

EXFOR News (July 2016)

New experimental data available from Nuclear Reaction Data Centres

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This News lists newly created EXFOR entries as well as revised EXFOR entries where new data subentries are added. Entries from articles published in past 10 years are flagged by asterisks (*). Please send an email to N.Otsuka (NRDC Coordinator n.otsuka@iaea.org) for inclusion in the EXFOR News distribution list as well as any question on EXFOR.

[1] N.Otsuka et al., [Nucl.Data.Sheets](#) **120**(2014)272.

Quantity codes

ALF	α -value ($\sigma_{\text{capt}}/\sigma_{\text{fis}}$)	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	Fission neutron multiplicity $\bar{\nu}$
D3A	Triple differential $d\Omega_1/d\Omega_2/dE'$	NUD	Delayed fission neutron multiplicity $\bar{\nu}_d$
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	η -value $\bar{\nu}\sigma_{\text{fis}}/(\sigma_{\text{capt}} + \sigma_{\text{fis}})$	TTD	Differential thick target yield, $d/d\Omega$
EVL	Evaluation	TTP	Partial thick target yield

Special codes in outgoing particle field

abs	Absorption	fus	Fusion	sct	Scattering	tot	Total
el	Elastic	inel	Inelastic	tex	Total charge changing		
fis	Fission	non	Nonelastic	ths	Thermal scattering		

Special codes in incident energy field

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

^a [NNDC](#) (USA), [NEADB](#) (France), [NDS](#) (Austria), [CJD](#) (Russia), [CNDC](#) (China), [ATOMKI](#) (Hungary), [NDPCI](#) (India), [JAEA](#) (Japan), [JCPRG](#) (Japan), [KAERI](#) (Korea), [CDFE](#) (Russia), [CNPD](#) (Russia), [UkrNDC](#) (Ukraine)

1 Hydrogen 1

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* γ, π^0	^1H	CS	2GERMNZ	2.2+08	1.4+09	Jour	PR/C,92,024617	15	P.Adlarson+	G0049
* γ, π^0	^1H	DA	2GERMNZ	2.2+08	1.6+09	Jour	PR/C,92,024617	15	P.Adlarson+	G0049

1 Hydrogen 2

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
p, γ	^3He	DA	1USATNL	5.0+06	8.0+06	Jour	PR/C,19,(3),601	Mar 79	D.M.Skopik+	A1186
p, γ	^3He	?	1USATNL	5.0+06	8.0+06	Jour	PR/C,19,(3),601	Mar 79	D.M.Skopik+	A1186

2 Helium 3

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
α, el	^3He	DA	2JPNTOK	2.8+07	4.1+07	Jour	JPJ,16,1077	61	R.Chiba+	E2225
α, p	^6Li	DAP	2JPNTOK	2.8+07	4.1+07	Jour	JPJ,16,1077	61	R.Chiba+	E2225

2 Helium 4

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
α, el	^4He	DA	2JPNTOK	3.2+07	3.6+07	Jour	JPJ,16,1077	61	R.Chiba+	E2225

3 Lithium 7

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
p, n	^7Be	CS	1USADKE	1.9+06	1.9+06	Jour	PR,108,1294	Dec 57	H.W.Newson+	A1466
p, n	^7Be	CSP	1USALRL	4.1+06	2.6+07	Jour	PR/C,14,438	76	C.H.Poppe+	D0038

4 Beryllium 9

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
p, el	^9Be	POD	2JPNKTO	7.0+06	1.2+07	Jour	JPJ,20,1	65	K.Fukunaga	E2244
p, inel	^9Be	POD	2JPNKTO	7.0+06	7.0+06	Jour	JPJ,20,1	65	K.Fukunaga	E2244
d, el	^9Be	DA	2JPNKTO	1.4+07	1.4+07	Jour	JPJ,21,2462	66	D.C.Nguyen	E2254
d, inel	^9Be	CSP	2JPNKTO	1.4+07	1.4+07	Jour	JPJ,21,2462	66	D.C.Nguyen	E2254
d, inel	^9Be	DAP	2JPNKTO	1.4+07	1.4+07	Jour	JPJ,21,2462	66	D.C.Nguyen	E2254

