

Japan Charged-Particle Nuclear Reaction Data Group (JCPRG)

EXFOR : Recent Compilation List (Added in Jul 2005)

EXFOR is a world-wide database for experimental neutron induced, charged-particle induced and photonuclear reaction compiled by Nuclear Reaction Data Centres Network coordinated by IAEA Nuclear Data Section. This list gives newly compiled data to EXFOR. *List consists of tables titled by target nuclide.*

Retrieval service is available at:

<http://www.jcprg.org/exfor/>

Quantity code

ALF	Alpha	FY	Fission product yield
AMP	Length or amplitude	INT	Cross section integral over incident energy
CHG	Fragment charge	KE	Kinetic energy
CS	Cross section	KER	Kerma factor
CSN	Differential with respect to number of particles	MLT	Multiplicity
CSP	Partial cross section	NQ	Nuclear quantity
CST	Temperature dependent cross section	NU	Nu
D3A	Triple differential $d\Omega_1/d\Omega_2/dE'$	NUD	Nu delayed
D3E	Triple differential $d\Omega/dE'_1/dE'_2$	NUF	Fragment neutrons
D4A	Quadruple diff. $d\Omega_1/d\Omega_2/dE'_1/dE'_2$	POL	Polarization
DA	Differential $d/d\Omega$	POD	Differential polarization
DAA	Double differential $d\Omega_1/d\Omega_2$	PY	Product yield (other than fission)
DAE	Double differential $d\Omega/dE'$	RI	Resonance integral
DAP	Partial differential $d/d\Omega$	RP	Resonance parameter
DAT	Temperature-dependent Legendre coefficient	RR	Reaction rate
DE	Differential d/dE'	SIF	Self indication
DEP	Energy spectrum for specific group	SPC	Gamma spectrum
DP	Diff. by linear momentum of outgoing part.	TSL	Thermal scattering
DT	Diff. by 4-momentum transfer squared	TT	Thick target yield
ETA	Eta	TTD	Differential thick target yield, $d/d\Omega$
EVL	Evaluation	TT	Partial thick target yield

Special codes in outgoing particle field

abs	Absorption	fus	Fusion	non	Nonelastic	ths	Thermal scattering
el	Elastic	inel	Inelastic	sct	Scattering	tot	Total
f	Fission	incl	Inclusive	tcc	Total charge changing		

Special codes in incident energy field

Fast	Fast reactor spectrum average	Maxw	Maxwellian spectrum average
Fiss	Fission spectrum average	Spont	Spontaneous (for fission)

1 Hydrogen 1

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,el</i>	¹ H	DA	1USATNL	6.7+05		Jour	NP/A,684,549	01	M.H.Wood+	C1236
<i>d,el</i>	¹ H	POD	1USATNL	6.7+05		Jour	NP/A,684,549	01	M.H.Wood+	C1236
¹¹ C, <i>el</i>	¹ H	DA	1USABRK	3.4+05	1.1+06	Conf	2002BERKEL,,323	02	A.Galindo-Uribarri+	C1252
¹⁴ O, <i>el</i>	¹ H	DA	1USATAM	1.0+06	3.4+06	Jour	PR/C,69,031302	04	V.Z.Goldberg+	C1229
²² Ne, <i>x</i>	Many	CS	1USALBL	8.3+09	2.0+10	Jour	PR/C,53,347	96	C.N.Knott+	C1230
²⁴ Mg, <i>x</i>	Many	CS	1USALBL	8.9+09	1.4+10	Jour	PR/C,53,347	96	C.N.Knott+	C1230
³² S, <i>x</i>	Many	CS	1USALBL	1.2+10	2.5+10	Jour	PR/C,53,347	96	C.N.Knott+	C1230
³⁶ Ar, <i>x</i>	Many	CS	1USALBL	1.3+10	2.8+10	Jour	PR/C,56,398	97	C.N.Knott+	C1231
³⁶ Ar, <i>x</i>	Many	CS	1USALBL	1.3+10	2.8+10	Jour	PR/C,53,347	96	C.N.Knott+	C1230
⁴⁰ Ar, <i>x</i>	Many	CS	1USALBL	1.4+10		Jour	PR/C,56,398	97	C.N.Knott+	C1231
⁴⁰ Ar, <i>x</i>	Many	CS	1USALBL	1.4+10		Jour	PR/C,53,347	96	C.N.Knott+	C1230
⁴⁰ Ca, <i>x</i>	Many	CS	1USALBL	1.4+10	3.1+10	Jour	PR/C,53,347	96	C.N.Knott+	C1230
⁵² Cr, <i>x</i>	Many	CS	1USALBL	1.8+10		Jour	PR/C,53,347	96	C.N.Knott+	C1230
⁵⁸ Ni, <i>x</i>	Many	CS	1USALBL	2.0+10		Jour	PR/C,53,347	96	C.N.Knott+	C1230

