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Memo CP-D/449

Date: 11 January 2006
To: Distribution
From: O.Schwerer
Subject: **Proposed new fission quantities arising from TRANS 1337
(Reply to memo CP-C/368); new proposals for dict.236;
Corrections to TRANS 1337**

When receiving final TRANS 1337 we had a look at the original references of entries 14044 and 14055 finding that several corrections are needed.

In entry 14044, the REACTION coding should be changed. The correct REACTIONs represent new combinations of codes and therefore require additions to dictionary 236, which are however different from those proposed in memo CP-C/368.

For entry 14055, we found several data in the article which should be compiled but were not, and two subentries which, in our opinion, were compiled with an inappropriate reaction and should be removed.

Because we got to see the articles only after receiving the final TRANS, we want to facilitate the correction (which must be done as retransmission in one of the next area 1 TRANS files) and therefore append entry 14044 in corrected form to this memo. For entry 14055, which needs both addition and deletion of subentries, we have to leave the whole correction to the originating center.

Since we cannot read all original articles of all entries compiled by all centres, we would like to stress again that compilers should extensively use all available resources (i.e. the EXFOR manual, LEXFOR, the archive dictionaries, and similar existing entries in the database) before entering the data.

Entry 14044

Subentry 2:

REACTION given as
(92-U-235(N, F), , DE/DE, LF/HF, REL/MXW)

Since these are energy spectra of heavy fragments for fixed energies of the light fragment, we think that the following code should be used instead:

(92-U-235(N, F), PAR, FY/DE, LF/HF, REL/MXW)

This code needs to be added to dictionary 236.

Subentry 3:

REACTION given as
(92-U-235(N, F)MASS, , DE, LF, REL/MXW)

This code exists in dictionary 236, is however not applicable to this subentry. These data are **mass spectra** and therefore cannot be coded with SF6 = DE.

This is actually a new quantity and we propose the coding

(92-U-235(N, F)MASS, PAR/MAS, FY, LF, REL/MXW)

Also this code needs to be added to dictionary 236.

(We have in dict. 236 the quantity MAS, FY for total mass yield. Here we have a mass yield which is "partial" because it is given for various fixed values of the light fragment energy.)

For both subentries, the meaning of E and E1, E2 can be given in coded form under EN-SEC, e.g.
EN-SEC (E1, HF)

Entry 14055

Subentry 4:

REACTION code PRE,DE,LF+HF (already proposed in CP-E/083) to be added to dict. 236;
in addition, add
EN-SEC (E,LF+HF)

Subentries 5 and 6:

Data from Fig. 7 are compiled as data for "light fragments" and "heavy fragments". However, the legend of Fig. 7 says "high and low **energy** fragments". We have no coding for this and unless somebody suggests that these are important enough data to introduce new codes, we suggest to **delete these subentries**.

Additional data for compilation from this article:

- Cross section for Cm-248(12C,4n) was measured (250 nb given in abstract) and should be compiled in a (separate) charged particle entry (C series, with cross-reference to 14055 and vice versa).
- Table I data for No-256 should be compiled, as PRE,AKE,FF and ,AKE,FF (and the same with HF and LF), and again with SF6 = KEP for most probable kinetic energy.
- Data of Fig. 8 a,b may be compiled as

...(0, F) MASS, PRE, FY, , DERIV

Summary: New codes proposed for dictionary 236:

Quantity	Expansion	Reaction type	Dim.
PAR,FY/DE,LF/HF	Fiss.prod.yield at given light and heavy fragment energy	FYE	FYDE
PAR/MAS,FY,LF	Fiss.prod.mass spectrum for given light fragm. kinetic energy	FYP	FY
PRE,DE,LF+HF (see also CP-E/083)	Sum of primary light and heavy fragm.energies, total kin.energy spectrum	DE	DE
PRE,KEP,FF	Most probable kinetic energy of primary fission fragments	E	E
PRE,KEP,HF	Most probable kinetic energy of primary heavy fragments	E	E
PRE,KEP,LF	Most probable kinetic energy of primary light fragments	E	E
,KEP,FF	Most probable kinetic energy of fission fragments	E	E
,KEP,HF	Most probable kinetic energy of heavy fragments	E	E
,KEP,LF	Most probable kinetic energy of light fragments	E	E

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Appendix: Revision to entry 14044 (complete entry appended separately)