$\alpha,2\alpha$ ^5He ? 2JPNTOK 3.2+07 3.7+07 Jour [JPJ,24,667](#) 68 T.Yanabu+ [E2261](#)

5 Boron 10

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation		Date	Author	Data #
				Min	Max		Ref	Vol Page			
α,p	^{13}C	DAP	2JPNOSA	2.1+07	2.2+07	Jour	JPJ,18,620		63	T.Yamazaki+	E2239
$^{16}\text{O},el$	^{10}B	DA	2JPNKTO	5.8+06	1.1+07	Jour	JPJ,24,677		68	Y.Okuma	E2262

5 Boron 11

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation		Date	Author	Data #
				Min	Max		Ref	Vol Page			
$^{16}\text{O},el$	^{11}B	DA	2JPNKTO	5.9+06	1.1+07	Jour	JPJ,24,677		68	Y.Okuma	E2262

6 Carbon

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation		Date	Author	Data #
				Min	Max		Ref	Vol Page			
p,el	^{nat}C	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729		62	S.Yamabe+	E2234
p,el	^{nat}C	POD	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729		62	S.Yamabe+	E2234

6 Carbon 12

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation		Date	Author	Data #
				Min	Max		Ref	Vol Page			
p,el	^{12}C	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,1817		62	I.Nonaka+	E2237
$p,inel$	^{12}C	DAP	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,1817		62	I.Nonaka+	E2237
$p,x+p$	inclusive	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,1817		62	I.Nonaka+	E2237
$p,x+p$	inclusive	DAE	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,1817		62	I.Nonaka+	E2237
d,α	^{10}B	CSP	2JPNKTO	1.5+07	1.5+07	Jour	JPJ,16,2118		61	T.Yanabu	E2230
d,α	^{10}B	DAP	2JPNKTO	1.5+07	1.5+07	Jour	JPJ,16,2118		61	T.Yanabu	E2230
d,el	^{12}C	DA	2JPNKTO	1.4+07	1.4+07	Jour	JPJ,21,2462		66	D.C.Nguyen	E2254
$d,inel$	^{12}C	CSP	2JPNKTO	1.4+07	1.4+07	Jour	JPJ,21,2462		66	D.C.Nguyen	E2254
$d,inel$	^{12}C	CSP	2JPNTOK	1.5+07	1.8+07	Jour	JPJ,16,1056		61	Y.Ishizaki	E2224
$d,inel$	^{12}C	DAP	2JPNKTO	1.4+07	1.4+07	Jour	JPJ,21,2462		66	D.C.Nguyen	E2254
$d,inel$	^{12}C	DAP	2JPNTOK	1.5+07	1.8+07	Jour	JPJ,16,1056		61	Y.Ishizaki	E2224
d,p	^{13}C	CSP	2JPNTOK	1.5+07	2.0+07	Jour	JPJ,15,550		60	S.Morita+	E2214
d,p	^{13}C	DAP	2JPNTOK	1.5+07	2.0+07	Jour	JPJ,15,550		60	S.Morita+	E2214
$^3\text{He},\alpha$	^{11}C	DAP	2JPNIPC	2.4+07	4.0+07	Jour	JPJ,37,1191		74	S.Yamaji+	E2319
$^3\text{He},\alpha$	^{11}C	DAP	2JPNTOK	8.2+07	8.2+07	Jour	JPJ,41,361		76	T.Tanabe+	E2330
$^3\text{He},el$	^{12}C	DA	2JPNTOK	8.2+07	8.2+07	Jour	JPJ,41,361		76	T.Tanabe+	E2330
$^3\text{He},inel$	^{12}C	DAP	2JPNTOK	8.2+07	8.2+07	Jour	JPJ,41,361		76	T.Tanabe+	E2330
$\alpha,2\alpha$	^8Be	?	2JPNTOK	3.7+07	3.7+07	Jour	JPJ,24,667		68	T.Yanabu+	E2261
$\alpha,^8\text{Be}$	^8Be	DAP	2JPNIPC	3.0+07	4.8+07	Jour	SCP,52,145		76	T.Ooi+	E2508
α,p	^{15}N	CSP	2JPNOSA	2.0+07	2.2+07	Jour	JPJ,18,620		63	T.Yamazaki+	E2239
α,p	^{15}N	CSP	2JPNOSA	2.1+07	2.2+07	Jour	JPJ,16,1091		61	M.Kondo+	E2226
α,p	^{15}N	DAP	2JPNOSA	2.0+07	2.2+07	Jour	JPJ,18,620		63	T.Yamazaki+	E2239

