Memo CP-D/747

Date:	11 June 2012
To:	Distribution
From:	N. Otsuka, S. Dunaeva

Subject: **Dictionary 16 (Status codes) – SGMBS**
Reference: WP2000-23

Sigmabase [1] was a database of charged-particle induced reaction cross sections developed by the ion beam analysis field. The database was merged with another database (NRABASE) to form the IBANDL database (http://www-nds.iaea.org/ibandl/). Inclusion of the Sigmabase data into EXFOR was agreed in the NRDC 2000 Meeting. See WP2000-23 and Action 45-48 of the meeting.

We observe many EXFOR entries adopting numerical data from Sigmabase, but we often do not know original source of the numerical data in Sigmabase. WP2000-23 reports that much of data in Sigmabase were digitized from figures, and some concern was expressed at the accuracy of these data.

Under this situation, we should not apply the status code TABLE unless the original source is known, and propose a new status code for data which were taken from Sigmabase but which original source is unknown. Such a special status code was also proposed by O. Schwerer in his presentation in 2005 [2].

Dictionary 16 (Status codes)

SGMBS   Data converted from Sigmabase

Today I obtained the ASCII file set of Sigmabase from the Idaho State University server (ibaserver.physics.isu.edu) where Sigmabase was hosted, and found several files which show the source of numerical data explicitly:

*These cross sections have been **digitized** from the publication cited below. No error of either the energy and or the sigma is given. Some errors may be among the data, we are recently checking them. The Los Alamos Ion Beam Handbook also will contain these data as soon as it is ready. If you use this data please refer to the paper below.*

The list of the Sigmabase data file showing this comment is appended to the memo. If you can confirm an EXFOR entry and the corresponding IBANDL entry show the same values, and the IBANDL entry still show the same comment, you may apply both SGMBS and CURVE to the entry.

Reference
[1] I. C. Vickridge, INDC(NDS)-0449, 15 (2003).
[2] I. Vickridge and O. Schwerer (ed.), INDC(NDS)-0481 (2006).

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Appendix: List of Sigmabase files describing their data source as digitization
(NDS did not check whether the corresponding EXFOR values were taken from Sigmabase.)