1 Hydrogen 2

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
⁶ He, <i>p</i>	⁷ He	DAP	1USAANL	6.9+07		Conf	2004ARGON,,(393)	04	A.H.Wuosmaa+	C1227

3 Lithium 7

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,n</i>	incl	DAE	3CPRAEP	1.4+07		Jour	CNP,15,367	93	Xiahaihong+	31540

4 Beryllium 9

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,t</i>	⁷ Li	DAP	3CPRBNU	1.5+07		Jour	NSE,146,237	04	Hongyuzhou+	31544
<i>p,tot</i>		CS	1USALAS	5.3+08	3.5+09	Jour	NST,2,269	02	F.S.Dietrich+	C1232
<i>α,inel</i>	⁹ Be	DAP	1USACLU	3.6+07		Jour	NP/A,377,41	82	R.J.Peterson	C1266
⁹ Be, <i>2n</i>	¹⁶ O	CSP	1CANLUQ	1.6+06	3.0+06	Jour	NP/A,486,189	88	F.Lahlou+	C1272
⁹ Be, ⁸ Be	¹⁰ Be	CSP	1CANLUQ	1.3+06	3.0+06	Jour	NP/A,486,189	88	F.Lahlou+	C1272
⁹ Be, <i>el</i>	⁹ Be	DA	1CANLUQ	2.2+06	3.2+06	Jour	NP/A,486,189	88	F.Lahlou+	C1272
⁹ Be, <i>n+α</i>	¹³ C	CSP	1CANLUQ	1.3+06	3.0+06	Jour	NP/A,486,189	88	F.Lahlou+	C1272
⁹ Be, <i>n+p</i>	¹⁶ N	CSP	1CANLUQ	1.9+06	3.0+06	Jour	NP/A,486,189	88	F.Lahlou+	C1272
⁹ Be, <i>non</i>		CS	1CANLUQ	1.4+06	3.4+06	Jour	NP/A,486,189	88	F.Lahlou+	C1272
⁹ Be, <i>p</i>	¹⁷ N	CSP	1CANLUQ	1.3+06	3.0+06	Jour	NP/A,486,189	88	F.Lahlou+	C1272

7 Nitrogen 14

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
⁷ Be,el	¹⁴ N	DA	1USATAM	8.5+07		Jour	PR/C,63,055803	01	A.Azhari+	C1240
¹¹ C, ¹² N	¹³ C	DAP	1USATAM	1.1+08		Jour	PR/C,67,015804	03	X.Tang+	C1224
¹¹ C,el	¹⁴ N	DA	1USATAM	1.1+08		Jour	PR/C,67,015804	03	X.Tang+	C1224

7 Nitrogen 15

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,γ</i>	¹⁶ O	DAP	1USASTF	8.6+06	1.8+07	Jour	PR/C,17,892	78	W.J.O'Connell+	C1223

