during the last NRDC meetings, some of which were the subject of CP- and 4C-Memos. The next page gives a summary of these items and some comments on other major changes with reference to the pages concerned. Attached to this are copies of manual pages to be revised with the corrections indicated (pages with minor corrections were sent to NEA-DB only).

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Changes decided at NRDC meetings

The manual pages concerned are indicated, and the corresponding action is identified by A.x or B.x, where

A = Memo CP-D/190 (NRDC meeting 1988)
B = Memo CP-D/200 (NRDC meeting 1989)
x = action number

E-MIN = / for quantity LDL (A.2) : pages II.2.23 and II.9.3

E-MIN = blank is forbidden (A.3): page II.9.1

Revision of the manual entry on conferences (A.4, B.20 and action to resolve the contradiction about conference proceedings published as laboratory report): II.10.3 and II.10.4

Quantity NX (A.5): pages II.2.1, II.2.3, II.2.21 and II.11.2
(still not solved: where to include NX on page II.2.3?)

Header record for CINDA transmissions (A.8): page II.13.1

Comments to some other major changes

Generally there are sufficient comments to the corrections on the copies of the manual pages. Some additional comments are given below.

Neutron as target should be included in the manual (Memo 4C-3/318, page 3, item 4.1): the list following page II.1.1, pages II.1.2 and II.1.3.

Combinations of energy codes (Memo 4C-3/342): pages I.1.4, II.9.1, II.9.4 and II.9.5.

Page II.6.4: the definitions of the "KEY" must be consistent.
Instructions for operation 'K', columns 19-26: NNDC and NEA-DB should check the validity of this restriction (see also page II.6.5)

Page II.7.2: the revision reflects what the NDS book production program does.

Page II.11.2: the information (if relevant) that must be given in the comments field, should be separated from the list of abbreviations, as reflected in the proposed chages.

Page II.12.1 (copy not included): is there still a common coverage control file? If not, the whole section should be omitted!

The information inserted here should be included, but the wording can be changed

ENERGY columns 19 - 26

Lower and upper neutron energy limits in eV. The format is mantissa times exponent, e.g., 3 MeV 30+6. The decimal point is included implicitly between columns 19 and 20, and between 23 and 24.

Single energy values in columns 19 - 22 ONLY.

NDG	No energy information given
MAXW	Average over a maxwellian spectrum
COLD	Unspecified energy average below 1 eV
FISS	Average over a fission produced neutron spectrum
PILE	Average over a Thermal reactor neutron spectrum
FAST	Average over a Fast reactor neutron spectrum.
SPON	spontaneous fission
TR UP	From threshold upwards ("TR" in columns 19 and 20, "UP" in columns 23 and 24)

new

For details and combinations of codes see Section II.9.

REFERENCE columns 27 - 44

Reference type column 27

J	Jour	Journal
*	Abst	Abstract in journal or conference
C	Conf	Conference : published proceedings or separate papers
S	Conf	Conference proceedings published as a laboratory report
R	Rept	Laboratory report
P	Prog	Progress report, usually contains short notes on many different projects
B	Book	Book. Rarely used
T	Diss	Thesis
W	Priv	Private Communication
(zero) 0	Data	EXFOR entry exists but numerical data are not available
4	Data	Numerical data exchanged in EXFOR format
3	Data	Other tape files available (at present, only evaluations)

Reference code columns 28 - 41

Use reference code according to EXFOR
Dictionary 5 for journals
6 for reports
7 for books and conferences
For coding of volume, issue and page number, see Section II.10.

