CINDA

Compilers manual

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CINDA Bibliographic System

HISTORY

The CINDA exchange format has recently been modified to incorporate more data into the CINDA database which was originally designed in 1958[1] as a Card Index to Neutron Data. CINDA was adopted in the 1970's by the four Neutron Data Centers as an international index to the neutron data; the compilation scheme remained essentially unchanged until 1998.

In the meantime, the Nuclear Reaction Data Centers' (NRDC) Network had evolved from the original four centers to a group of thirteen centers involved in the compilation of nuclear reaction data for incident charged particles and photons, in addition to neutrons. The need for an index that would allow the inclusion of all reaction data, and the need to update the format for the year 2000 lead to a complete redesign of the bibliographic system.

The new system is more compatible with EXFOR/CSISRS[2], and has adopted many of the same codes used in this database, thereby eliminating the need for users of nuclear reaction data to learn different sets of notation when accessing the bibliographic and data files.

INTRODUCTION

CINDA is now a comprehensive bibliographic data base containing references to information on nuclear reactions. Included are references to measurements, calculations, evaluations, and reviews of nuclear reaction and other related data. In the case of experimental or evaluated data, references to the databases where the actual values may be obtained are also included.

Identical copies of this database are maintained by the CINDA centers in the NRDC Network.[3] These master files are updated periodically and exchanged among the centers. Retrievals from CINDA, as well as the experimental and evaluated databases, are available through the Internet from the nuclear data centers.[4]

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[1] CINDA was designed by Herbert Goldstein, a professor in the Department Of Applied Physics and Engineering at Columbia University, see Nuclear Development Corporation of America report NDA 2-80 (1958).

[2] For a description, see the "EXFOR exchange Formats Manual", V. McLane, IAEA-NDS-207 (2004)

[3] The CINDA centers are: the NEA Data Bank in France, the IAEA Nuclear Data Section in Austria, and the Russian Nuclear Data Center at Obninsk in Russia. See Appendix A for complete information on the Nuclear Reaction Data Centers.

[4] See Appendix A for access to your nearest data center.

The information in the CINDA Database is obtained from scanning the available literature, both published and unpublished. Coverage is “complete” for neutron data from 1935 to the present. Coverage for charged-particle data is nearly complete from 1980 to the present and less complete before 1980. Coverage for photon-induced data is taken from Photonuclear Data[5] which covers the period 1976 to the present.

This manual is intended to be a complete guide to the indexing of information in CINDA in connection with the EXFOR exchange format and dictionaries issued by the NRDC.

CINDA EXCHANGE FORMAT

The CINDA exchange file consists of a series of records plus a header record, which gives information about the attached file. The format of the header record is:

Columns	Content	Use
1-5	ID	CINDA
6	*(blank)*	
7-15	Type of file	READER or EXCHANGE; left-adjusted
16-21	Exchange number	Area code, number of exchange for area; right-adjusted.
22-29	Date of exchange	8-digit right-adjusted integer: year, month, day (YYYYMMDD)
30-36	Number of records on file	Right-adjusted integer

Files transmitted will be either exchange files or reader files. The format of these files is the same, but the content will differ slightly; the differences are noted under the sections on the appropriate fields.

Exchange files consist of records produced for transmitting entries from a center’s own area of responsibility.

Reader files contain records produced by the transmitting center for an area outside its responsibility and transmitted to the responsible center for addition to its database. After the update of its database, the records will be transmitted by the responsible center to all other centers.

Empty lines may be inserted in both types of CINDA files, as well as comment lines for the compiler or for the loading of the CINDA data base. The comment lines should start with the symbol '#'.

[5] V. V. Varlamov, V. V. Sapuchenko, M. E. Stepanov, **Photonuclear Data 1976-1995**, Photonuclear Experimental Data Center, Moscow University (1996).

The fields given in the CINDA exchange format are as follows. A record can be identified by its 'unique key' defined by the target nucleus, reaction, quantity, institute, block and sequence numbers (noted in **bold** in the table below).