8 Oxygen 16

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
¹⁴ N,x	²⁶ Al	PY	1USAYAL	1.2+08		Jour	PR/C,60,028801	99	K.O.Yildiz+	C1235
¹⁶ O, ⁸ Be	²⁴ Mg	DAP	1USAWAU	1.8+07	3.1+07	Jour	NP/A,542,278	92	J.Czakanski+	C1257
¹⁶ O,α	²⁸ Si	DAP	1USAWAU	1.8+07	2.6+07	Jour	NP/A,542,278	92	J.Czakanski+	C1257
¹⁶ O,el	¹⁶ O	DA	1USACAL	6.9+06	1.3+07	Jour	NP/A,422,373	84	S.C.Wu+	C1269
¹⁶ O,fus		CS	1USACAL	7.0+06	1.2+07	Jour	NP/A,422,373	84	S.C.Wu+	C1269
¹⁶ O,x	²⁴ Mg	CS	1USACAL	1.0+07	1.2+07	Jour	NP/A,422,373	84	S.C.Wu+	C1269
¹⁶ O,x	²⁶ Al	PY	1USAYAL	8.5+07	1.5+08	Jour	PR/C,60,028801	99	K.O.Yildiz+	C1235
¹⁶ O,x	²⁷ Al	CS	1USACAL	1.0+07	1.2+07	Jour	NP/A,422,373	84	S.C.Wu+	C1269
¹⁶ O,x	²⁸ Si	CS	1USACAL	7.0+06	1.2+07	Jour	NP/A,422,373	84	S.C.Wu+	C1269
¹⁶ O,x	³⁰ Si	CS	1USACAL	7.0+06	1.2+07	Jour	NP/A,422,373	84	S.C.Wu+	C1269
¹⁶ O,x	³⁰ P	CS	1USACAL	7.0+06	1.2+07	Jour	NP/A,422,373	84	S.C.Wu+	C1269
¹⁶ O,x	³¹ P	CS	1USACAL	7.0+06	1.2+07	Jour	NP/A,422,373	84	S.C.Wu+	C1269
¹⁶ O,x	³¹ S	CS	1USACAL	7.0+06	1.2+07	Jour	NP/A,422,373	84	S.C.Wu+	C1269

8 Oxygen 18

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,γ</i>		RP	1USATNL	1.5+05	5.2+05	Jour	PR/C,71,055801	05	C.Fox+	C1259
<i>α,γ</i>	²² Ne	CS	1USACAL	2.1+06	3.7+06	Jour	NP/A,131,430	69	A.Adams+	C1268

10 Neon 18

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>α,0</i>		RP	1USAYAL	0.0+00		Jour	PR/C,63,065807	01	A.A.Chen+	C1237

10 Neon 22

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
³ He,d	²³ Na	DAP	1USATNL	2.0+07		Jour	PR/C,65,015801	01	S.E.Hale+	C1253
³ He,d	²³ Na	DAP	1USATNL	2.0+07		Conf	98VOLOS,,75	98	S.E.Hale+	C1255
³ He,el	²² Ne	DA	1USATNL	2.0+07		Jour	PR/C,65,015801	01	S.E.Hale+	C1253
α,el	²² Ne	DA	1USAWIS	1.3+07	1.9+07	Jour	PR/C,24,1773	81	C.A.Davis	C1226
α,inel	²² Ne	DAP	1USAWIS	1.6+07	1.8+07	Jour	PR/C,24,1773	81	C.A.Davis	C1226

12 Magnesium 25

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,0		RP	1USATNL	0.0+00		Jour	JP/G,10,1747	84	G.Adams+	C1256
<i>p</i> ,el	²⁵ Mg	DA	1USATNL	7.0+05	2.2+06	Jour	JP/G,10,1747	84	G.Adams+	C1256

13 Aluminium 25

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,0		RP	1USAYAL	0.0+00		Jour	PR/C,71,055804	05	A.Parikh+	C1243

13 Aluminium 27

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,tot		CS	1USALAS	5.3+08	3.5+09	Jour	NST,2,269	02	F.S.Dietrich+	C1232
⁸ Li,α	³¹ Si	DAP	1USANOT	2.8+07		Jour	PR/C,71,054610	05	F.D.Becchetti+	C1260