File name	Reaction	Source (There is often a mistake in this information.)	EXFOR
10bda0.r33	10B(d,a0)8Be	K.H.Purser and B.H.Wildenthal, Nucl.Phys., 44(1963), 22	F0215
10bda1.r33	10B(d,a1)8Be	K.H.Purser and B.H.Wildenthal, Nucl.Phys., 44(1963), 22	F0215
10bpa0_1.r33	10B(p,a0)7Be	J.G.Jenkin, L.G.Earwaker and E.W.Tinterton, Nucl. Phys., 50(1964), 517	F0224
10bpa0_2.r33	10B(p,a0)7Be	J.G.Jenkin, L.G.Earwaker and E.W.Tinterton, Nucl. Phys., 50(1964), 517	F0224
10bpa1_1.r33	10B(p,a1)7Be	J.G.Jenkin, L.G.Earwaker and E.W.Tinterton, Nucl. Phys., 50(1964), 517	F0224
10bpa1_2.r33	10B(p,a1)7Be	J.G.Jenkin, L.G.Earwaker and E.W.Tinterton, Nucl. Phys., 50(1964), 517	F0224
10btp0.r33	10B(3He,p0)12C	J.P.Schiffer,T.W.Bonner,R.H.Davis and F.W.Prosser,Phys.Rev.,104(1956),10	A1495
10btp1.r33	10B(3He,p1)12C	J.P.Schiffer,T.W.Bonner,R.H.Davis and F.W.Prosser,Phys.Rev.,104(1956),10	A1495
11btd0.r33	11B(3He,d0)12C	H.D.Holmgren, E.A.Wolicki and R.L.Johnston, Phys. Rev., 114(1959), 1281	F0251
11btp0.r33	11B(3He,p0)13C	H.D.Holmgren, E.A.Wolicki and R.L.Johnston, Phys. Rev., 114(1959), 1281	F0251
11btp123.r33	11B(3He,p1,p2,p3)13C	H.D.Holmgren, E.A.Wolicki and R.L.Johnston, Phys. Rev., 114(1959), 1281	F0251
12cdp_1.r33	12C(d,p0)13C	R.A.Jarjis, Int.Rep., U. of Manchester(1979)	N/A
12cdp_2.r33	12C(d,p)13C	E.Kashy,R.R.Perry abd J.R.Risser, Phys.Rev., 117(1960), 1289	C1007
12ctp0.r33	12C(3He,p0)14N	S.Y.Tong,W.N.Lennard,P.F.A.Alkemada,I.V.Mitchell, NIM, B45(1990), 91	C0189
12ctp1.r33	12C(3He,p1)14N	S.Y.Tong,W.N.Lennard,P.F.A.Alkemada,I.V.Mitchell, NIM, B45(1990), 91	C0189
12ctp2.r33	12C(3He,p2)14N	S.Y.Tong,W.N.Lennard,P.F.A.Alkemada,I.V.Mitchell, NIM, B45(1990), 91	C0189
13cdp.r33	13(d,p)14C	J.B.Marion and G.Weber, Phys.Rev., 103(1956), 167	C0989
14nda0_1.r33	14N(d,a0)12C	G.Amsel and D.David, Revue de Physique Appliquee, 4(1969), 383	D0127
14nda1_1.r33	14N(d,a1)12C	G.Amsel and D.David, Revue de Physique Appliquee, 4(1969), 383	D0127
14ndp0_1.r33	14N(d,p0)15N	J.C.B.Simpson and L.G.Earwaker, Vacuum, 34(1984), 899	D0381
14ndp12.r33	14N(d,p1+p2)15N	G.Amsel and D.David, Revue de Physique Appliquee, 4(1969), 383	D0127
14ndp3.r33	14N(d,p3)15N	G.Amsel and D.David, Revue de Physique Appliquee, 4(1969), 383	D0127
14ndp45.r33	14N(d,p4+p5)15N	G.Amsel and D.David, Revue de Physique Appliquee, 4(1969), 383	D0127