Column	Contents	Formats	Example
1	Operation	A1	(A)dd, (M)odify and (D)elete
2-8	**Z,A**	**I3,I3*, A1**	**Target Z, A, isomeric state: (ZZZAAAM)**
9-23	**Reaction**	**A15**	**Generally, EXFOR reaction SF2-SF3**
24-27	**Quantity**	**A4**	**From dictionary 45.**
28-34	**Institute**	**A7**	**EXFOR code with area code**
35-39	**Block #**	**A1,I4**	**Area code, followed by center assigned block #**
40-43	**Sequence #**	**I4**	**Sequence within block**
44	Hierarchy code	I1	Hierarchy for references (0-6)
45	Work type	A1	As in CINDA[6]
46-47	Reader code	A2	At discretion of center (blanks allowed)[7]
48-61	Energy range	2(E7.1)*	Min + max in format: `+n.nn+ee`
62-90	Reference and date	A23,I6	Type: as in CINDA (A1), Reference code: as in EXFOR (A22), Date: year and month (YYYYMM)
91-128	Comment	A38	As in CINDA
129-136	Modification date	I8	Date of compilation/loading: year/month/day (YYYYMMDD)
137-139	Old CINDA quantity	A3	(Not compulsory) Quantity code as stated in the old CINDA format
140-395	Misc. code	String	Possibility to add multiple labs or products, e.g. `;#LAB=2ZZZGEL,1USABNL;#PROD=6-C-14`

* The fields for Atomic mass, A, and Energy range can contain character codes, see below.

Updates to the formats must be agreed upon by the CINDA centers.
Any codes to be used in CINDA are included in dictionaries contained in the dictionary database. Updates to the dictionaries must be submitted before any code not given in these dictionaries may be used on a CINDA exchange file.
Details for the coding and content of each of the above fields are given on the following pages.

[6] With the exception that the mixed mode codes will be eliminated. For example, entries for theoretical calculations will be separated from experimental data.

[7] That is, centers may choose not to use a reader code.

OPERATION CODE (Column 1)

The operation code is a signal to the database update code as to what operation must be performed. The following list contains the legal operation code and their use.

Code	Meaning	Exchange Use	Reader Use
A	Add record	Block number and sequence number must be specified.	Block number may be specified; sequence number must be blank or zero (0).
D	Delete record	Block number and sequence number must be specified.	Block number and sequence number must be specified.
M	Modify record	Block number and sequence number must be specified	Block number and sequence number must be specified.

The remainder of the record must be complete for both reader and exchange format. (Note, to modify anything in the 'unique key', the record must first be deleted and then added with the corrected data.)

TARGET NUCLEUS (Columns 2-8)

The target nucleus is given as 2 three-digit integers (Z and A), both right-adjusted in their field, plus an isomeric state code. All legal Z, A codes are found in dictionary 227. The isomeric state code is blank for a nucleus in the ground state, and consists of the metastable state number for metastable states (e.g. 1, 2… and not M as stated in the dictionary).

For compound nucleus properties, *e.g.*, resonance parameters, the nucleus entered is the target for the reaction(s) analyzed.

For a theoretical work giving systematic trends over many nuclei, the code MNY may be used in the A field; use Z equal to zero. The code MNY may be used either in place of, or in addition to, separate entries for the individual nuclei.

Naturally occurring elements

For naturally occurring elements that contain a mixture of isotopes, a zero is entered in the A-number field. For monoisotopic elements, the Z and A of the isotope are given. For nearly mono-isotopic elements, *i.e.*, for elements where the principal isotope is more than 99% of the natural isotopic mixture, the Z, A of that isotope may be given if the contribution from other isotopes to the reaction given is negligible.

Compounds and Mixtures

For compounds and mixtures, a 3-character compound code is given instead of the A number and is left adjusted in the field. Single element compounds, *e.g.*, molecular hydrogen, should not be coded as compounds. If information is deduced for a constituent element of a compound or mixture, it should be entered under that element.

The general code zzzCMP, where zzz is the major component of the compound, may be used if the compound is not given specifically in the dictionary. The name of the compound should be given in the comment. If more than one element may be considered a major component, choose the element with the highest Z number.

For data given for mixed fission products, *i.e.*, an aggregate of those fission products produced in a given fission reaction, the code FPR is given in place of the A value; use Z equal to zero.

REACTION (Columns 9-23)

The code for reaction is given as two fields: incident and outgoing. For complete evaluations covering many reactions, and given over a defined energy range, this field may be left blank.

