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Memo CP-D/676

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To: Distribution
From: M. Bossant, E. Dupont, N. Otsuka, N. Soppera
Subject: Existence of REACTION SF4
Reference: Memo CP-D/647

Systematic checking for the REACTION SF4 field (reaction product) in the EXFOR Master (Ver. 2010-12-01) was performed with the help of the JANIS software.

1. SF4 field must be empty for resonance parameters

(This raises a problem when reaction product is an isomer: G4012, G4016, G4021.)

Subentry	REACTION	Remark
21057.006	28-NI-59(N,A)26-FE-56, PAR, WID, , MXW	
21057.007	28-NI-59(N,P)27-CO-59, PAR, WID, , MXW	
21057.008	28-NI-58(N,A)26-FE-55, PAR, WID, , MXW	
21057.009	28-NI-61(N,A)26-FE-58, PAR, WID, , MXW	
21389.002.1	22-TI-46(N,G)22-TI-47, , ARE, , FCT	, ARE, , FCT→, WID/STR
21389.002.2	22-TI-46(N,G)22-TI-47, , WID	
21389.003.1	22-TI-47(N,G)22-TI-48, , ARE, , FCT	, ARE, , FCT→, WID/STR
21389.003.2	22-TI-47(N,G)22-TI-48, , WID	
21389.004.1	22-TI-48(N,G)22-TI-49, , ARE, , FCT	, ARE, , FCT→, WID/STR
21389.004.2	22-TI-48(N,G)22-TI-49, , WID	
21389.005.1	22-TI-49(N,G)22-TI-50, , ARE, , FCT	, ARE, , FCT→, WID/STR
21389.005.2	22-TI-49(N,G)22-TI-50, , WID	
21666.002	26-FE-56(N,G)26-FE-57, , WID	
21666.003	26-FE-56(N,G)26-FE-57, , ARE, , FCT	, ARE, , FCT→, WID/STR
21713.003	30-ZN-64(N,A)28-NI-61, PAR, WID, , MXW	
21713.005	30-ZN-67(N,A)28-NI-64, PAR, WID, , MXW	
21713.007	34-SE-77(N,A)32-GE-74, PAR, WID, , MXW	
21729.004	16-S-32(N,EL)16-S-32, , WID, , AV	
21729.005	14-SI-28(N,EL)14-SI-28, , WID, , AV	
G4012.002	48-CD-111(G,INL)48-CD-111-M, , ARE	
G4016.002	38-SR-87(G,INL)38-SR-87-M, , ARE	
G4021.002	38-SR-87(G,INL)38-SR-87-M, , ARE	
G4021.003	38-SR-87(G,INL)38-SR-87-M, , ARE	
G4021.004	49-IN-113(G,INL)49-IN-113-M, , ARE	
G4021.005	49-IN-113(G,INL)49-IN-113-M, , ARE	
G4021.006	49-IN-115(G,INL)49-IN-115-M, , ARE	
G4021.007	49-IN-115(G,INL)49-IN-115-M, , ARE	
G4021.008	80-HG-199(G,INL)80-HG-199-M, , ARE	
G4021.009	80-HG-199(G,INL)80-HG-199-M, , ARE	
G4021.010	48-CD-111(G,INL)48-CD-111-M, , ARE	
M0074.004	24-CR-52(G,EL)24-CR-52, , STF, , BRA/REL, EXP	

2. SF4 field must be given for quantity given on resonances

(These were right codes before the new rule is introduced by Memo CP-D/509).

Subentry	REACTION	Remark
11082.002	3-LI-6(N,T),,SIG,,RES	
11098.004	3-LI-6(N,T),,SIG,,RES	
11098.008	9-F-19(N,G),,SIG,,RES	
11395.002	9-F-19(N,A),,SIG,,RES	
11451.004	10-NE-20(N,A),,SIG,,RES	
11792.004	41-NB-93(N,G),,SPC,,REL/RES	REL/RES → RES/REL
12728.012	34-SE-74(N,G),,SPC,,RES	
12728.013	34-SE-76(N,G),,SPC,,RES	
12728.014	34-SE-77(N,G),,SPC,,RES	
12728.015	34-SE-78(N,G),,SPC,,RES	
12728.016	34-SE-80(N,G),,SPC,,RES	
12913.002	5-B-10(N,A),PAR,SIG,,RES	
13822.002	80-HG-199(N,G),,SPC,,REL/RES	REL/RES → RES/REL
13822.003	78-PT-195(N,G),,SPC,,REL/RES	REL/RES → RES/REL
13822.004	74-W-183(N,G),,SPC,,REL/RES	REL/RES → RES/REL
13822.005	34-SE-77(N,G),,SPC,,REL/RES	REL/RES → RES/REL
13836.003	90-TH-232(N,G),,SPC,,RES	
13915.003	17-CL-35(N,G),,SPC,,RES	
13917.004	21-SC-45(N,G),,SPC,,RES	
13918.002	24-CR-52(N,G),,SPC,,RES/REL	
13927.002	54-XE-129(N,G),,SPC,,RES/REL	
13928.002	54-XE-131(N,G),,SPC,,RES/REL	
13931.002	(69-TM-169(N,G),,SPC,,RES)// (69-TM-169(N,G),,SPC,,RES)	
13931.002	(69-TM-169(N,G),,SPC,,RES)// (69-TM-169(N,G),,SPC,,RES)	
21025.008	77-IR-191(N,G),,SIG,,RES	
22431.002	9-F-19(N,G),,SPC,,RES/REL	
22431.003	13-AL-27(N,G),,SPC,,RES/REL	
22485.004	22-TI-50(N,G),,SIG,,RES	
22527.002	41-NB-93(N,G),,SIG,,RES	
22651.002	9-F-19(N,G),,SPC,,RES/REL	
22651.004	9-F-19(N,G),,SPC,,RES/REL	
22651.006	9-F-19(N,G),,SPC,,RES/REL	
22651.008	9-F-19(N,G),,SPC,,RES/REL	
22711.002	24-CR-52(N,G),,SPC,,RES/MXW	
22711.003	24-CR-52(N,G),,SPC,,RES	
22921.007	82-PB-206(N,G),,SPC,,RES/REL	
22929.003	12-MG-24(N,G),,SPC,,RES	
23017.002	11-NA-23(N,G),,SPC,,RES/REL	
30092.003	8-O-16(N,A),,SIG,,RES	
40945.002	64-GD-154(N,G),,SPC,,RES	
40945.003	64-GD-156(N,G),,SPC,,RES	
40949.002	64-GD-154(N,G),,SPC,,RES/REL	