Reference date columns 42 - 44

month in column 42 (1 - 9 for June - September,
0 = October (letter or zero)
N = November
D = December
blank = unknown)

year (last 2 digits) in columns 43 - 44

see Memo 4C-3/318, page 3, item 4.1

SYMBOL	Z	ELEMENT
AR	18	ARGON
AC	89	ACTINIUM
AG	47	SILVER
AL	13	ALUMINIUM
AM	95	AMERICIUM
AS	33	ARSENIC
AT	85	ASTATINE
AU	79	GOLD
B	5	BORON
BA	56	BARIUM
BE	4	BERYLLIUM
BI	83	BISMUTH
BK	97	BERKELIUM
BR	35	BROMINE
C	6	CARBON
CA	20	CALCIUM
CD	48	CADMIUM
CE	58	CERIUM
CF	98	CALIFORNIUM
CL	17	CHLORINE
CM	96	CURIUM
CO	27	COBALT
CR	24	CHROMIUM
CS	55	CESIUM
CU	29	COPPER
DY	66	DYSPROSIUM
ER	68	ERBIUM
ES	99	EINSTEINIUM
EU	63	EUROPIUM
F	9	FLUORINE
FE	26	IRON
FM	100	FERMIUM
FR	87	FRANCIUM
GA	31	GALLIUM
GD	64	GADOLINIUM
GE	32	GERMANIUM
H	1	HYDROGEN
HE	2	HELIUM
HF	72	HAFNIUM
HG	80	MERCURY
HO	67	HOLMIUM
I	53	IODINE
IN	49	INDIUM
IR	77	IRIDIUM
K	19	POTASSIUM
KR	36	KRYPTON
KU	104	KURCHATOVIUM
LA	57	LANTHANUM
LI	3	LITHIUM
LR	103	LAWRENCIUM
LU	71	LUTETIUM
MD	101	MENDELEVIUM

NN 0 NEUTRON

SYMBOL	Z	ELEMENT
MG	12	MAGNESIUM
MN	25	MANGANESE
MO	42	MOLYBDENUM
N	7	NITROGEN
NA	11	SODIUM
NB	41	NIOBIUM
ND	60	NEODYMIUM
NE	10	NEON
NI	28	NICKEL
NO	102	NOBELIUM
NP	93	NEPTUNIUM
O	8	OXYGEN
OS	76	OSMIUM
P	15	PHOSPHORUS
PA	91	PROTACTINIUM
PB	82	LEAD
PD	46	PALLADIUM
PM	61	PROMETHIUM
PO	84	POLONIUM
PR	59	PRASEODYMIUM
PT	78	PLATINUM
PU	94	PLUTONIUM
RA	88	RADIUM
RB	37	RUBIDIUM
RE	75	RHENIUM
RH	45	RHODIUM
RN	86	RADON
RU	44	RUTHENIUM
S	16	SULFUR
SB	51	ANTIMONY
SC	21	SCANDIUM
SE	34	SELENIUM
SI	14	SILICON
SM	62	SAMARIUM
SN	50	TIN
SR	38	STRONTIUM
TA	73	TANTALIUM
TB	65	TERBIUM
TC	43	TECHNECIUM
TE	52	TELLURIUM
TH	90	THORIUM
TI	22	TITANIUM
TL	81	THALLIUM
TM	69	THULIUM
U	92	URANIUM
V	23	VANADIUM
W	74	TUNGSTEN
XE	54	XENON
Y	39	YTTRIUM
YB	70	YTTERBIUM
ZN	30	ZINC
ZR	40	ZIRCONIUM

see previous page

Monoisotopic or effectively monoisotopic elements

** NN001			
H 001	F 019	AS075	TB159
H 002	NA023	Y 089	HO165
H 003	AL027	NB093	TM169
*HE004	P 031	RH103	*TA181
BE009	SC045	I 127	AU197
*C 012	*V 051	CS133	BI209
*N 014	MN055	*LA139	TH232
*O 016	CO059	PR141	

*nearly monoisotopic

**artificial code for "neutron" as target

2. Natural elements and their isotopes

If a measurement was performed on a sample consisting of a natural isotopic mixture, but properties of some of the isotopes of that element are deduced, prepare entries for both the natural element and the appropriate isotopes.

The value of this convention is more obvious for some older work reported in CINDA. Current measuring techniques allow reactions on individual isotopes to be distinguished without necessarily accumulating comparative data for all constituents of the target. However, the convention is kept in order to preserve the consistency of the file.

3. Isotopes far from the stability line

The relation between Z and A of isotopic targets is checked on input, so as to eliminate misprint errors.