The incident field contains one of the following:

1. A particle code from dictionary 33 which contains a non-blank character in the third position of the Allowed Subfield field, *e.g.*, P or HE3.

2. A chemical symbol and A-number (SS-AAAM) from dictionary 227; for a nucleus in a metastable state the code is followed by an M, *e.g.*, CL- 35 or AM-242M.

The outgoing field contains one of the following.

1. A particle code from Dictionary 33 which contains a non-blank character in the fourth position of the Allowed Subfield field, *e.g.*, P or HE3.

2. A nuclide code, *i.e.*, chemical symbol and A-number (SS-AAA) taken from Dictionary 227; for a nuclide in the metastable state the code is followed by the code M, *e.g.*, CL- 35 or AM-242M;

3. A process code taken from dictionary 30, *e.g.*, TOT or EL;

4. A combination of the above with the codes separated by a "+".
   The order of codes is: particles ordered from lightest to heaviest,[8] followed by nuclide codes ordered from lightest to heaviest, followed by process codes in alphabetical order. The exception to this rule is: when the order in which the reaction proceeds is given explicitly, the codes are given in that order.

[8] Lightest to heaviest is defined as in order of lightest Z, then in order of A.

5. For complex reactions with many outgoing particles, the code CMPLX may be used in this field in place of all other codes.

QUANTITY (Columns 24-27)

The legal quantity codes are given in dictionary 45. These codes are listed in Appendix D. For complete evaluations, covering many reactions and quantities, this field contains the code EVL. A Quantity code with a '$' sign in front means that the code was inserted automatically by converting EXFOR entries to CINDA, but without correspondence in dictionary 236 and/or in dictionary 45.

INSTITUTE (Columns 28-34)

The institute is given as a single integer for the area code followed by the six-character code consisting of a country code followed by an institute code. These codes are found in dictionary 3.

If more than one institute is involved in the work, the main institute is given. The main institute is defined as the institute at which the principal investigator resides, or the institute at which the work was done. An entry is made for each institute containing at least one reference.

BLOCK NUMBER (Columns 35-39)

The block number consists of the area code for the responsible center, followed by a four digit block number, *e.g.*, L1982. The area codes to be used are those assigned for EXFOR, e.g. area 1 is USA and Canada, area 2 is OECD member countries (excluding USA and Canada) etc. No area code is allowed (e.g. for old CINDA records, where block number was already assigned).

The block number is assigned only by the center responsible for the entry. Before blocking CINDA lines together, compilers must be fully certain that the lines do belong with each other. The blocks are based on the same isotope (Z, A, and state), reaction, lab and experiment, based on for example the same people involved in the presented work in the articles during a limited time period.

SEQUENCE NUMBER (Columns 40-43)

The Sequence Number is a 4-digit, right-adjusted integer denoting the sequence within a block. It is assigned ***only*** by the center responsible for the entry.

HIERARCHY CODE (Column 44)

The one-digit Hierarchy code is used to distinguish between different types of records, or to denote the importance of a reference. Valid hierarchy codes are defined in the following table.

Code	Use
1	Main publication. Assigned only to a publication known to be the definitive publication.
2	Published reference (journal or conference proceeding).
3	Other major reference, such as, complete laboratory report or a thesis.
4	Translation for reference with hierarchy 1-3.
5	Minor reference, such as, a progress report, a meeting abstract, or a private communication.
6	EXFOR or Evaluated Data index entry. A reference to an entry in a data library which gives the numerical data referenced in the block.
0	EXFOR data index line where accession number is not yet assigned, i.e. EXFOR compilation of the work is still in progress.

1. Hierarchy codes `0` and/or `6` for EXFOR data:
   - Column 43 `0` or `6`
   - Columns 60-66 `4,EXFOR`
   - Columns 67-71 EXFOR Accession number (e.g. `11754`) or `00000`, if unassigned, when hierarchy code = 0
   - Column 72 full stop (.)
   - Column 73-75 EXFOR Sub-accession number, e.g. `002`, `045`, *etc.* or `000`, if unassigned, when hierarchy code = 0

WORK TYPE (Column 45)

The one-character Work Type code gives the type of work referenced, *e.g.*, experimental, evaluated. These codes are found in Dictionary 235. For a reference containing more than one type of work, a separate block should be entered for each type, for example, an experimental work in which extensive[9] model calculations were done.