α,p	^{15}N	DAP	2JPNOSA	2.1+07	2.2+07	Jour	JPJ,16,1091	61	M.Kondo+	E2226
$^{12}\text{C,el}$	^{12}C	DA	2JPNIPC	7.0+07	7.0+07	Jour	JPJ,38,(4),945	Apr 75	I.Kohno	E2321
$^{12}\text{C,inel}$	^{12}C	DAP	2JPNIPC	7.0+07	7.0+07	Jour	JPJ,38,(4),945	Apr 75	I.Kohno	E2321
$^{14}\text{N,el}$	^{12}C	DA	2JPNIPC	6.5+07	8.8+07	Jour	JPJ,38,(4),945	Apr 75	I.Kohno	E2321
$^{14}\text{N,inel}$	^{12}C	DAP	2JPNIPC	6.5+07	8.8+07	Jour	JPJ,38,(4),945	Apr 75	I.Kohno	E2321

7 Nitrogen 14

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
d,α	^{12}C	CSP	2JPNKYU	1.5+06	3.0+06	Jour	JPJ,16,1529	61	T.Ishimatsu	E2227
d,α	^{12}C	CSP	2JPNKTO	1.5+07	1.5+07	Jour	JPJ,16,2118	61	T.Yanabu	E2230
d,α	^{12}C	DA	2JPNKYU	1.5+06	3.0+06	Jour	JPJ,16,1529	61	T.Ishimatsu	E2227
d,α	^{12}C	DAP	2JPNOSA	1.1+07	1.1+07	Jour	JPJ,15,1741	60	C.Hu	E2220
d,α	^{12}C	DAP	2JPNKYU	1.4+06	1.4+06	Jour	JPJ,15,930	60	N.Kawai	E2219
d,α	^{12}C	DAP	2JPNKYU	1.5+06	3.0+06	Jour	JPJ,16,1529	61	T.Ishimatsu	E2227
d,α	^{12}C	DAP	2JPNKTO	1.5+07	1.5+07	Jour	JPJ,16,2118	61	T.Yanabu	E2230
d,α	^{12}C	DAP	2JPNKYU	1.7+06	1.7+06	Jour	JPJ,15,930	60	N.Kawai	E2219
d,α	^{12}C	DAP	2JPNKYU	1.7+06	1.7+06	Jour	JPJ,16,1529	61	T.Ishimatsu	E2227
d,α	^{12}C	DAP	2JPNKYU	1.9+06	1.9+06	Jour	JPJ,15,930	60	N.Kawai	E2219
d,α	^{12}C	DAP	2JPNKYU	1.9+06	1.9+06	Jour	JPJ,16,1529	61	T.Ishimatsu	E2227
d,α	^{12}C	DAP	2JPNKYU	2.2+06	2.2+06	Jour	JPJ,15,930	60	N.Kawai	E2219
d,α	^{12}C	DAP	2JPNKYU	2.2+06	2.2+06	Jour	JPJ,16,1529	61	T.Ishimatsu	E2227
d,α	^{12}C	DAP	2JPNKYU	2.5+06	2.5+06	Jour	JPJ,15,930	60	N.Kawai	E2219
d,α	^{12}C	DAP	2JPNKYU	2.5+06	2.5+06	Jour	JPJ,16,1529	61	T.Ishimatsu	E2227
d,α	^{12}C	DAP	2JPNKYU	2.6+06	2.7+06	Jour	JPJ,15,930	60	N.Kawai	E2219
d,α	^{12}C	DAP	2JPNKYU	2.7+06	2.7+06	Jour	JPJ,16,1529	61	T.Ishimatsu	E2227
d,α	^{12}C	DAP	2JPNKYU	2.9+06	2.9+06	Jour	JPJ,15,930	60	N.Kawai	E2219
d,α	^{12}C	DAP	2JPNKYU	3.0+06	3.0+06	Jour	JPJ,16,1529	61	T.Ishimatsu	E2227
d,el	^{14}N	DA	2JPNKTO	1.4+07	1.4+07	Jour	JPJ,21,2462	66	D.C.Nguyen	E2254
d,inel	^{14}N	CSP	2JPNKTO	1.4+07	1.4+07	Jour	JPJ,21,2462	66	D.C.Nguyen	E2254
d,inel	^{14}N	DAP	2JPNKTO	1.4+07	1.4+07	Jour	JPJ,21,2462	66	D.C.Nguyen	E2254
d,p	^{15}N	DAP	2JPNOK	1.4+07	1.7+07	Jour	JPJ,16,1849	61	S.Morita+	E2228
α,p	^{17}O	CSP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239
α,p	^{17}O	DAP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239