When entries are made for unusual target isotopes (multiple neutron capture, some fission products, some theoretical calculations) it is possible that these entries too will be rejected on a first check. Please repeat the designation of such targets in the right-hand margin of your entry sheet, to make it clear that the unusual isotope was not generated by a slip of the pen or a misprint error.

5. Neutrons

Neutrons as targets are coded as: NN 001

4. Hydrogen Isotopes

The Hydrogen isotopes are entered as deuterium and tritium :

H 002

H 003

6. Inverse reactions

In some cases the principle of detailed balance allows the cross-section of an inverse neutron-induced reaction to be calculated. However, it is not usually possible to extract useful information unless an absolute value is given of the cross-section leading directly to the ground state of a stable product nucleus. If useful information can be deduced about neutron-induced reaction, enter the work under this reaction with the word INVERSE (or INV.) immedately after the author's name in the comment.

7. Gamma-induced reactions

Photo-neutron production (for some light nuclei) and photo-fission are an exception to the rule on coding inverse reactions. Enter the target nucleus. See Section II.2 for restrictions on this type of entry.

8. Compound nucleus properties

Entries should be coded under the target nucleus (i.e. the compound nucleus less one neutron). This is particularly important for Resonance parameters, capture gamma spectra. Level density information is an exception and should be coded under the nucleus for which the level density is given.

9. Spontaneous Fission

For spontaneous fission, enter the isotope concerned (this is an exception to the convention on entering targets).

This correction is pending the approval of Memo 4C-3/344

REACTION QUANTITY

Format

Columns 6 - 8 code for reaction quantity measured or calculated. Left adjusted for two letter codes. The internal sortcode defines the order in which reactions are listed in the CINDA book.

Neutron nuclear scattering

SEL	5	Elastic
DEL	7	Differential elastic
POL	9	Polarization
POT	11	Potential
SIN	13	Total inelastic
DIN	15	Differential inelastic
SCT	19	Elastic + inelastic

Neutron production

N2N	39	(n,2n)
NXN	41	(n,3n)(n,4n)...
NEM	43	Neutron emission

Gamma ray production

NG	29	(n,γ)
RIG	31	Capture res. integral
SNG	33	(n,γ) gamma spectrum
DNG	35	Inelastic γ
NEG	37	Nonelastic γ

Charged particle production

NP	45	(n,p)
NNP	47	(n,np)
PEM	48	Proton emission
ND	49	(n,d)
NND	51	(n,nd)
DEM	52	Deuteron emission
NT	53	(n,t)
NNT	55	(n,nt)
TEM	56	Triton emission
NHE	57	(n,He3)
NA	59	(n,α)
NNA	61	(n,nα)
AEM	62	Alpha emission

Fission

NF	63	Fission
RIF	65	Fission resonance integral
ALF	67	Alpha
ETA	69	Eta
NU	71	Nu
NUD	73	Delayed neutrons
NUF	73	Fragment neutrons
SFN	77	Fission neutron spectrum
SFG	79	Fission γ spectrum
FPG	81	Fission product γ
FPB	82	Fission product β
NFY	83	Fragment yield
FRS	85	Fragment energy and/or angular distribution
CHG	87	Fragment charge distribution

Aggregate cross sections

TOT	3	Total
SNE	21	Nonelastic
ABS	23	Absorption
RIA	25	Absorption resonance integral

Resonance parameters

RES	89	Resonance parameters
STF	91	Strength function
LDL	93	Level density

Gamma-induced reactions

GN	95	(γ,n)
GF	97	Photo fission

Special quantities

EVL	1	Evaluation (used in addition to other specific quantities)
TSL	17	Thermal scattering