READER CODE (Column 46-47)

A two-character Reader Code may be used, at the discretion of the entering center, to identify the compiler of the entry. These codes are found in Dictionary 52. This field may be left blank. A list of current and formerly used Reader Codes is given in Appendix B.

[9] By extensive is meant that each work is extensive enough to warrant publication on its own. For example, a comparison of measured angular distributions with optical model calculations is not regarded as fulfilling this criterion. This comparison should be noted in the comment for the experimental data.

ENERGY RANGE (Columns 48-61)

The energy range field consists of two floating-point numbers (2E7.1) which give the minimum and maximum energies for the data referenced. If the data is presented only at one energy, it is given in the first field; the second field is blank. If an upper limit only is known, it is given in the second field; the first field is blank.

If only the approximate range is known, only the exponents are entered.

A four-character code is used to define the energy for spectrum-averaged values. A list of all legal codes is given in Dictionary 48, e.g. MAXW, SPON, THR. If the reference covers two or more distinct energy ranges that may be viewed as separate experiments or calculations, separate entries should be made. *Example*: a measurement at thermal energy of Maxwellian-averaged cross section and a separate measurement over the energy range 5 eV to 6 keV.

If no information on the energy is given, the code NDG (no data given) is used.

For quantities for which incident energy is meaningless, *i.e.*, nuclear quantities, spontaneous fission and so on, both fields are left blank.

REFERENCE (Columns 62-90)

The reference consists of three fields: reference type, reference code, and reference date. The format of the reference field depends on the reference type.

Reference Type (Column 62)

The Reference Type consists of a one-character code which is:
either taken from Dictionary 4,
or 4 for EXFOR data,
or 3 for Evaluated data libraries.

If Reference Type and Reference Code are present, column 61 should contain a comma (,).

Reference Code (Columns 64-84)

In general, references are coded as for EXFOR and use the same dictionaries and codes. See the EXFOR Manual for coding rules, and Dictionaries 5-7, 207 for document codes.

1. Reference Code for EXFOR data:

columns 64-68	EXFOR
columns 69-73	EXFOR Accession number (e.g. 11754) or 00000, if unassigned, when hierarchy code = 0
column 74	full stop (.)
column 75-77	EXFOR Sub-accession number

or 000, if unassigned, when hierarchy code = 0

e.g. 4,EXFOR12345.123 (for hierarchy code = 6) or 4,EXFOR00000.000 (for hierarchy code = 0).

2. Reference Code for Evaluated data libraries:
   columns 64-69 evaluated file name (see dictionary 144)
   columns 70-84 version number, data set or material number,

   e.g. 3,JENDL-3.2 4725 where in this example 4725 is the material number of the coded target 47-AG-107.

Reference Date (Columns 85-90)

The reference date is given as a 6-digit integer: 4-digit year, 2 digit month (YYYYMM). If the month is not known, it may be omitted. (Note that for conference proceedings the date of the conference is entered and not the date of issue of the proceedings.)

COMMENTS (Columns 91-128)

Comments for reference records should start with the first author's last name, terminated with a full stop (.) for a single author or a plus sign (+) for multiple authors. If no author is known, column 87 should contain a full stop.

The author's name is followed by additional, abbreviated information about the work.

The comment should contain information on whether and how the data is presented in the reference as in the previous CINDA.

Examples: NDG (no data given)
GRPH (graphs)
TBL (table)

For allowable character set and translation of Cyrillic characters, See EXFOR Exchange Formats Manual, Chapter 1.

Comments for the data index lines should contain:
for EXFOR, the number of data lines, and type of data;
for evaluations, the evaluator.

MODIFICATION DATE (Columns 129-136)

The modification date is assigned by the compiler as the date of compilation. This may be updated by the compiling center as the date at which the entry is entered into the database. The modification date is given as an 8-digit integer: 4-digit year, 2 digit month, 2 digit day (YYYYMMDD).

Old CINDA quantity (Columns 137-139)

The quantity used in the old CINDA format can be stated here (not compulsory). This may be used to search for old CINDA lines where the new reaction string is missing.

The quantity is given as 3 characters (QQQ).