14 Silicon

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
⁷ Be,non		CS	1USAMSU	0.0+00	3.1+08	Jour	PR/C,64,044611	01	R.E.Warner+	C1250
⁹ Be,non		CS	1USAMSU	0.0+00	5.2+08	Jour	PR/C,64,044611	01	R.E.Warner+	C1250
⁹ Be,x	⁸ Be	CS	1USAMSU	4.3+08		Jour	PR/C,64,044611	01	R.E.Warner+	C1250
¹⁰ Be,non		CS	1USAMSU	0.0+00	5.6+08	Jour	PR/C,64,044611	01	R.E.Warner+	C1250
¹⁰ Be,x	⁸ Be	CS	1USAMSU	4.6+08		Jour	PR/C,64,044611	01	R.E.Warner+	C1250
¹⁰ Be,x	⁹ Be	CS	1USAMSU	4.6+08		Jour	PR/C,64,044611	01	R.E.Warner+	C1250
¹¹ Be,non		CS	1USAMSU	0.0+00	6.0+08	Jour	PR/C,64,044611	01	R.E.Warner+	C1250
¹¹ Be,x	¹⁰ Be	CS	1USAMSU	5.0+08		Jour	PR/C,64,044611	01	R.E.Warner+	C1250
¹² Be,non		CS	1USAMSU	0.0+00	6.3+08	Jour	PR/C,64,044611	01	R.E.Warner+	C1250
¹² Be,x	¹⁰ Be	CS	1USAMSU	5.3+08		Jour	PR/C,64,044611	01	R.E.Warner+	C1250
¹² Be,x	¹¹ Be	CS	1USAMSU	5.3+08		Jour	PR/C,64,044611	01	R.E.Warner+	C1250
¹⁴ Be,non		CS	1USAMSU	0.0+00	8.2+08	Jour	PR/C,64,044611	01	R.E.Warner+	C1250
¹⁴ Be,x	¹² Be	CS	1USAMSU	5.3+08		Jour	PR/C,64,044611	01	R.E.Warner+	C1250
⁸ B,x	⁷ Be	CS	1USAMSU	1.8+08	4.8+08	Jour	PR/C,69,024612	04	R.E.Warner+	C1251

$^9\text{C},x$	^7Be	CS	1USAMSU	2.5+08		Jour	PR/C,69,024612	04	R.E.Warner+	C1251
$^9\text{C},x$	^8B	CS	1USAMSU	2.5+08	6.1+08	Jour	PR/C,69,024612	04	R.E.Warner+	C1251
$^{12}\text{C},x$	^{11}B	CS	1USAMSU	4.1+08	7.1+08	Jour	PR/C,69,024612	04	R.E.Warner+	C1251

14 Silicon 28

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
p,γ	^{29}P	CSP	1USAWAU	1.1+07	2.4+07	Jour	NP/A,449,301	86	S.T.Lim+	C1264
p,γ	^{29}P	DAP	1USAWAU	7.4+06	2.4+07	Jour	NP/A,449,301	86	S.T.Lim+	C1264

20 Calcium 42

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
n,p	^{42}K	CS	3POLIPJ	1.5+07		Jour	NSE,132,295	99	E.Betak+	31545

20 Calcium 43

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
n,p	^{43}K	CS	3POLIPJ	1.5+07		Jour	NSE,132,295	99	E.Betak+	31545

20 Calcium 44

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
n,α	^{41}Ar	CS	3POLIPJ	1.5+07		Jour	NSE,132,295	99	E.Betak+	31545
$n,n+p$	^{43}K	CS	3POLIPJ	1.5+07		Jour	NSE,132,295	99	E.Betak+	31545
n,p	^{44}K	CS	3POLIPJ	1.5+07		Jour	NSE,132,295	99	E.Betak+	31545

20 Calcium 48

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$n,2n$	^{47}Ca	CS	3POLIPJ	1.5+07		Jour	NSE,132,295	99	E.Betak+	31545

22 Titanium 46

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
p,el	^{46}Ti	DA	1USAMRD	1.0+08		Jour	PR/C,29,794	84	L.W.Woo+	C1261
$p,inel$	^{46}Ti	DAP	1USAMRD	1.0+08		Jour	PR/C,29,794	84	L.W.Woo+	C1261

22 Titanium 48

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	⁴⁸ Ti	DA	1USAMRD	1.0+08		Jour	PR/C,29,794	84	L.W.Woo+	C1261
<i>p,inel</i>	⁴⁸ Ti	DAP	1USAMRD	1.0+08		Jour	PR/C,29,794	84	L.W.Woo+	C1261

22 Titanium 50

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	⁵⁰ Ti	DA	1USAMRD	1.0+08		Jour	PR/C,29,794	84	L.W.Woo+	C1261
<i>p,inel</i>	⁵⁰ Ti	DAP	1USAMRD	1.0+08		Jour	PR/C,29,794	84	L.W.Woo+	C1261

