

MEMORANDUM 4C-2/30

From: Hans Potters *HP*

Subject: Answers to memos and manuals, ISO-QUANT
modifiers, TRANS 1008, 3006 and 4002, CCDN
tapes, EXFOR dictionaries.

1st September 1972

A. Memo X4-5

1. Part IX is missing.
2. Typographical errors:
VII. 1 a) line 9 from bottom.
VIII. 14 line 22 from bottom.
3. Errors:
 - a) VIII. 7 line 10 from bottom:
drop: "area, country and".
 - b) VIII. 16 + 20 2 * STANDARD.
STANDARD is a slashed item.
In case of insufficient information, use free text.
 - c) VIII. 17 + 18 2 * on each page:
"further details ... on page VIII. 19".

B. Other memos

1. 4C-1/27: There was no list of corrected spelling errors attached.
2. 4C-4/17: See point D.
3. 4C-1/26: Anisotropy: see point D.
40058.004 : Our tape is okay (two blocks have been dropped somewhere).
4. 4C-3/56
 - D.4 Okay - add a note to this effect.
 - F.2 The ambiguous cases "which cannot be flagged" are the E-EXC, E-LVL and Q-VAL families, E-DGD and H-LIFE. Can NDS give examples of how these keywords can be used to give "supplementary information", i.e. information which, if left out, will not make the data undefined?

For H-LIFE this is the case where no isomers exist in the residual nucleus, but for the other cases we do not see why they cannot be flagged. On the other hand, should WVE-LN be flagged? Wave length and neutron energy (e.g. in millieV) can both be given in one table. Comments are awaited from NNCSC, especially on how to make use of the flag.

H.A.3 See point D.

J. We agree.

5. 4C-3/57

Points 1 and 2: See point D.

Point 3: 40 033: It occurs to me that the code SPONT in dictionary 15 can be made obsolete. I see no meaning for it.

Point 5: 1.0251.002: As far as I know, this format is PL/1 readable (in EDIT, not in LIST mode).

Point 6 (a) Okay for ABS.

Why not use $((\dots, \text{ACT}) = ((\dots, \text{NP}) + (\dots, \text{NT})))$ in order to warn the user that the sum is not a mathematical one? We must admit that the notation possibly gives rise to misunderstandings for users.

Point 6 (b) Okay, in order to distinguish in this case, as long as it does not mean that we have to put -CM in case of only one DATA column.

Point 6(c) We do not agree.

Point 6 (d) See point D.

Points 6 (e) & (f): Okay.

Point 7 (a) Okay: we will put them in anyway in order to define the data uniquely. Please confirm the values we mentioned in our memos as far as possible (and flag those which could not be confirmed).

Point 7 (b) See point D.

Point 7 (c) Okay.

Point 8 See point D.

C. LEXFOR-2'

We suppose that memo X4-5 and LEXFOR-2' are provisional, as the remarks in memo 4C-2/26 have not been incorporated.

Metastable states: Line 4 from bottom add: in COMMON or DATA.

Standard

I could not find it in 4CM/VII, but it was mentioned that the paragraph "Insufficient information" should be dropped. We should use free text in that case.

Wave-Length

Note: CCDN does not feel that way.

D. "General" and other modifiers (to be discussed at 4C Meeting)

1. The "general" modifiers are those which can be added to an ISO-QUANT without having an entry in Dictionary 14. They are DRT, REL and FCT.
2. We are in favour of the FCT-modifier because it solves a lot of problems without blowing up Dictionary 14. FCT should mean multiplication with a well defined factor: $1/\sigma$ (85°) in a well defined factor, as is $1/\sigma$ (14.1 MeV) even if 85° or 14.1 MeV is arbitrary. Units are NO-DIM.
FCT can occur with any unit and requires free text.
3. We agree with using RSD for 90° only, as this is a case which often occurs.
4. REL should be reserved for cases as counts/channel with units ARB-UNITS: only the shape of the cross-section is given. No free text required.
5. We agree with memo 4C-3/57 point 2, except that in example 1 the REL modifier should change to FCT and units to NO-DIM.
6. DRT, however, has no meaning whatsoever.

How do you want to use this in a retrieval? I cannot see why someone would want to retrieve on DRT only. Furthermore, one can retrieve on non-DRT data. But then you discard a class of data for arbitrary reasons: it is not at all a priori certain that a user cannot use for his purpose data sets which different compilers like for their own reasons to flag as DRT-data. The same argument holds if you want to give the user the data separated in non-DRT

and DRT data. He has anyway to scan all the comments and the literature in order to know which data sets should be manipulated according to his needs. The DRT modifier does not help him any more than a free text after ISO-QUANT. So we see no reason to keep DRT in.