8 Oxygen 16

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #	
				Min	Max						
d,α	^{14}N	CSP	2JPNOSA	1.0+07	1.1+07	Jour	JPJ,15,1741	60	C.Hu	E2220	
d,α	^{14}N	CSP	2JPNKTO	1.5+07	1.5+07	Jour	JPJ,16,2118	61	T.Yanabu	E2230	
d,α	^{14}N	DAP	2JPNOSA	1.0+07	1.1+07	Jour	JPJ,15,1741	60	C.Hu	E2220	
d,α	^{14}N	DAP	2JPNKTO	1.5+07	1.5+07	Jour	JPJ,16,2118	61	T.Yanabu	E2230	
*	d,el	^{16}O	3IRNNRT	1.2+06	2.0+06	Jour	NIM/B,373,40	16	H.Rafi-Kheiri+	D0798	
	d,el	^{16}O	DA	2JPNKTO	1.4+07	1.4+07	Jour	JPJ,21,2462	66	D.C.Nguyen	E2254
	d,inel	^{16}O	CSP	2JPNKTO	1.4+07	1.4+07	Jour	JPJ,21,2462	66	D.C.Nguyen	E2254
	d,inel	^{16}O	DAP	2JPNKTO	1.4+07	1.4+07	Jour	JPJ,21,2462	66	D.C.Nguyen	E2254
*	d,p	^{17}O	DAP	3IRNNRT	6.9+05	1.8+06	Jour	NIM/B,371,46	16	H.Rafi-Kheiri+	D0795