27 Cobalt 57

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,γ</i>	⁵⁸ Co	CS	3BZLIPE	Maxwl		Jour	PR/C,70,014602	04	N.L.Maidana+	31547
<i>n,γ</i>	⁵⁸ Co	RI	3BZLIPE	5.0-01		Jour	PR/C,70,014602	04	N.L.Maidana+	31547

27 Cobalt 59

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>α,2n</i>	⁶¹ Cu	CS	1USACOL	1.8+07	3.9+07	Prog	CU-34-63	62	C.M.Sterns	C1267
<i>α,2n+α</i>	⁵⁷ Co	CS	1USACOL	2.7+07	4.8+07	Prog	CU-34-63	62	C.M.Sterns	C1267
<i>α,2p</i>	⁶¹ Co	CS	1USACOL	1.8+07	4.0+07	Prog	CU-34-63	62	C.M.Sterns	C1267
<i>α,n+α</i>	⁵⁸ Co	CS	1USACOL	1.4+07	4.8+07	Prog	CU-34-63	62	C.M.Sterns	C1267

28 Nickel 58

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,el</i>	⁵⁸ Ni	DA	1USATAM	1.2+08		Jour	PR/C,48,2085	93	A.C.Betker+	C1263

28 Nickel 62

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,2n</i>	⁶¹ Cu	CS	1USACOL	1.6+07	4.0+07	Prog	CU-34-63	62	C.M.Sterns	C1267
<i>p,2n+α</i>	⁵⁷ Co	CS	1USACOL	2.6+07	4.0+07	Prog	CU-34-63	62	C.M.Sterns	C1267
<i>p,2p</i>	⁶¹ Co	CS	1USACOL	2.4+07	4.0+07	Prog	CU-34-63	62	C.M.Sterns	C1267
<i>p,n+α</i>	⁵⁸ Co	CS	1USACOL	1.6+07	4.0+07	Prog	CU-34-63	62	C.M.Sterns	C1267

29 Copper

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,tot</i>		CS	1USALAS	5.3+08	3.6+09	Jour	NST,2,269	02	F.S.Dietrich+	C1232

29 Copper 63

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>α,p</i>	⁶⁶ Zn	CSP	1USAOSU	5.4+06	9.1+06	Jour	NP/A,504,367	89	M.S.Islam+	C1273
<i>α,p</i>	⁶⁶ Zn	DAP	1USAOSU	9.2+06		Jour	NP/A,504,367	89	M.S.Islam+	C1273

32 Germanium 76

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
³⁷ Cl,fus		CS	1USAYAL	6.2+07	7.7+07	Jour	PR/C,63,054611	01	E.Martinez-Quiroz+	C1244

43 Technetium 99

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,γ</i>	¹⁰⁰ Tc	CS	3HUNII	Maxwl		Jour	RCA,90,479	02	G.L.Molnar+	31541
<i>n,γ</i>	¹⁰⁰ Tc	CSP	3HUNII	Maxwl		Jour	RCA,90,479	02	G.L.Molnar+	31541

47 Silver 109

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,γ</i>	¹¹⁰ Ag	CS	3VN DAL	5.5+04	1.4+05	Rept	INDC(VN)-011,	04	Vuonghuutan+	31542

48 Cadmium 112

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>t,p</i>	¹¹⁴ Cd	DAP	1USAPEN	1.5+07		Jour	PR/C,37,2334	88	J.R.Hurd+	C1262

52

Tellurium

126

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
n,γ	^{127}Te	CS	3CZRUJF	2.5-02		Jour	NP/A,756,249	05	J.Honzatko+	31546
n,γ	^{127}Te	CSP	3CZRUJF	2.5-02		Jour	NP/A,756,249	05	J.Honzatko+	31546
n,γ	^{127}Te	SPC	3CZRUJF	Maxwl		Jour	NP/A,756,249	05	J.Honzatko+	31546

63

Europium

152

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
t,α	^{151}Sm	DAP	1USALAS	1.6+07		Jour	NP/A,439,299	85	H.E.Martz+	C1270

63

Europium

154

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
t,α	^{153}Sm	DAP	1USALAS	1.6+07		Jour	NP/A,439,299	85	H.E.Martz+	C1270
t,p	^{156}Eu	DAP	1USALAS	1.7+07		Jour	NP/A,413,236	84	R.G.Lanier+	C1271