14ndp5.r33	14N(d,p5)15N	G.Amsel and D.David, Revue de Physique Appliquee, 4(1969), 383	D0127
15nda_1.r33	15N(d,a0)13C	J.A.Sawicki, J.A.Davies and T.E.Jackman, NIM, B15(1986), 530	C0190
15npa.r33	15N(p,a)12C	F.B.Hagendorn and J.B.Marion, Phys. Rev., 108(1957), 1015	C0995
16oda_1.r33	16O(d,a0)14N	A.Turos, L.Wielunski and a Batcz, NIM, 111(1973), 605	D0106
16oda_2.r33	16O(d,a0)14N	G.Amsel, Thesis, Ann.Phys., 9(1964), 297	D0086
16oda_3.r33	16O(d,a0)14N	G.Amsel, Thesis, Ann.Phys., 9(1964), 297	D00086
16odp0_1.r33	16O(d,p0)17O	R.A.Jarjis, Int.Rep., U. of Manchester(1979)	N/A
16odp1_1.r33	16O(d,p1)17O	G.Amsel and D.Samuel, Anal.Chem. 39(1967), 1689	D0104
16odp1_2.r33	16O(d,p1)17O	R.A.Jarjis, Int.Rep., U. of Manchester(1979)	N/A
16ota.r33	16O(3He,a)15O	F.Abel G.Amsel, E.d'Artemare, C.Ortega, S.Siejka and G.Vizkelethy,NIM B4	D0326
18oda_1.r33	18O(d,a0)16N	G.Amsel, Thesis, Ann.Phys.9(1964), 297	D0086
18oda_2.r33	18O(d,a1)16N	G.Amsel, Thesis, Ann.Phys.9(1964), 297	D0086
18oda_3.r33	18O(d,a2)16N	G.Amsel, Thesis, Ann.Phys.9(1964), 297	D0086
18oda_4.r33	18O(d,a3)16N	G.Amsel, Thesis, Ann.Phys.9(1964), 297	D0086
18Opa165.r33	18O(p,a)15N	G.Amsel and D.Samuel, Anal. Chem., 39(1967), 1689	D0104
18opa_2.r33	18O(p,a)15N	P.F.Alkemada, C.A.M.Stap, F.H.P.M.Habraken and W.F.vam der Weg,NIM B35(1	O0816
19fda0_1.r33	19F(d,a0)17O	B.Maurel,G.Amsel and D.Dieumegard, NIM, 191(1981), 439	D0154
19fda1_1.r33	19F(d,a1)17O	B.Maurel,G.Amsel and D.Dieumegard, NIM, 191(1981), 439	D0154
19fpa_1.r33	19F(p,a)16O	D.Dieumegard, B.Maurel and G.Amsel, NIM 169(1980), 93	D0134
19fpa_2.r33	19F(p,a)16O	D.Dieumegard, B.Maurel and G.Amsel, NIM 169(1980), 93	D0134
2dtp_1.r33	D(3He,p)4He	W.Moller and F.Besenbacher, Nucl.Instr.Meth., 168(1980), 11	A1185
2dtp_2.r33	D(3He,p)4He	T.W.Bonner, J.P.Conner and A.B.Lillie, Phys.Rev., 88(1952), 473	A1064
3hedp_1.r33	3He(d,p)4He	T.W.Bonner, J.P.Conner and A.B.Lillie, Phys.Rev., 88(1952), 473	A1064
6lida_1.r33	6Li(d,a0)4He	B.Maurel,G.Amsel and D.Dieumegard, NIM, 191(1981), 349	D0154
6lip3he.r33	6Li(p,3He)4He	J.B.Marion,G.Weber and F.S.Mozer, Phys.Rev., 104(1956), 1402	A1409
6lipa.r33	6Li(p,a)3He	J.B.Marion,G.Weber and F.S.Mozer, Phys.Rev., 104(1956), 1402	A1409

6litp0.r33	6Li(3He,p0)15N	J.P.Schiffer,T.W.Bonner,R.H.Davis and F.W.Prosser,Phys.Rev.,104(1956),10	A1495
6litp1.r33	6Li(3He,p1)8Be	J.P.Schiffer,T.W.Bonner,R.H.Davis and F.W.Prosser,Phys.Rev.,104(1956),10	A1495
7lipa.r33	7Li(p,a)4He	B.Maurel, D.Dieumegard and G.Amsel,in Ion Beam Handbook, ed. J.W.Mayer a	N/A
9beda0.r33	9Be(d,a0)7Li	J.A.Biggerstaff,R.F.Hood,H.Scott and M.T.McEllistrem, Nucl.Phys. 36(1962	F0095
9beda1.r33	9Be(d,a1)7Li	J.A.Biggerstaff,R.F.Hood,H.Scott and M.T.McEllistrem, Nucl.Phys. 36(1962	F0095
9bepa.r33	9Be(p,a)6Li	A.J.Sierk and T.A.Tombrello, Nucl.Phys., A210(1973), 341	F0169
9bepd.r33	9Be(p,d)6Li	A.J.Sierk and T.A.Tombrello, Nucl.Phys., A210(1973), 341	F0169
9betp0_1.r33	9Be(3He,p0)11B	E.A.Wolicki,H.D.Holmgren,R.L.Johston and E.Geer Illsley,Phys.Rev.,116(19	F0252
9betp0_2.r33	9Be(3He,p0)11B	E.A.Wolicki,H.D.Holmgren,R.L.Johston and E.Geer Illsley,Phys.Rev.,116(19	F0252
9betp1_1.r33	9Be(3He,p1)11B	E.A.Wolicki,H.D.Holmgren,R.L.Johston and E.Geer Illsley,Phys.Rev.,116(19	F0252
9betp1_2.r33	9Be(3He,p1)11B	E.A.Wolicki,H.D.Holmgren,R.L.Johston and E.Geer Illsley,Phys.Rev.,116(19	F0252