NX 44 Nuclide production

Reaction (Goldstein notation)	Code	Expansion in CINDA book	
	SFG	Spect Fiss γ	Definition : Spectrum of prompt gamma rays emitted in fission. Do not confuse this quantity with Fiss Prod γ. (FPG).
	NFY	Fiss Yield	Definition : Yields of fission products or fission fragments. Including : independent cumulative, fractional or chain yields of fission products (identified by Z,A). Including : direct or total mass yields of fission fragments; Including : ternary fission probabilities. Excluding : yield data correlated with kinetic energy or emission angles of fragments: see FRS or NUF. (or prompt neutrons) Excluding : yield of fragments of a given charge (Z) but unspecified mass; see CHG. Note : Charge dispersions, i.e. (fractional) independent yields for constant A, and charge distributions for constant Z should be entered under NFY and CHG, if the fission products measured are identified by Z and A. Note : Some old NFY entries need correcting to FRS.
	CHG	Frag Charge	Definition : Information on the charge distribution of fission fragments, charge dispersion, most probably charge Z_p (A), fractional yields for constant A, etc.
	FRS	Frag Spectra	Definition : The energy or angular distribution of fission fragments, or partial yields correlated with other fragment parameters Including : kinetic energy dependent fragment data. Excluding : fragment-energy dependent prompt neutron emission, see NUF. Note : Some older data of this type have been coded under NFY.

Insert (before or after SNE) the manual entry on "NX" as proposed in Memo 4C-3/344 (pending it's approval).

Reaction (Goldstein notation)	Code	Expansion in CINDA book	
			Aggregate cross-sections
$\sigma_{nT}(E)$	TOT	Total	Definition : The total neutron cross-section σ_T. Entries are often made for transmission experiments carried out in order to measure resonance parameters; even if such measurements are not analysed to give values for σ_T, entries for TOT should be made; such cases should appear clearly in the comments.
$\sigma_{nX}(E)$ $\sigma_{nX}(E,\theta)$ $\sigma_{nX}(E;E',\theta)$	SNE	Nonelastic	Definition : The sum cross section for all nonelastic processes, $\sigma_{nX} = \sigma_{nT} - \sigma_{n,n} = \sigma_{n,n'} + \sigma_{n,2n} + \sigma_{n,\,Xn} + \sigma_{n,f} + \sigma_{n,P} + \sigma_{n,d} + \sigma_{n,\gamma} + \ldots$
$\sigma_{nA}(E)$	ABS	Absorption	Definition : The absorption cross section, $\sigma_{nA} + \sigma_{nT} - \sigma_{nS}$, i.e. the sum of all partial cross sections except for elastic and inelastic scattering. Use : Do not use if σ_{nA} is equal to $\sigma_{n,\gamma}$ (at low energies for many targets). Note : "Absorption" is frequently given different meanings in the literature, and readers should check that the author's definition corresponds to this one.

add "Note: .." at bottom

Reaction (Goldstein notation)	Code	Expansion in CINDA book	
	STF	Strnth Fnctn	Definition : The strength function $\frac{\langle \Gamma \rangle}{D} = \frac{\Sigma_i \Gamma_i}{\Delta E}$ where Γ_i is the reduced neutron width, D the mean level spacing, and $\Delta E = E_{max} - E_{min}$. Use : Show in comment whether the entry refers to S or P wave resonances As with resonance parameters, enter the target nucleus and the highest and lowest resonance energies included. State how many levels are included in the average. Note : This quantity can also be obtained from the values of a_T in the unresolved region; in this case, enter the corresponding values of E_{min} and E_{max}. Associated quantities : RES, LDL, resonance integrals.
	LDL	Lvl Density	Definition : Level density parameters (spin cut-off factor, parameter "a", nuclear temperature); level density obtained from cross sections in unresolved resonance regions should also be entered under this quantity. Use : Code entries under the nucleus for which the level density is given NOT the target nucleus. Note: Frequently the an incident neutron energy is not given or not defined for LDL. In this case a slash "/" may be entered in column 19 of the Emin field.

The 'KEY' is commonly understood as the block identifyer, as given under "Format for deletion of blocks". To be consistent, the first paragraph should be modified as given below.

Operation 'D' (CINDA Centres only)

A deletion command must specify the 'KEY' of the entry, and the serial number, the reader symbol of the person making the deletion, and operation 'D'. The KEY may seem to be redundant (the entry could logically be specified by its serial number only), but the operation will be rejected automatically in case of a typing error, instead of deleting the wrong entry.