Additional information (Columns 140-395 (255 characters as max length))

This space is reserved for multiple institutes or laboratories, products, and full EXFOR reaction. The keywords are at present:
;#LAB, ;#PROD, and **;#REAC**
Two examples are given below.

```
;#LAB=2ZZZGEL,1USABNL;#PROD=6-C-13/14,27-CO-55/56

;#PROD=H-1;#REAC=1-H-1(G,EL)1-H-1,,DA
```

Additional keywords for other information can be added after approval of the NRDC network.

Appendix A

Nuclear Reaction Data Centers

This appendix contains a list of the members of the Nuclear Data Center Network, along with information on how to contact them. Also list are the entry series for which each of the data centers is responsible.

Principal Centers and their services areas.[10]

O. E. C. D. Nuclear Energy Agency Member Countries	
NEA Data Bank 12, boulevard des Iles 92130 Issy-les-Moulineaux, FRANCE	Center codes: 2, O Telephone: +33 (1) 4524 1084 Fax: +33 (1) 4524 1110 Email:nea@nea.fr or *name*@nea.fr www.nea.fr
Countries of the former Soviet Union	
Federal Research Center IPPE Centr Yadernykh Dannykh Ploschad Bondarenko 249 020 Obninsk, Kaluga Region, RUSSIA	Center codes: 4, Q Telephone: +7 084-399-8982 Fax: +7 095-883-3112 Email: *name*@ippe.obninsk.ru rndc.ippe.obninsk.ru
Remaining countries	
IAEA Nuclear Data Section Wagramerstr. 5, P.O.Box 100 A-1400 Vienna, AUSTRIA	Center codes: 3, D, G, V. Telephone: +43 (1) 2360 1709 Fax: +43 (1) 234 564 Email: *name*@iaeand.iaea.or.at www-nds.iaea.org

10 The CINDA centers are responsible for maintaining customer services for the area given.

Other participating centers.

National Nuclear Data Center, Bldg. 197D Brookhaven National Laboratory Upton, NY, 11973-5000 U.S.A.	Center codes: 1, C, L, P, T Telephone: +1 631-344-2902 Fax: +1 631-344-2806 Email: nndc@bnl.gov or *name*@bnl.gov www.nndc.bnl.gov
National Scientific Research Center Kurchatov Institute Russia Nuclear Center 46 Ulitsa Kurchatova 123 182 Moscow, RUSSIA	Center codes: A, B Email: s.babykina@polyn.kiae.su
Institute of Nuclear Physics Moskovskiy Gos. Universitet Vorob'evy Gory 119 899 Moscow, RUSSIA	Center code: M Email: varlamov@cdfe.npi.msu.su
China Nuclear Data Center China Institute of Atomic Energy P.O. BOX 275 (41) Beijing 102413, CHINA	Center code: S Email: cndc@mipsa.ciae.ac.cn
Nuclear Reaction Data Center (JCPRG) Division of Physics Hokkaido University Kita-10 Nishi-8, Kita-ku Sapporo 060-0810, JAPAN	Center code: E, J, R Email: kato@nucl.sci.hokudai.ac.jp www.jcprg.org
Dr. F. T. Tárkányi Cyclotron Application Department ATOMKI, Institute of Nuclear Research Bem Tér 18/c, P. O. Box 51 H-4001 Debrecen, HUNGARY	Contributes data under center code D Email: tarkanyi@atomki.hu
Russian Federal Center - VNIIEF Sarov, Nizhni Novgorod Region 607 190 pr. Mira 37, RUSSIA	Center code: F Email: pikulina@expd.vniief.ru

