EXFOR Completeness Checking Against NACRE II Article

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NACRE II is an update of the NACRE (Nuclear Astrophysics Compilation of REactions), and it compiles evaluated thermonuclear reaction rates for 34 charged-particle induced reactions on nuclides with A≤16. See details in Y. Xu et al., Nucl. Phys. **A918** (2013) 61 (published in November 2013).

The experimental data sets considered in their evaluation are clearly listed with their own key numbers (e.g., AL01 for M. Aliotta et al., 2001). We checked the EXFOR completeness against the 225 key-numbered articles, and the result is summarized below. "Other articles" mean the articles not available at NDS (e.g., thesis) or articles probably not for EXFOR compilation. We may conclude that (more than) **84%** of the relevant articles are compiled in EXFOR.

Type of articles	**# of articles**	**(%)**
Articles in EXFOR	189	84
Articles missing in EXFOR	27	12
Other articles	9	4
Total	225	100

The articles should be in EXFOR and other articles are listed in Tables 1 and 3 of this memo. We also went through all other articles (without key numbers), and found 12 additional articles for EXFOR compilation (Table 2). In these tables, "Ref." and "Key." gives the reference and key numbers given in the NACRE II article.

The articles in Tables 1 and 2 will be registered to the NRDC Article Allocation page.

Table 1. Articles for EXFOR compilation (with key number in Xu et al, 2013)

Author	Reference	Lab.	Proj.	Qty.	Centre	Ref.	Key	Remark
C.Brodeanu+	J,NP/A,908,1,2013	3HUNDEB	cp	CS	ATOMKI	164	BO13	allocated to ATOMKI (12 June 2013)
V.N.Fetisov+	J,NP,71,305,1965	4RUSLEB	g	CS	CDFE	58	FE65	for revision of M0479
J.J.He+	C,2012CAIRNS,(005),2012	3CPRIMP	cp	CS	CNDC	171	HE12	allocated to CNDC (3 July 2013)
A.S.Ganeev+	J,SJA/S,1957,(5),21,1957	4ZZZDUB?	cp	DA	CNPD	90	GA58	for revision of A1171
Y.H.Park+	J,SML,29,430,1989	3KORNSU	cp	CSP	KNDC	241	PA89	SML=Sae Mulli (Korean Physical Society)
D.F.Hebbard	J,NP,49,666,1963	3AULCBR	cp	CS	NDS	363	HE63	
J.Zhou+	J,CP/C,33,350,2009	3CPRAEP	cp	CS	NDS	75	ZN09	for revision of D0527
R.Bruss+	C,92KARLSR,,169,1992	2GERTUB	cp	CSP	NEADB	169	BR92	
A.Caciolli+	J,AAA,533,A66,2011	2ITYLGS	cp	CS	NEADB	381	CA11	
G.Genard+	JP/CS,202,012015,2010	2BLGNAM	cp	CSP	NEADB	329	GE10	
K.U.Kettner+	J,ZP/A,308,73,1982	2GERBOC	cp	CSP	NEADB	314	KE82	
J.Kiener +	J,PR/C,44,2195,1991	2GERKFK	cp	DA	NEADB	96	KI91	
F.Knape+	C,92KARLSR,,175,1992	2GERTUB	cp	CSP	NEADB	273	KN93	
M.Lattuada+	J,AJ,562,1076,2001	2ITYLNS	cp	CS	NEADB	206	LA01	
L.Lamia+	J,NP/A,834,655c,2010	2ITYLNS	cp	CS	NEADB	275	LA10	for revision of O1639/O1765+O1973?
S.M.R.Puglia+	J,MSA/S,14,43,2010	2ITYLNS	cp	CS	NEADB	276	PU10	for revision of O1639/O1765?
F.Schumann+	J,PR/C,73,015806,2006	2GERGSI	cp	CS	NEADB	229	SC06	
D.Schmidt+	R,PTB-N-7,1992; R,PTB-N-8,1992	2GERPTB	cp	DAP	NEADB	260	SC92	
D.Schmidt+	R,PTB-N-7,1992; R,PTB-N-8,1992	2GERPTB	n	CS	NEADB	260	SC92	Derived from ^{9}Be(α,n)^{12}C cross section
W.Woelfli+	J,HPA,40,946,1967	2SWTETH	cp	CS	NEADB	61	WO67	
S.Bashkin	J,PR,97,1245,1955	1USAIOW	cp	CSP	NNDC	167	BA55	
T.A.D.Brown+	J,PR/C,76,055801,2007	1USAWAU	cp	CS	NNDC	159	BR07	
P.Dyer+	J,NP/A,233,495,1974	1CANCAL	cp	CSP	NNDC	301	DY74	
R.E.Hester+	J,PR,121,584,1961	1USALRL	cp	CSP	NNDC	327	HE61	