Format for deletion of entries

Columns 1 - 5	Z and A, or compound code	KEY
6 - 8	Quantity code	
9 - 11	Laboratory code	
12 - 14	Block number	
15	Symbol of reader making the deletion	
16	Operation code 'D'	
19 - 26	Serial number, with leading zeros, in the form '00576928'	

Operation 'K' (CINDA Centres only)

Format for deletion of blocks

Columns 1 - 14	Block KEY (Z, A, Q, LAB, Block No. as above)
15	Reader symbol
16	Operation code 'K'
19 - 26	Serial No. of first entry in the block as it appears in the NEA-DB printout. Another serial number from the block may be used, but if so a warning message will be printed after the CINDA update
28 - 31	'KILL'

must be recorded

All entries with that block key will be deleted.

Comment: This is not well defined, as the "first line" may be different in the master files of other centers. Check, whether this restriction is still valid for NEA-DB. I don't know the NNDC solution, but for NDS entries any line in a block can be specified by serial number. In any case should this paragraph be reworded.

Operation 'L' (CINDA Centres only)

The block number assigned to a particular CINDA entry can be changed only by deletion of the entry, followed by addition of a similar entry with the new block number. It is possible to save the reader from the need to transcribe a number of entries in order to carry out this operation, if the necessary "dummy" operations on individual entries are generated by the input program.

The result of the LINK operation is to merge block X into block Y. Block X disappears (is 'KILLED') and copies of the entries within it are added to block Y, by a succession of operations 'B' on these individual copy entries. If block X contains any entry with hierarchy '1' = 'Main', this value will be set to '2' in Y.

Format for Linking Two Blocks

Columns	1 - 11	Z, A, Q, LAB common to both blocks
	12 - 14	Block No. of X (block to be deleted)
	15 - 16	Reader symbol, code 'L' for 'LINK'
	19 - 26	Serial No. of the first entry in block X
	28 - 31	The word 'LINK'
	42 - 44	Block No. of Y (block to be enlarged) in the Reference 'DATA' field
	73 - 80	Serial No. of the first entry in block Y

see comment on previous page

Interference between 'K' and 'L', and operations on individual entries

Obviously, no other operations are possible for blocks that are killed or entries that are deleted. However, it may be desirable to modify and/or delete entries within blocks which are to be linked. Since KILL and LINK operations are not exchanged between CINDA centres, the centres themselves have to provide computer programs to ensure that forbidden combinations of operation codes are detected and possible combinations are executed successfully.

Hierarchy codes (cont/d)

'N' = 'No Book Flag'. Entries should be given hierarchy 5 when the article contains an incomplete account of the work (Abstracts, some progress reports) and does not give any numerical or graphical data which is not available from another source.

~~Where an entry with hierarchy 5 is an unblocked single line, it will be included in CINDA publications, otherwise not.~~ Readers should assign no-book flags whenever appropriate, as this helps to slow down the growth of CINDA cumulations.

'D' = 'data index entry'. Such entries are made by data centres to give more precise information about the numerical and evaluated data they are able to supply on request; especially data exchanged between centres in EXFOR format, and standard evaluated files. Internal value '6'. Because file names and accession numbers have a special structure, the format of the reference field is specialised; hierarchy 6 may not be modified to another value, nor may an existing entry have its hierarchy changed to 6.

replace

An Entry with hierarchy 5 is only included in CINDA publications, if it is an unblocked single line, or blocked together with one or more data index entries; or if a block consistst only of hierarchy 5 and 6 entries, then the hierarchy 5 entry with the most recent publication date is included.

Revision of this page is included in Memo 4C-3/342, except the continuation of the second paragraph (starting: "If the exponent ....")

revised

NEUTRON ENERGY

Format

Columns 19-26	Minimum (columns 19-22: "E-MIN" field) and maximum (columns 23-26: "E-MAX" field) neutron energy in electron volt.

move whole paragraph to the left margin (equivalent to paragraph on alphabetic codes)

Numerical values in floating point form : mantissa n.m., exponent ± x. The decimal point is included implicitly between columns 19 and 20 (minimum), and 23 and 24 (maximum energy).
Enter only the sign of the exponent in columns 21 and 25. If the exponent is zero, use the '+' sign.