ENTRY	14044	20060111	14044	0	1C
SUBENT	14044001	20060111	14044	1	1C
BIB	10	13	14044	1	2
INSTITUTE	(1USAFLA)		14044	1	3
REFERENCE	(J,PR/C,11,1287,1975)		14044	1	4
AUTHOR	(L.Muga,A.Clem)		14044	1	5
TITLE	Fragment nuclear-charge structure in the thermal-		14044	1	6
	neutron-induced fission of 235U		14044	1	7
FACILITY	(REAC,1USAFLA)		14044	1	8
INC-SOURCE	Thermal neutron flux		14044	1	9
DETECTOR	Thin-film detector luminescence (TFD), 0.1 mg/cm2		14044	1	10
	(SIBAR) Silicon surface barrier detector		14044	1	11
METHOD	(TOF)		14044	1	12
SAMPLE	Thin 0.05 mg/cm2 uranium 235 (99.7 %) as oxide target		14044	1	13
HISTORY	(20050918C) DR		14044	1	14
	(20060111A)		14044	1	15I
ENDBIB	13	0	14044	1	16
COMMON	1	3	14044	1	17
EN-DUMMY			14044	1	18
EV			14044	1	19
0.025			14044	1	20
ENDCOMMON	3	0	14044	1	21
ENDSUBENT	20	0	14044	199999	
SUBENT	14044002	20060111	14044	2	1C
BIB	4	7	14044	2	2
REACTION	(92-U-235(N,F),PAR,FY/DE,LF/HF,REL/MXW)		14044	2	3C
	Yield of the heavy fragment at given heavy and		14044	2	4C
	light fragment kinetic energy		14044	2	5C
EN-SEC	(E1,HF) heavy fragment energy		14044	2	6C
	(E2,LF) light fragment energy		14044	2	7C
ERR-ANALYS	No information		14044	2	8
STATUS	(CURVE) Data taken from Fig. 2		14044	2	9
ENDBIB	7	0	14044	2	10
NOCOMMON	0	0	14044	2	11
DATA	0	245	14044	2	12
E2	E1	DATA	14044	2	13
MEV	MEV	ARB-UNITS	14044	2	14
99.	4.92E+01	1.40E+01	14044	2	15
99.	5.01E+01	2.17E+01	14044	2	16
99.	5.10E+01	3.12E+01	14044	2	17
99.	5.21E+01	7.41E+01	14044	2	18
99.	5.31E+01	1.10E+02	14044	2	19
99.	5.42E+01	1.80E+02	14044	2	20
99.	5.53E+01	2.55E+02	14044	2	21
99.	5.61E+01	3.25E+02	14044	2	22
99.	5.72E+01	4.67E+02	14044	2	23
99.	5.81E+01	5.98E+02	14044	2	24
99.	5.92E+01	8.49E+02	14044	2	25
99.	6.01E+01	9.76E+02	14044	2	26
99.	6.11E+01	1.26E+03	14044	2	27
99.	6.22E+01	1.61E+03	14044	2	28
99.	6.32E+01	1.96E+03	14044	2	29
99.	6.42E+01	2.13E+03	14044	2	30
99.	6.51E+01	2.15E+03	14044	2	31
99.	6.61E+01	2.27E+03	14044	2	32
99.	6.72E+01	2.17E+03	14044	2	33

99.	6.82E+01	2.05E+03	14044	2	34
99.	6.91E+01	1.88E+03	14044	2	35
99.	7.02E+01	1.85E+03	14044	2	36
99.	7.11E+01	1.96E+03	14044	2	37
99.	7.22E+01	1.96E+03	14044	2	38
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111.	8.39E+01	4.92E+01	14044	2	256
111.	8.49E+01	3.68E+01	14044	2	257
111.	8.59E+01	2.91E+01	14044	2	258
111.	8.69E+01	1.42E+01	14044	2	259
ENDDATA	247	0	14044	2	260
ENDSUBENT	259	0	14044	299999	
SUBENT	14044003	20060111	14044	3	1C
BIB	4	6	14044	3	2
REACTION	(92-U-235(N,F)MASS,PAR/MAS,FY,LF,REL/MXW)		14044	3	3C
	Heavy fragment mass spectra at given light fragment kinetic energy		14044	3	4
			14044	3	5
EN-SEC	(E,LF) light fragment energy		14044	3	6C
ERR-ANALYS	No information		14044	3	7
STATUS	(CURVE) Data taken from Fig. 2		14044	3	8
ENDBIB	6	0	14044	3	9
NOCOMMON	0	0	14044	3	10
DATA	3	181	14044	3	11
E	MASS	DATA	14044	3	12
MEV	NO-DIM	ARB-UNITS	14044	3	13
99.	1.26E+02	4.54E+01	14044	3	14
99.	1.27E+02	2.02E+02	14044	3	15
99.	1.28E+02	5.27E+02	14044	3	16
99.	1.29E+02	1.04E+03	14044	3	17
99.	1.30E+02	1.62E+03	14044	3	18
99.	1.31E+02	2.20E+03	14044	3	19
99.	1.32E+02	2.67E+03	14044	3	20
.....					
112.	1.56E+02	3.85E+01	14044	3	191
112.	1.57E+02	2.44E+01	14044	3	192
112.	1.58E+02	2.04E+01	14044	3	193
112.	1.59E+02	1.22E+01	14044	3	194
ENDDATA	183	0	14044	3	195
ENDSUBENT	194	0	14044	399999	
ENDENTRY	3	0	14044	499999999	