9 Fluorine 19

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,α</i>	¹⁶ O	CSP	2JPNKTO	6.1+06	7.4+06	Jour	JPJ,16,2378	61	S.Yamashita	E2231
<i>p,α</i>	¹⁶ O	DAP	2JPNKTO	6.0+06	7.4+06	Jour	JPJ,16,2378	61	S.Yamashita	E2231
<i>d,α</i>	¹⁷ O	DAP	2JPNKYU	1.1+06	3.2+06	Jour	JPJ,17,1319	62	T.Maki+	E2235
<i>d,α</i>	¹⁷ O	DAP	2JPNOSA	1.1+07	1.1+07	Jour	JPJ,15,1741	60	C.Hu	E2220
<i>d,α</i>	¹⁷ O	DAP	2JPNKYU	1.2+06	3.2+06	Jour	JPJ,17,1319	62	T.Maki+	E2235
<i>d,p</i>	²⁰ F	DAP	2JPNKYU	1.2+06	3.2+06	Jour	JPJ,17,1319	62	T.Maki+	E2235
<i>α,el</i>		RP	3INDTRM	2.7+06	4.6+06	Jour	PRM,10,329	78	M.Balakrishnan+	D6219
<i>α,n</i>	²² Na	CS	3INDTRM	2.6+06	5.0+06	Jour	PRM,10,329	78	M.Balakrishnan+	D6219
<i>α,p</i>	²² Ne	CSP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239
<i>α,p</i>	²² Ne	DAP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,16,1091	61	M.Kondo+	E2226

11 Sodium 23

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,α</i>	²⁰ Ne	DAP	2JPNKTO	6.9+06	7.3+06	Jour	JPJ,17,19	62	T.Nakamura+	E2233
<i>α,p</i>	²⁶ Mg	CSP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239
<i>α,p</i>	²⁶ Mg	DAP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239

12 Magnesium

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #	
				Min	Max						
*	<i>d,el</i>	^{nat} Mg	DA	3IRNNRT	1.3+06	2.0+06	Jour	NIM/B,373,63	16	H.Rafi-Kheiri+	D0797

12 Magnesium 24

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #	
				Min	Max						
*	<i>p,inel</i>	²⁴ Mg	DAP	3IRNNRT	1.0+06	3.0+06	Jour	NIM/B,372,109	16	N.Sharifzadeh+	D0796
	<i>d,inel</i>	²⁴ Mg	CSP	2JPNTOK	1.6+07	1.8+07	Jour	JPJ,16,1056	61	Y.Ishizaki	E2224
	<i>d,inel</i>	²⁴ Mg	DAP	2JPNTOK	1.6+07	1.8+07	Jour	JPJ,16,1056	61	Y.Ishizaki	E2224
*	<i>d,p</i>	²⁵ Mg	DAP	3IRNNRT	1.3+06	2.0+06	Jour	NIM/B,373,63	16	H.Rafi-Kheiri+	D0797
	<i>α,p</i>	²⁷ Al	CSP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239
	<i>α,p</i>	²⁷ Al	DAP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239

12 Magnesium 25

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #	
				Min	Max						
*	<i>p,inel</i>	²⁵ Mg	DAP	3IRNNRT	1.0+06	3.0+06	Jour	NIM/B,372,109	16	N.Sharifzadeh+	D0796

12 Magnesium 26

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* <i>p</i> ,inel	²⁶ Mg	DAP	3IRNNRT	1.0+06	3.0+06	Jour	NIM/B,372,109	16	N.Sharifzadeh+	D0796

13 Aluminium 27

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> , α	²⁴ Mg	CSP	2JPNKTO	6.1+06	7.4+06	Jour	JPJ,16,2378	61	S.Yamashita	E2231
<i>p</i> , α	²⁴ Mg	DAP	2JPNKTO	6.1+06	7.4+06	Jour	JPJ,16,2378	61	S.Yamashita	E2231
<i>p</i> ,el	²⁷ Al	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729	62	S.Yamabe+	E2234
<i>p</i> ,el	²⁷ Al	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,1817	62	I.Nonaka+	E2237
<i>p</i> ,el	²⁷ Al	POD	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729	62	S.Yamabe+	E2234
<i>p</i> ,el	²⁷ Al	POD	2JPNKTO	7.0+06	7.0+06	Jour	JPJ,20,1	65	K.Fukunaga	E2244
<i>p</i> ,x+p	inclusive	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,1817	62	I.Nonaka+	E2237
<i>p</i> ,x+p	inclusive	DAE	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,1817	62	I.Nonaka+	E2237
α ,el	²⁷ Al	DA	2JPNKTO	2.8+07	2.8+07	Jour	JPJ,19,147	64	I.Kumabe+	E2241
α ,inel	²⁷ Al	DAP	2JPNKTO	2.8+07	2.8+07	Jour	JPJ,19,147	64	I.Kumabe+	E2241
α , <i>p</i>	³⁰ Si	CSP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239
α , <i>p</i>	³⁰ Si	DAP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,16,1091	61	M.Kondo+	E2226