Alphabetic codes are also used to describe quantities averaged over typical neutron spectra.

A blank E-MIN field is forbidden.

Coding Rules

a) General rule for numerical values

new

Both minimum and maximum incident neutron energies should be given, where E-MIN < E-MAX must always be observed.

If the incident neutrons are monochromatic, enter the energy in the minimum energy field only.

paragraph

Examples of coding :

Energy	Code
34 keV	34+4
0.025 eV (2200 m/s)	25-2
14 MeV	14+7

b) Negative resonance energies

Column 19 contains a negative sign. The decimal point is unchanged between columns 19 and 20. A single digit value is entered in column 20 with exponent in columns 21 and 22.

-3 eV (-0.3×10^{1} eV) is coded as -3+1

d) Separated Energy Ranges

If an article covers two or more distinct energy ranges with separate discussions of the deduced quantities, separate entries should be made for CINDA.

For example, a measurement at thermal energy and a separate measurement between 5 keV and 400 keV should be entered twice with energy codes :

Energy	Code
0.025 eV (thermal)	25-2
5 keV to 400 keV	50+3 40+5

to make

This philosophy should not be taken to the extreme, separate entries for each of a range of monochromatic incident neutron energies.

e) No information given

The alphabetic code NDG (columns 19-21) should be used only if it is impossible to give even an order of magnitude estimate of the neutron energy range.

f) Useful formulae

$$E_{ev} = 0.5 \times 10^{12} (V\ cm/s)^2$$

$$E_{ev} = 81.8 \times 10^{-3} / (\lambda/\mathring{A})^2$$

$$2200\ m/s = 0.025\ eV = 1.8\ \mathring{A}$$

For Inverse Reactions

$$E_n = E_a + Q + (Q - (M_B - M_A)E_a) / M_B$$

where the reaction is a(A,B)n

E_a is the energy of a in the laboratory frame

M_a, M_B are the masses of A and B

Q is the Q value for aA → Bn

For the quantity LDL, when an incident neutron energy may not be given or meaningless, a slash "/" may be entered in column 19 of the E-MIN field.

Revisions: see Memo 4C-3/342

g) Alphabetic Energy Codes for Spectrum Averages

These codes are intended to describe quantities averaged over typical neutron spectra. They may occasionally be combined with numerical codes or with other alphabetic codes to indicate that both values are given. For instance, a code MAXW 25-2 should be used when both a maxwellian spectrum average and a value for monochromatic neutrons are given.

Code (left adjusted)	Expansion in CINDA Book	Description
COLD	Cold	Subthermal neutron spectrum
MAXW	Maxwl	Maxwellian neutron spectrum at a temperature of 293°K or reactor temperature.
PILE	Pile	A reactor spectrum with a non-Maxwellian energy distribution
FAST	Fast	A Fast-reactor spectrum
FISS	Fiss	An unmoderated fission neutron spectrum
Non spectrum codes		
NDG	None	No data given
SPON	Spont	Spontaneous fission (use only for quantities NU, NUD, NUF, SFN, SFG, FPG, FPB, NFY, FRS, CHG)
TR	Thrsh	Threshold energy (if possible a numerical value should be given instead), together with a numerical value for E-MAX, or
TR UP	Thrsh up.	if no upper limit is specified above the threshold (if possible, a numerical limit should be given or etimated).

Left and compress lines

move

revised wording

moved here from page II.9.5

For other neutron spectra, when none of the alphabetic codes applies, a numeric energy value is entered corresponding to the kT value of the spectrum, with an explanation in the free text (e.g. MAXW., KT=30KEV). Such entries should, however, not be combined with or blocked to entries for monoenergetic neutrons.

Revision as in Memo 4C-3/342
(except the newly introduced heading "h) Combinations of codes")

Energy equivalent for sorting

For internal sorting processes, the alphabetic energy codes are assigned numerical energy equivalents:

SPON	zero	
COLD	0.001 eV	
MAXW	0.025 eV	
PILE	0.05 eV	
FAST	0.5 MeV	
FISS	1 MeV	
TR	0.5 MeV	--> 5 Mev
TR UP	0.5 MeV	--> 10 Mev

h) Combinations of codes

Combinations of alphabetic codes

Any combination of alphabetic codes is permitted as long as E-MIN≤E-MAX is observed, with the following exceptions:

"NDG" must be entered in the E-MIN field and should not be combined with any other code.