Appendix B

CINDA Reader Codes

Code	Reader	Country
0	IAEA Nuclear Data Section: corrections	
2	NEA Data Bank	
3	I.L. Nitteberg	Norway
4	A. Ventura	Italy
5	H. Bruneder	Austria
6	F. Hijerup	Denmark
7	NEA Data Bank	
8	NEA Data Bank	
9	E. Ramstrom	Sweden
B	F. Poortmans	Belgium
E	C. Bastian	Euratom
F	F. Wasastjerna	Finland
J	Japan Charged-Particle Nuclear Reaction Data Group	Japan
L	F. Manero	Spain
N	T. Nakagawa (JAERI, Tokai), T. Fukahori (JAERI, Tokai), S. Chiba (JAERI, Tokai), O. Iwamoto (JAERI, Tokai), H.Kitazawa (Tokyo Institute of Technology, Tokyo), M. Kawai (KEK,Tsukuba), T. Ohsaki (Tokyo Institute of Technology, Tokyo)	Japan
O	Russian Nuclear Center, Obninsk	Russia
S	K. Junker	Switzerland
W	M.F. James J.S. Storey M. Moxon	United Kingdom
Y	J. Frèhaut	France
Z	H. Behrens	Germany
(	H.A.J. Van der Kamp	The Netherlands
+	National Nuclear Data Center	U.S.A.
$	IAEA Nuclear Data Section	
&	Other than NNDC	U.S.A.
?	NEA Data Bank: automatic or semi-automatic generation of entries	

Appendix C: Example of the CINDA Exchange format

Operation Code | Z | A | Meta | **Record ID (unique key)** | Reaction | Quantity | Lab | Block # | Seq. # | Hierarchy | Work -type | Reader | E-min | E-max | Ref -type | Reference | Date-ref | Comment | Date-mod | Old quantity | Misc info: multiple labs, products...

```
 I3  I3A       A15     A3    A6    A5  I4  IA   A7     A7    A      A23             I6     A38                                  I8
1-.-.-.-10.-.-.-.-20.-.-.-.-30.-.-.-.-40.-.-.-.-50.-.-.-.-60.-.-.-.-70.-.-.-.-80.-.-.-.-90.-.-.-.100.-.-.-.110.-.-.-.120.-.-.-.130.-.-.-.140.-.-.-.150
123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.12
CINDA EXCHANGE NEA00420080131     24
A  0  1 N,TOT          CS  1USAPTN17730   13EC  7.0+08 3.6+09J,PR/D,8,136           197307Devlin+ MOM = 0.7-3.6 GEV/C.          19900117TOT
A  0  1 N,TOT          CS  1USAPTN17730   26EC  7.0+08 3.6+094,EXFOR10365.005       198304.26 PTS. SIGMA.                       19900117TOT;#LAB=1USABNL,1USALAS
A  0  1 N,TOT          CS  1USAPTN17730   36EC  7.0+08 3.6+094,EXFOR10365.004       198304.26 PTS. SIGMA. N-P + N-N.            19900117TOT;#LAB=2FR ILL,2GERJUL,2GERKFK

A  0  1 N,TOT          CS  1USALRL17000   15T+         6.0+07R,DOE-NDC-47,86        198804Brown+ NDG.                           19900117TOT

A  0  1 N,EL           DA  1USAUI 17000   13T+  5.0+07 2.0+08J,PR/C,36,2221         198712Schiavilla+ GRPHS.CORREL.BORN APPROX  19900117DEL
A  0  1 N,EL           DA  1USALRL17000   15T+         6.0+07R,DOE-NDC-47,86        198804Brown+ NDG.                           19900117DEL

A  1  1 N,X            EVL 1USAYAL10010   13D8         1.0+07J,ARN,2,365            195300Breit+SCATT LENGTH- SEE PAGE 384      19900117EVL
A  1  1 N,X            EVL 1USAUNC10010   23DC  2.5-02 1.0+07R,NDA-57-27            195609Monroe+.TOT,ABS.TABLE+CURVE           19900117EVL
A  1  1 N,X            EVL 1USAGEN10010   33D8  3.2-02 1.0+07R,APEX-467             195806Tralli+.18GROUPS ABS                  19900117EVL

A  1  1 N,X            EVL 1USAGEN10020   13D8 Maxw          R,APEX-467             195806Tralli+.ONLY 2.23 MEV LINE FOR SNG    19900117EVL

A  1  1 N,X            EVL 1USAPCT11500   13D+  2.5-02 1.4+07R,NP-8216              195810Lamarsh+ ALL DATA                     19900117EVL

A  1  1 N,X            EVL 1USAUNC10020   13D8  4.1-02 1.8+07R,TID-21294            196303Goldstein.TOT SEL                     19900117EVL

D  1  1 N,TOT          CS  1USACOL10010   26EC Maxw          4,EXFOR12634.002       198403.1 PT. SIGMA.                         19900117TOT
A  1  1 N,TOT          CS  1USACOL10010   26E? Maxw          4,EXFOR12634.002       198403.1 pt. Total cross section.           20080131TOT;#REAC= 1-H-1(N,TOT),,SIG,,MXW

A  1  1 N,TOT          CS  1USAPTN10010   12E2  2.4+06        J,PR,52,911            193711Ladenburg+ TRANSMISSION, D-D NEUTS    19900117TOT
A  1  1 N,TOT          CS  1USAPTN10010   23EC  2.4+06        J,PR,52,1255           193712.FURTHER ANALYSIS                     19900117TOT
A  1  1 N,TOT          CS  1USAPTN10010   36E+  2.4+06        4,EXFOR13790.002       200208.1 PT. SIGMA.                         20020812TOT
##---Block from EXFOR=O0901 Z=15 A=CMP S= R=P,X Q=TT: Institute="2SF HLS" RS=15-P-CMP(P,X)0-NN-1,,TTY
A 15CMP P,X            TT  2SF HLSO0901   12Ex               J,NIM/B,28,199         198701Raisanen+                         X4A 20051017
A 15CMP P,X            TT  2SF HLSO0901   26Ex               4,EXFORO0901.076       200405.2pt        PR=NN-1               X4A 20051017
##---Block from EXFOR=22108 Z=73 A=181 S= R=N,P Q=CS: Institute="2ZZZGEL" RS=73-TA-181(N,P)72-HF-181,,SIG
A 73181 N,P            CS  2ZZZGEL22108   12Ex  1.3+07 2.0+07J,ARI,39,(5),407       198801Woelfle+                          X4A 20051017
A 73181 N,P            CS  2ZZZGEL22108   26Ex  1.3+07 2.0+074,EXFOR22108.006       198902.15pt       PR=Hf-181             X4A 20051017   ;#PROD=72-HF-181
## New block:
A 99255 0,F            FY  3INDTRM34190   13R$ Spon          J,PRM,33,109           198907Prakash. GRPH:SCHEMATIC A-DIST,CFD    19900516NFY;#PROD=23-V-66,24-CR-68/69/70
A 992551N,0            RP  4CCPFEI44130   13TO  2.0+06 4.0+06J,YF,39,281            198402Kupriyanov+ SYSTEMATCS.TBL AVG WN/WF  19850319RES
A 992551N,0            RP  4CCPFEI44130   24T$  2.0+06 4.0+06J,SNP,39,176           198402.ENGLISH OF YF 39 281                 19850319RES
```