R.M.Kremer+	J,PRL,60,1475,1988	1CANCAL	cp	CSP	NNDC	303	KR88
L.Van der Zwan+	J,NP/A,246,93,1975	1CANOTC	cp	DAP	NNDC	289	VA75
E.J.Woodbury+	J,PR,85,51,1952	1USACAL	cp	CS	NNDC	330	WO52

[169,273]: from Nuclei in the Cosmos, Karlsruhe, Germany, 6-10 July, 1992 (NIC II)
[171]: from Nuclei in the Cosmos, Cairns, Australia, 5-12 August, 2012 (NIC XII).

Table 2. Articles for EXFOR compilation (without key number in Xu et al, 2013)

Author	**Reference**	**Lab.**	**Proj.**	**Qty.**	**Centre**	**Ref.**	**Key**	**Remark**
A.Rinollo+	J,NP/A,758,146c,2005	2GERBOC	cp	CS	NEADB	93		
W.Biesiot+	J,PR/C,24,2443,1981	2NEDGRN	cp	RP	NEADB	334		
P.Decrock+	J,PL/B,304,50,1993	2BLGLVN	cp	CSP	NEADB	353		for addition to O2025
G.M.Bailey+	J,CJP,48,3059,1970	1CANUBC	cp	CS	NNDC	65		
J.B.Warren+	J,PR,101,242,1956	1CANUBC	cp	DE	NNDC	172		Relative
G.Hardie+	J,PR/C,29,1199,1984	1USAANL	cp	RP	NNDC	212		
R.E.Segel+	J,PR,124,814,1961	1USAWAD?	cp	RP	NNDC	287		
J.P.Seagrave+	J,PR,85,197,1952	1USACAL	cp	CSR	NNDC	331		
H.H.Woodbury+	J,PR,92,1199,1953	1USACAL	cp	CSR	NNDC	332		
R.W.Detenbeck+	J,NP,72,552,1965	1USAMRY	cp	CSP	NNDC	333		Relative
D.B.Duncan+	J,PR,82,809,1951	1USACAL	cp	CS	NNDC	374		
H.M.Kuan+	J,PR/C,15,569,1977	1USAKAN	cp	DAP	NNDC	376		

Table 3. Articles for checking by centres (as time permits)

Author	Reference	Lab.	Proj.	Qty.	Centre	Ref.	Key	Remark
A.D.Bacher+	W,BACHER,1966				?	138	BA67	quoted by J.B. Marion+ (eds.),1967
T.Paradellis	W,PARADELLIS,?				?	170	PA99	Quoted as [25] in J,NP/A,699,963,2002
M.Fey	T,FEY,2004				NEADB	308	FE04	Inst. f. Strahlenphysik, Uni. Stuttgart
F.Hammache+	J,PR/C,82,065803,2010	2GERGSI	cp		NEADB	98	HA10	May skip?
R.Kunz	T,KUNZ,2002				NEADB	315	KU02	Uni. Stuttgart, 2002
M.La Cognata+	J,PR/C,80,012801,2009	2ITYLNS	cp		NEADB	390	LA07	No new experimental data?
K.W.Geiger+	J,NIM,131,315,1975	1CANOTC	cp		NNDC	259	GE75	No new experimental data?
R.E.Pixley	T,PIXLEY,1957				NNDC	362	PI57	California Inst. Tech.
J.L.Vogl	T,VOGL,1963				NNDC	295	VO63	California Inst. Tech.

[170] The author (T. Paradellis) passed away about 10 years ago. The analysis of the data set was never finished. Pierre Descouvemont (an author of [25]) does not recommend compilation of this data set in EXFOR.