14 Silicon 28

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* <i>p</i> ,inel	²⁸ Si	DAP	3IRNNRT	2.1+06	3.2+06	Jour	NIM/B,371,37	16	A.Jokar+	D0794
α , <i>p</i>	³¹ P	CSP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239
α , <i>p</i>	³¹ P	DAP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,16,1091	61	M.Kondo+	E2226
¹² C,el	²⁸ Si	DA	2JPNIPC	7.0+07	7.0+07	Jour	JPJ,38,(4),945	Apr 75	I.Kohno	E2321
¹² C,inel	²⁸ Si	DAP	2JPNIPC	7.0+07	7.0+07	Jour	JPJ,38,(4),945	Apr 75	I.Kohno	E2321

14 Silicon 29

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* <i>p</i> ,inel	²⁹ Si	DAP	3IRNNRT	2.0+06	3.0+06	Jour	NIM/B,371,37	16	A.Jokar+	D0794

15 Phosphorus 31

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> , α	²⁸ Si	CSP	2JPNKTO	6.1+06	7.4+06	Jour	JPJ,16,2378	61	S.Yamashita	E2231
<i>p</i> , α	²⁸ Si	DAP	2JPNKTO	6.1+06	7.4+06	Jour	JPJ,16,2378	61	S.Yamashita	E2231
<i>p</i> , γ	³² S	CSP	2JPNTOK	1.7+07	2.0+07	Jour	JPJ,18,477	63	M.Kimura+	E2238
<i>p</i> , γ	³² S	DAP	2JPNTOK	7.7+06	1.4+07	Jour	JPJ,18,477	63	M.Kimura+	E2238
<i>d</i> , α	²⁹ Si	DAP	2JPNOSA	1.1+07	1.1+07	Jour	JPJ,15,1741	60	C.Hu	E2220

α,p	^{34}S	CSP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239
α,p	^{34}S	DAP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239

16 Sulphur 32

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
α,p	^{35}Cl	CSP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239
α,p	^{35}Cl	DAP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239

17 Chlorine 35

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #	
				Min	Max						
*	d,p	^{36}Cl	DAP	3IRNNRT	9.9+05	2.0+06	Jour	NIM/B,377,37	16	A.Jokar+	D0803
*	$d,x+\gamma$	inclusive	PY	3IRNNRT	1.0+06	2.0+06	Jour	NIM/B,377,37	16	A.Jokar+	D0803

17 Chlorine 37

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #	
				Min	Max						
*	d,p	^{38}Cl	DAP	3IRNNRT	9.9+05	2.0+06	Jour	NIM/B,377,37	16	A.Jokar+	D0803
*	$d,x+\gamma$	inclusive	PY	3IRNNRT	1.1+06	2.0+06	Jour	NIM/B,377,37	16	A.Jokar+	D0803

19 Potassium 39

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #	
				Min	Max						
	p,α	^{36}Ar	DAP	2JPNKTO	6.9+06	7.3+06	Jour	JPJ,17,19	62	T.Nakamura+	E2233

20 Calcium 40

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
α,p	^{43}Sc	CSP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239
α,p	^{43}Sc	DAP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239

21 Scandium 45

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
α,p	^{48}Ti	CSP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239
α,p	^{48}Ti	DAP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239

22 Titanium

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* $^3\text{He},x$	^{51}Cr	CS	3HUNDEB	6.8+06	2.7+07	Jour	NIM/B,366,19	16	A.H.M.Solieman+	D4339