7. We propose to declare the YLD modifier to be a general modifier (it is still not used in Dictionary 14) and to use it for uncorrected cross-section data (not TOT) in barns or with the modifiers YLD/REL in ARB-UNITS (we have some Pu-240 scattering yield data from Geel in our file 68WASH,1,513). YLD data, just as REL data, should only be entered in EXFOR if no normal cross-section data are available. Maybe YLD could be changed to RAW.
8. Fission yield is something completely different and should have another code, e.g. YIE as a function parameter.
9. (4C-3/57, point 7(b)). The PAR modifier should be defined as such. The alternative is that we make it a general modifier. CCDN does not like this idea at all.
10. The RV modifier, and consequently the RED modifier (or NRV as RED comes in as a function parameter also) can be added if there are enough data for it, but we have to think how important it is for retrievals: otherwise use free text. Somewhere we have to make a precision cut-off and use the watchman's collar.

E. Remarks on tapes

1. May we ask centres to answer our memos 4C-2/27 and 4C-2/29 (as far as they have not done so) in the way suggested in point 7 of the latter (see 4C-1/25), especially the points marked with A. In entering our data we assumed certain values, etc. which we would like to be confirmed: if this is not possible, please state so (e.g. by putting a "?").
2. We are very grateful to NNCSC for sending us the plots from our tapes TRANS 2001, 2002 and 2005. We scanned these and found a few spurious points to be moved out.
3. The following errors were found by the checking programme as far as not yet mentioned in other memos :

TRANS 1008

10090 023

FLAG/DATA

For one line table should be COMMENT.

023-38 A

DATA

14.8 ± 0.1 MeV should be in common of subwork 001 as it has sense for these subentries too.

10 149 001

STANDARD

1-H-0 instead of O.

10 251 001

?

TITLE

Missing.

TRANS 3006

30016 001

STANDARD

RATIO obsolete.

30085 001

STANDARD

(79-AU-197, ...).

30111 002, 003

ISO-QUANT/STANDARD/DATA

Here the FCT modifier should be used with free text as under STANDARD, dropping the obsolete RATIO; DATA units are correct:

The factors are: $1/\sigma_{del}$ (20 sec) and $1/\sigma_{del}$ (3 MeV) respectively.

30118 001

STANDARD

RATIO obsolete.

30143 006

COMMENT

Keyword occurs twice.

30148 002

STANDARD

OTHER obsolete.

30160 002-004

ISO-QUANT/DATA

These frequently occurring data should be coded in a less complicated way. We propose a function code (Dictionary 11) SPC (spectrum) or GIN (Gamma Intensity) to be used together with units GAM/100 N. NG, SPC (CAPTURE GAMMA SPECTRUM).

30163 003

ISO-QUANT

Should be CMPD-QUANT.

30168 003

ISO-QUANT

Should be CMPD-QUANT (92-U-OXY,...).

30170 001

ISO-QUANT

See 30160.

MISC-COL

ASSIGNMENT or ASSIGNED (2*).

? STANDARD

Normalized to the 668.9 and/or the 6467.5 keV line = 100.0.

30176 001

STANDARD

RATIO obsolete.

TRANS 4002

All over the tape columns 72 and 73 were set = 0. All the identification part is essential in order to process the tape: we corrected this error ourselves.

40020 001)

STANDARD

40024 001)

40025 001)

RATIO obsolete.

40024 002

ENDSUBENT

N1 should be 32.

40028 006

BIB

N1 and N2 should be 2.

007, 013

COMMON

EN-MIN = EN-MAX.

40024 001)

STANDARD

40050 001)

RATIO obsolete and incompatible with units.

40050 001

PART DET

Missing. If this is added the wrong N1 and N2 in the BIB, ENDBIB and ENDSUBENT records will be okay again.

F. The following remarks concern CCDN tapes :

TRANS 2001

20002 006

DATA

The very big errors of points with higher values are a consequence of the analysis. They will be cancelled when taking a weighted average. We leave them in, just as we do with negative cross-sections.

20009 003 U

DATA

Spurious points to be moved out :
Lines Nos. 41, 4136 and 4137.

TRANS 2002

20010 007 U

DATA

Idem: Lines 585 and 900.

TRANS 2005

20038 002 U

DATA

Idem: Lines 144 and 382.

003 U

DATA

Idem: Line 420.

20051 001 U

REFERENCE

Should be (J, JNE, 21, 373 (2), 6704).

20064 001 U

REFERENCE

First reference should be (J, NP/A, 116, 673, 6808).

20069 002-022 I

ISO-QUANT

Should be (23-V-51, ...).

20071 001 U

REFERENCE

Ref data should be ..., 7012).

TRANS 2006

20116 010 U

COMMENT

Change '70, EV' into '50.2 eV'.

G. 1. Dictionary 3

Change :

2 ITYPAD (U. of Padua + Lab. Nat; LEGNARO).

2. Dictionary 6

Change :

INFN/BE- INST. NAZ. FISICA Nucleare Reports (so drop "FLORENCE").

3. Dictionary 7

Add :

72 BUD (Conference on Nuclear Structure, Study with Neutrons, Budapest 1972), 31 July-5 August 1972.

Remark: This memo has been delayed due to holidays, and in the meantime some points have been made obsolete. We will try to get another memo out before the next Four Centre meeting.

Distribution

R. Dannels (5 copies)

V. Popov (5 copies)

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CCDN