Appendix D

Dictionary 45. CINDA quantity codes.

Quantity code	Description
ALF	Alpha
AMP	Length or amplitude
CHG	Fragment charge
COR	Angular correlation
CS	Cross section
CSN	Differential with respect to number of particles
CSP	Partial cross section
CST	Temperature dependent cross section
D3A	Triple differential dAngle1/dAngle2/dE'
D3E	Triple differential dAngle/dE1'/dE2'
D4A	Quadruple diff. dAng1/dAng2/dE1'/dE2'
DA	Differential d/dAngle
DAA	Double differential dAngle1/dAngle2
DAE	Double differential dAngle/dE'
DAP	Partial differential d/dAngle
DAT	Temperature-dependent Legendre coefficient
DE	Differential d/dE'
DEP	Energy spectrum for specific group
DP	Diff. by linear momentum of outgoing part.
DT	Diff. by 4-momentum transfer squared
EC	Energy correlation
EMC	Effective mass correlation
ETA	Eta
EVL	Evaluation
FRS	Fragment spectra
FY	Fission product yield
INT	Cross section integral over incident energy
KE	Kinetic energy
KER	Kerma factor
LMC	Partial linear momentum correlation
MLT	Multiplicity
NQ	Nuclear quantity
NU	Nu
NUD	Nu delayed
NUF	Fragment neutrons
POL	Polarization
POD	Differential polarization
POT	Potential scattering radius or cross section
PY	Product yield (other than fission)
RI	Resonance integral
RP	Resonance parameter
RR	Reaction rate
SIF	Self indication
SPC	Gamma spectrum
TSL	Thermal scattering
TT	Thick target yield
TTD	Differential thick target yield, d/dAngle
TTP	Partial thick target yield