22 Titanium 48

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
α,el	^{48}Ti	DA	2JPNKTO	2.8+07	2.8+07	Jour	JPJ,19,147	64	I.Kumabe+	E2241
$\alpha,inel$	^{48}Ti	DAP	2JPNKTO	2.8+07	2.8+07	Jour	JPJ,19,147	64	I.Kumabe+	E2241

23 Vanadium

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* $^3\text{He},x$	^{51}Cr	CS	3HUNDEB	9.7+06	2.7+07	Jour	NIM/B,373,76	16	B.M.Ali+	D4345
* $^3\text{He},x$	^{51}Mn	CS	3HUNDEB	2.4+07	2.7+07	Jour	NIM/B,373,76	16	B.M.Ali+	D4345
* $^3\text{He},x$	^{52}Mn	CS	3HUNDEB	8.3+06	2.7+07	Jour	NIM/B,373,76	16	B.M.Ali+	D4345

23 Vanadium 51

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* p,n	^{51}Cr	CS	3HUNDEB	3.9+06	1.6+07	Jour	NIM/B,366,19	16	A.H.M.Solieman+	D4339

24 Chromium

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* α,x	^{51}Cr	CS	2BLGVUB	1.8+07	3.8+07	Jour	NIM/B,356-357,28	15	A.Hermanne+	D4335
* α,x	^{54}Mn	CS	2BLGVUB	5.2+06	3.8+07	Jour	NIM/B,356-357,28	15	A.Hermanne+	D4335
* α,x	^{56}Mn	CS	2BLGVUB	9.7+06	3.8+07	Jour	NIM/B,356-357,28	15	A.Hermanne+	D4335

24 Chromium 50

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* $\alpha,2n$	^{52}Fe	CS	2BLGVUB	1.8+07	3.8+07	Jour	NIM/B,356-357,28	15	A.Hermanne+	D4335
* α,x	^{48}V	CS	2BLGVUB	3.0+07	3.8+07	Jour	NIM/B,356-357,28	15	A.Hermanne+	D4335
* α,x	^{49}Cr	CS	2BLGVUB	1.8+07	3.8+07	Jour	NIM/B,356-357,28	15	A.Hermanne+	D4335
* α,x	^{52}Mn	CS	2BLGVUB	5.2+06	3.8+07	Jour	NIM/B,356-357,28	15	A.Hermanne+	D4335

25 Manganese 55

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
α,p	^{58}Fe	CSP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239
α,p	^{58}Fe	DAP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239

26 Iron 54

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
p,d	^{53}Fe	DAP	2JPNOK	5.2+07	5.2+07	Jour	JPJ,32,1466	72	H.Ohnuma+	E2309
α,p	^{57}Co	CSP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239
α,p	^{57}Co	DAP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239

26 Iron 56

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
α,p	^{59}Co	CSP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239
α,p	^{59}Co	DAP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239

27 Cobalt 59

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #	
				Min	Max						
*	$p,x+\alpha$	inclusive	DAE	3SAFITH	1.0+08	1.0+08	Jour	PR/C,93,034624	16	A.A.Cowley+	D0807
*	$p,x+\alpha$	inclusive	POD	3SAFITH	1.0+08	1.0+08	Jour	PR/C,93,034624	16	A.A.Cowley+	D0807
	α,el	^{59}Co	DA	2JPNKTO	2.8+07	2.8+07	Jour	JPJ,19,147	64	I.Kumabe+	E2241
	$\alpha,inel$	^{59}Co	DAP	2JPNKTO	2.8+07	2.8+07	Jour	JPJ,19,147	64	I.Kumabe+	E2241
	α,p	^{62}Ni	CSP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239
	α,p	^{62}Ni	DAP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,18,620	63	T.Yamazaki+	E2239

