

Memo CP-D/175

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To: Distribution

From: O. Schwerer *O. Schwerer*

Subject: Comments on TRANS A019

General remarks:

- In several cases both ASSUMED and MONITOR cross sections are coded where it seems not clear how they were used. If the data are proportional to it, MONITOR must be used, otherwise use ASSUMED.
- The obligatory keyword STATUS is missing in all but 2 entries.

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- Usage of 'IND' in REACTION SF5:
This code should not be used to indicate that a certain reaction proceeds only through the "independent" channel. (This was done in some cases, but not consistently, in this TRANS.) IND should be used only when the independent formation has to be distinguished from a CUMulative cross section for the same reaction, i.e. identical SF1-SF4. That means that for "simple" reactions like (P,G), (A,2N), (D,P) etc. IND should not be used, nor should it for most other "well defined" reactions. Both IND and CUM should be used mainly with not exactly defined reaction channels, i.e. SF3='X' or='F'. For comparing different Exfor works, e.g. for plotting purposes, it is very difficult to see which data are actually comparable if the coding is not consistent. (For general retrievals the problem is less serious because we rarely retrieve on SF5).

- If an isomeric sum represents the total isomeric cross section -M+G, no isomeric extension must be used any more (this rule was changed some time ago). Isomeric ratios must be given in 1 line as implicit ratios using 'T' for the total, e.g. ...-M/T,,SIG/RAT,,EXP). This means that the extension -M+G must no longer be used (only partial sums like -M1+M2 are legal). M+ in SF5 is used when the ground state plus some contribution from the metastable state was measured which is not equal to the total because of the decay scheme.

Entry	Subent	Line(s)	Comment
A0140	2,3 3	10	DECAY-DATA required when RAD-DET present isomeric state code required for Co-58. Check also REACTION 4, SF4 for this.
<u>A0178*)</u>	1	13	omit author's initial in reference-subfield (not in author subfield).
	2		1) The reaction given under ASSUMED is the same as the MONITOR given in subentry 1 (which is valid for the whole entry). Probably the BIB keyword ASSUMED should be deleted and the heading ASSUM should be changed to MONIT. Since it is not possible to give monitor values at several energies in the COMMON section of subentry 1, this MONIT column would have to appear in all subsequent subentries. 2) It would be useful to give the REACTION in 2 ways, as you did in subentry 5.

Entry	Subent	Line(s)	Comment
(A0178)	2-5		REACTION: in my opinion the code IND in SF5 should be deleted because for this reaction there is no way to produce the residual nucleus through radioactive decay.
	5	4	Replace REL by A(=times natural isotopic abundance).
A0198*)	1		METHOD: delete ACTIV which is incorrect for all subentries. Subentries 2, 4, 6, 8, having stable reaction products which cannot be measured by activation, were measured by counting prompt γ s (not decay gammas); subentries 3, 5, 7 (the (p,n) cross sections) were measured by neutron counting, as correctly indicated by giving PART-DET (N), which is also different from activation.
	2,4,6		Replace RAD-DET by PART-DET (G), possibly with free text PROMPT GAMMAS.
	6	19	ERR-S should be ERR-T.
	8		1) REACTION: since no specific gamma energies are given, the data probably represent partial inelastic scattering cross sections with respect to 5 levels of Cu-63, but not a gamma production cross section. Therefore the G in SF7 should be deleted, even if gammas were actually detected.
			2) The heading FLAG should be replaced by LVL-NUMB; the BIB keyword FLAG can, then, be deleted. The column LVL-NUMB should be placed after EN, making it the second independent variable. (For REACTIONS with PAR in SF5, a secondary energy, or LVL-NUMB, must be given in the COMMON or DATA section.)
A0202*)	2-4		1) EN-ERR and DATA-ERR are explained in subentry 1 but not given in subentries 2-4.
			2) IND in REACTION SF5 not needed.
A0238	2,3		REACTIONS: 1) delete IND from SF5. 2) add 'A' to SF7 for the reactions for individual isotopes (=times nat. isot. abundance), because e.g. the sums (e.g. lines 6,7 in subentry 2) have to be weighted by the abundances.

Entry	Subent	Line(s)	Comment
A0242	4,5	4	SF4 should probably be 11-NA-24 without -G (the 20 ms isomer cannot be excluded, unless this level is not produced through the given reaction). Under RAD-DET, the -G extension is correct.
A0311	2		Delete IND in SF5. The difference between subentries 2 and 3 is only the measurement METHOD; the quantity measured should be the same (unless in subentry 3 a substantial part of the prompt γ spectrum was missed, in which case it would be PARTIAL).
		4	Delete G from SF7.
A0318	2		REACTION: to be consistent with the comment that cumulative production of P-30 through (HE3,N)5-30 and successive β -decay may be involved, the REACTION has to be written (14-SI-28(HE3,X)15-P-30,(CUM),SIG,,EXP) because if you write (HE3,P) then the reaction (HE3,N) is definitely excluded.
		4	Similar to subentry 2: change (A,D) to (A,X) (then no need for UND in SF5). In the free text in line 5, (HE3,N) must be (A,2N).
A0326	1		I do not quite understand the difference between the ASSUMED and MONITOR reactions, in particular because only for the ASSUMED there are values given in the COMMON section.
	2,3	4,6,8)	If IND or CUM are given, REACTION SF3 should be X, because giving (A,2N+P) leaves no room for production through radioactive decay (the only possibility for this is (A,3N) + β -decay).
	4	4,8)	
A0327	2,4,6	5	Delete -M+G (for total isomeric sum, no extension must be used).
	3	4,5	Add -G.
	5	4	Add -G; also DECAY-DATA entry missing.
A0330	2-4	3	Delete IND from SF5.
A0333	2	4,5	Add -G.

Entry	Subent	Line(s)	Comment
(A0333)		11	EN-RSL must be explained under INC-SPECT if it is a resolution. If it is an error as mentioned in free text, EN-ERR should be used.
A0334	1	10,11, 14	A reference describing the experimental arrangement of the present work should be given under REFERENCE but not under REL-REF.
	2	3	Delete IND from SF5.
A0335	2-8 7	3	Delete -M+G. ERR-T missing in COMMON (or DATA) section.
A0338	2,3,6, 9		Delete -M+G for <u>sum</u> of M and G; isomeric <u>ratio</u> should be given implicitly as -G/T,,SIG/RAT.
	2,3	10	Delete this line (RAD-DET entry for -M+G).
A0343	1	6	<u>l</u> USACSM
A0344	1 18	18	AUTHOR: some names are given 2 or 3 times. DATA 1, DATA-ERR 1 in this line must be DATA 2, DATA-ERR 2.
A0345	2,3,4 5-10 3*)) 10*))		REACTION: either delete 'IND' from SF5 or change SF3 to 'X'. REACTION: delete 'IND' from SF5. 2 REACTIONS in BIB section, but only one data column in DATA section.
A0346	2-4 2	3 3	Delete 'IND' in SF5. Since the shortlived metastable state decays totally to the ground state, very probably the total isomeric sum was measured. Therefore neither -G nor M+ is required.
		9	Invalid ref-date (1989).
	5	3,4	Use implicit ratio -M/T.
A0348	1	17	If EN-RSL is an error it should be called EN-ERR. If it is a resolution, explain under INC-SPECT rather than ERR-ANALYS.
		23	SF4 must be blank for SF3=NON.
	4	4	Free text ("prompt γ -ray") contradicts code DG. If really prompt γ s were detected, better use PART-DET (G) instead of RAD-DET.

*) Retransmission requested