"TR" must be entered in the E-MIN field and can only be combined with a numeric code or "UP" (no blank!) in the E-MAX field.

Combinations of alphabetic with numeric codes

Any combination of alphabetic with numeric codes is permitted as long as E-MIN≤E-MAX is observed, with the following restriction:

If E-MIN=E-MAX, then the alphabetic code has to be entered in the E-MIN field.

If in a paper both a spectrum average as well as a range of monochromatic neutron values are given, two separate entries should be made.

Examples of combinations of codes

MAXW25-2	**Maxwl 2.5-2**	**Maxwellian spectrum and 0.025 eV monochromatic neutrons**
PILE25-2	**Pile 2.5-2**	**Pile spectrum and 0.025 eV monochromatic neutrons**
MAXW PILE	**Maxwl Pile**	
MAXW FISS	**Maxwl Fiss**	**Both indicated spectrum averages**
MAXW FAST	**Maxwl Fast**	**are given**
SPON MAXW	**Spont Maxwl**	

Abstracts

The reference type '*' implies that the publication referred to does not include a full account of the work.

1) This reference type applies particularly to some abstract journals, BAPS, DA or DA/B, ANS PA, NSA and BSI. Further journals may be added to this list when necessary.

2) This reference type should also be used when the information is obtained from abstracts of papers given at a national physical society or other meeting or conference. If papers are printed in full, use reference type 'J'. Abstracts often appear in PR, HPA, NAT. The * code should be used for conferences, when the material available in the document cited is an abstract only. The source abbrevation for the conference itself should be used so as to avoid confusion when the 'Abstract' entries are later replaced as the full versions of papers are made available.

Reference type '*' should not be used in conjunction with report codes : in practice abstracts found in laboratory reports refer either to work in progress at that laboratory or group of laboratories (reference type 'P') or to a conference held at that laboratory, when ~~a conference code should be assigned.~~ reference type 'S' should be used.

The reference codes are the same as for journals. For BAP the abstract number may be entered in parentheses in the comment field, after the author's name.

Conference Proceedings

Usually, preliminary CINDA entries are made from papers ("preprints") available at the conference; these will be replaced with final entries as soon as the proceedings are published. For the coding, the following cases must be distinguished:

Preprint entries:

Usually: Reference type 'C' with conference code and paper numbers as described below. If the preprint carries a report code, use reference type 'R' with the report code and number.

Proceedings:

Usually: Reference type 'C' with conference code and page number as described below. If the proceedings carry a report code, use reference type 'S' with the report code and number.

1) Reference type C

For valid coference codes see EXFOR dictionary 7. The codes consist of 2 digits for the year of the conference plus up to 6 letters for the location. If a code in the dictionary is longer than 8 characters, it is truncated in CINDA to the first 8 characters.

For "new" conferences CINDA indexers are invited to propose a new code.

Note that the conference codes as given in the CINDA book must not be used in CINDA entries. The book editing program creates expansions that differ from the codes used for CINDA entries and in the CINDA computer file.

Format:

Columns 28-35	Conference code	

for preprints:

Column 36	# (sign indicating that the following is a paper number and not a page)	} or blank if paper number is not available
Columns 37-41	Paper number, right adjusted	

for proceedings:

Columns 36-37	Volume number, right adjusted, or blank, if only 1 volume
Columns 38-41	Page number, right adjusted

in both cases:

Columns 42-44	Date of Conference (coded as for journals) (Note that for proceedings the date of the conference is entered and not the date of issue of the proceedings.)

Conference Proceedings

replace by (*) on previous page

1) Reference type C

The format is indicated below. The conference identification codes in CINDA follow the established EXFOR codes, but only include the first eight characters. A directory of codes is given in Appendix 2. ?