40949.003	64-GD-154(N,G),,SPC,,RES/REL	
40949.004	64-GD-154(N,G),,SPC,,RES/REL	
41270.009	(52-TE-123(N,G),,SIG,,RES)* (52-TE-123(N,TOT),,WID)	
41270.010	(52-TE-125(N,G),,SIG,,RES)* (52-TE-125(N,TOT),,WID)	
41365.002	(49-IN-115(N,G),,SPC,,RES)// (49-IN-115(N,G),,SPC,,RES)	
41365.002	(49-IN-115(N,G),,SPC,,RES)// (49-IN-115(N,G),,SPC,,RES)	
41365.004	(49-IN-113(N,G),,SPC,,RES)// (49-IN-113(N,G),,SPC,,RES)	
41365.004	(49-IN-113(N,G),,SPC,,RES)// (49-IN-113(N,G),,SPC,,RES)	
41399.003	76-OS-187(N,A),,SIG,,RES/AV	
D0111.004	7-N-15(P,N),,SIG,,RES	
D0113.006	7-N-15(P,N),PAR,SIG,,RES	
F0562.006	6-C-13(P,G),PAR,SIG,,RES	
T0012.005	5-B-10(P,G),,SIG,,RES	

3. Other errors

Subentry	Details	Remark
10017.006	2-HE-0(N,EL)2-HE-4,,SIG	2-HE-0→2-HE-4
10375.002	82-PB-0(N,EL)92-U-0,,DA	92-U-0→82-PB-0
11006.002	2-HE-0(N,EL)2-HE-4,,DA	<i>will be checked</i>
11029.002	1-H-WTR(N,SCT),,DA	<i>will be checked</i>
11321.010	74-W-0(N,EL)56-BA-0,,DA	56-BA-0→74-W-0
12017.002	55-CS-133(N,G),,SIG,,MXW	SF4: Add 55-CS-134
13989.002	4-BE-9(N,NON)4-BE-9,,SIG	Delete (all subents). Not original data.
13989.004	13-AL-27(N,NON)13-AL-27,,SIG	Delete (all subents). Not original data.
21018.008	90-TH-232(N,G),,RI	SF4: Add 90-TH-233 SF9: Add DERIV. (Derived from RPs)
21362.022	25-MN-55(N,G),,SIG,,MXW	Use G)25-MN-56.
21395.008	(27-CO-59(N,ABS)27-CO-60-G,,SIG,,MXW)/ (5-B-0(N,ABS),,SIG,,MXW)	Use G)27-CO-60
21395.019	27-CO-59(N,ABS)27-CO-60-G,,SIG,,MXW	Use G)27-CO-60
21395.020	27-CO-59(N,ABS)27-CO-60,,SIG	Use G)27-CO-60
21459.002	6-C-12(N,N+P),PAR,SIG	SF4: Add 5-B-11
21513.003	4-BE-9(N,ABS)4-BE-10,,SIG,,MXW	SF3: ABS → G.
21889.002	26-FE-0(N,INL),PAR,DA,G	SF1,4:Use 26-FE-56
21889.003	26-FE-0(N,INL),PAR,DA,G,LEG	SF1,4:Use 26-FE-56
21889.004	26-FE-0(N,INL),PAR,SIG,G	SF1,4:Use 26-FE-56
21889.005	14-SI-OXI(N,INL),PAR,DA,G	SF4:Add 14-SI-OXI
21978.002	95-AM-241(N,G),,SIG,,AV	To which isomer?
21978.003	95-AM-241(N,G),,SIG	To which isomer?
22206.003	1-H-1(N,G+P)0-NN-1	Use G+N)1-H-1
22206.004	1-H-1(N,INL),,SIG	Use G+N)1-H-1 (Bremsstrahlung)

40170.002	88-RA-226(N, SCT), POT, SIG	Use EL) 88-RA-226
F0093.011	5-B-10(P, TOT) 5-B-10, , SIG, , , EXP	Sum of 3 partial inelastic scattering cross sections in F0093.010

SF4 when SF1 is a chemical compound

We have the following rule for the SF4 field of REACTION (See EXFOR Formats Manual).

e) There is no reaction product if the reaction is measured for a target of natural isotopic composition, excluding scattering.

Because this is also applicable when a chemical compound is used as the target, we propose to revise this rule as follows:

e) There is no reaction product if the reaction is measured for a target of natural isotopic composition or a chemical compound

Note that “excluding scattering” in the current rule is not necessary because it is explained in f).

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