64

Gadolinium

158

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
n,γ	^{159}Gd	CS	3VN DAL	5.5+04	1.4+05	Rept	INDC(VN)-011,	04	Vuonghuutan+	31542

66

Dysprosium

165

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
t,p	^{167}Dy	DAP	1CANMCM	1.7+07		Jour	NP/A,750,185	05	D.G.Burke+	C1233

72

Hafnium

169

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
t,p	^{171}Hf	DAP	1CANMCM	1.7+07		Jour	NP/A,750,185	05	D.G.Burke+	C1233

72

Hafnium

180

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
n,γ	^{181}Hf	SPC	3CZRUJF	Maxwl		Jour	NP/A,709,3	02	V.Bondarenko+	31539

73

Tantalum

181

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,x</i>	Many	CS	1USALAS	6.0+08	8.0+08	Thes	Kelley,	04	K.C.Kelley	C1225
<i>p,x</i>	¹⁴⁸ Gd	CS	1USALAS	6.0+08	8.0+08	Thes	Kelley,	04	K.C.Kelley	C1225

74

Tungsten

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,tot</i>		CS	1USALAS	5.3+08	3.5+09	Jour	NST,2,269	02	F.S.Dietrich+	C1232
<i>p,x</i>	Many	CS	1USALAS	6.0+08	8.0+08	Thes	Kelley,	04	K.C.Kelley	C1225
<i>p,x</i>	¹⁴⁸ Gd	CS	1USALAS	6.0+08	8.0+08	Thes	Kelley,	04	K.C.Kelley	C1225

74

Tungsten

186

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,γ</i>	¹⁸⁷ W	CS	3VN DAL	5.5+04	1.4+05	Rept	INDC(VN)-011,	04	Vuonghuutan+	31542

79

Gold

197

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,x</i>	Many	CS	1USALAS	6.0+08	8.0+08	Thes	Kelley,	04	K.C.Kelley	C1225
<i>p,x</i>	¹⁴⁸ Gd	CS	1USALAS	6.0+08	8.0+08	Thes	Kelley,	04	K.C.Kelley	C1225

82

Lead

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,tot</i>		CS	1USALAS	5.3+08	3.5+09	Jour	NST,2,269	02	F.S.Dietrich+	C1232
<i>α,non</i>		CS	1USAMSU	1.4+08		Jour	PR/C,62,024608	00	R.E.Warner+	C1249
⁶ He, <i>2n</i>		CS	1USAMSU	1.7+08		Jour	PR/C,62,024608	00	R.E.Warner+	C1249
⁶ He, <i>non</i>		CS	1USAMSU	1.4+08		Jour	PR/C,62,024608	00	R.E.Warner+	C1249
⁸ He, <i>2n</i>		CS	1USAMSU	2.1+08		Jour	PR/C,62,024608	00	R.E.Warner+	C1249
⁸ He, <i>non</i>		CS	1USAMSU	1.5+08		Jour	PR/C,62,024608	00	R.E.Warner+	C1249
⁶ Li, <i>non</i>		CS	1USAMSU	2.0+08		Jour	PR/C,62,024608	00	R.E.Warner+	C1249
⁷ Li, <i>non</i>		CS	1USAMSU	2.1+08		Jour	PR/C,62,024608	00	R.E.Warner+	C1249
⁸ Li, <i>non</i>		CS	1USAMSU	2.4+08	7.2+08	Jour	PR/C,62,024608	00	R.E.Warner+	C1249
⁹ Li, <i>non</i>		CS	1USAMSU	2.6+08	8.6+08	Jour	PR/C,62,024608	00	R.E.Warner+	C1249
¹¹ Li, <i>2n</i>		CS	1USAMSU	3.0+08		Jour	PR/C,62,024608	00	R.E.Warner+	C1249
¹¹ Li, <i>non</i>		CS	1USAMSU	3.0+08		Jour	PR/C,62,024608	00	R.E.Warner+	C1249
¹⁰ Be, <i>non</i>		CS	1USAMSU	1.8+08	6.5+08	Jour	PR/C,64,044611	01	R.E.Warner+	C1250