Columns 28-35	Conference code according to EXFOR Manual, page 7.13, and Dictionary 7
Columns 36	Paper number sign
Columns 37-41	Paper number, right adjusted
Columns 42-44	Date of Conference - as for journals

If conference papers are available as preprints to the responsible CINDA reader, he may propose a conference code and prepare entries with paper numbers and the date of the conference. As soon as the procedings are available :

- either published in a conference proceedings series, then the paper numbers should be replaced by the (volume and) page numbers of the proceedings;
- or published within a report series, so that they can be identified with a report number, then the report number must be used, not the conference code.

2) Reference type S

If the conference proceedings are to be entered with a report code, reference type 'S' (not 'R') should be used, but otherwise the reference should be coded in exactly the same format as other reports in the same series. The date given in columns 42-44 should be that of the report.

Sometimes conference preprints are assigned laboratory report numbers (this is the case for many contributions from Karlsruhe, which are numbered in the KFK-series). Entries should be made for both the conference paper number and the report, where one of them should have the comment 'SAME AS...'.

(but with reference type 'R' !)

Comments

Because of the limited space for free form comments only one or two important features of the work can be clearly indicated. The comment should not be considered as an 'abstract'. However, some important information supplementing the coded information must be given where appropriate, immediately after the author's name:

revised

For information derived from inverse reactions: INV or INVERSE;

Chemical compounds as targets: enter the formula or a more exact name;

The product nuclide, if the reaction quantity is 'NX'='nuclide production;

Further information on the reference (e.g.: ABST ONLY), especially if the information in coded form would exceed the reference field (e.g.: page no. or paper no. for reports).

Guide to recommended abbreviations:

~~exact name of parent~~ [illegible]

1. The status of the work

TBD	To be done
TBC	To be completed
TBP	To be published
ABST	Abstract
FP (ref code)	Submitted for publication in that form

2. The form of data given

NDG	No data given
GRPH(S)	Graph(s)
TBL	Table
CURV	Curve
PRELIM	Preliminary data
SUPSDD	Superseded

CINDA FILE TRANSMISSIONS

CINDA entries in READER and EXCHANGE format are exchanged between the neutron data centers either on tape or by electronic mail. For both types of tranmission, the first record must be the 'Header record' for the batch identification. The format of the Header record should look like this:

```
CINDA READER a cccbbb  yymmdd    xxx
CINDA EXCHANGE cccbbb  yymmdd    xxx
```

a	area code of the receiving center
ccc	batch identifier of the originating center: ccc=BNL for NNDC ccc=CJD for CJD ccc=NEA for NEA-DB ccc=WIE for NDS
bbb	assigned batch number in ascending sequence
yymmdd	date of transmission or creation of file
xxx	the number of records contained in this transmission

The convention should be to keep the same batch number for READER and EXCHANGE format transmissions. If there are no records to transmit, then the transmission should consist of only a header record with xxx = 0.

CINDA EXCHANGE FORMAT SPECIFICATIONS

insert (from previous page)

CINDA EXCHANGE FORMAT SPECIFICATIONS

Records will be 100 characters in length and will be transmitted with the following characteristics :

9 - track
1600 bpi
EBCDIC

1. Record Format - all records must contain legal entries.

1	Operation code	x(1)
2-7	Record serial number	9(6)
8-12	Target nucleus	x(5)
13-15	Quantity code	x(3)
16-18	Laboratory code	x(3)
19-21	Block number	9(3)
22	Work type	x(1)
23-27	E-min	x(5)
28-32	E-max	x(5)
33	Hierarchy	9(1)
34	Reference type	x(1)
35-48	Reference	x(14)
49-52	Publication date	9(4)
53	Author flag	x(1)
54-89	Comments	x(36)
90	Reader code	x(1)
91	Area code	9(1)
92-94	Country code	x(3)
95-100	Date of last change	9(6)

2. Field contents

Operation code : A for add
M for modify
D for delete

Record serial number : 6 digit serial number
Target nucleus : 5 characters

a) Chemical symbol left adjusted in first 2 positions
b) Mass number right adjusted in the last 3 positions with no leading zeros
c) Special cases left adjusted
MANY for Many
FPROD for Fission products
d) Natural elements - last 3 positions blank