28 Nickel

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #	
				Min	Max						
	p,el	^{nat}Ni	DA	2JPNOK	5.7+07	5.7+07	Jour	JPJ,17,729	62	S.Yamabe+	E2234
*	p,x	^{55}Co	CS	2GERJUL	7.1+06	1.6+07	Jour	RCA,104,305	16	Md.S.Uddin+	D0802
*	p,x	^{57}Co	CS	2GERJUL	6.5+06	1.6+07	Jour	RCA,104,305	16	Md.S.Uddin+	D0802
*	p,x	^{58}Co	CS	2GERJUL	4.0+06	1.6+07	Jour	RCA,104,305	16	Md.S.Uddin+	D0802
*	p,x	^{57}Ni	CS	2GERJUL	1.4+07	1.6+07	Jour	RCA,104,305	16	Md.S.Uddin+	D0802
*	p,x	^{60}Cu	CS	2GERJUL	6.5+06	1.6+07	Jour	RCA,104,305	16	Md.S.Uddin+	D0802
*	p,x	^{61}Cu	CS	3BANSAV	1.5+06	4.0+06	Jour	RCA,104,305	16	Md.S.Uddin+	D0802
*	p,x	^{61}Cu	CS	2GERJUL	2.7+06	1.6+07	Jour	RCA,104,305	16	Md.S.Uddin+	D0802

28 Nickel 58

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	⁵⁸ Ni	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,1817	62	I.Nonaka+	E2237
<i>p</i> ,x+ <i>p</i>	inclusive	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,1817	62	I.Nonaka+	E2237
<i>p</i> ,x+ <i>p</i>	inclusive	DAE	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,1817	62	I.Nonaka+	E2237
α ,el	⁵⁸ Ni	DA	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,20,1544	65	N.Takahashi+	E2247
α ,el	⁵⁸ Ni	DA	2JPNKTO	2.8+07	2.8+07	Jour	JPJ,19,147	64	I.Kumabe+	E2241
α ,inel	⁵⁸ Ni	DAP	2JPNOSA	2.2+07	2.2+07	Jour	JPJ,20,1544	65	N.Takahashi+	E2247
α ,inel	⁵⁸ Ni	DAP	2JPNKTO	2.8+07	2.8+07	Jour	JPJ,19,147	64	I.Kumabe+	E2241
α ,x+ α	inclusive	DAE	2JPNKTO	2.8+07	2.8+07	Jour	JPJ,23,147	67	I.Kumabe+	E2256

28 Nickel 60

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d</i> ,inel	⁶⁰ Ni	CSP	2JPNTOK	1.8+07	1.8+07	Jour	JPJ,16,1056	61	Y.Ishizaki	E2224
<i>d</i> ,inel	⁶⁰ Ni	DAP	2JPNTOK	1.8+07	1.8+07	Jour	JPJ,16,1056	61	Y.Ishizaki	E2224
α ,el	⁶⁰ Ni	DA	2JPNKTO	2.8+07	2.8+07	Jour	JPJ,19,147	64	I.Kumabe+	E2241
α ,inel	⁶⁰ Ni	DAP	2JPNKTO	2.8+07	2.8+07	Jour	JPJ,19,147	64	I.Kumabe+	E2241

28 Nickel 64

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* <i>p</i> ,x	⁶⁴ Cu	CS	3BANSVA	2.8+06	4.0+06	Jour	RCA,104,305	16	Md.S.Uddin+	D0802
* <i>p</i> ,x	⁶⁴ Cu	CS	2GERJUL	4.0+06	1.6+07	Jour	RCA,104,305	16	Md.S.Uddin+	D0802

29 Copper

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	^{nat} Cu	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729	62	S.Yamabe+	E2234
α ,x+ α	inclusive	DAE	2JPNKTO	2.8+07	2.8+07	Jour	JPJ,23,147	67	I.Kumabe+	E2256

29 Copper 63

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* α ,x	⁶¹ Cu	CS	2BLGVUB	3.1+07	3.8+07	Jour	NIM/B,356-357,28	15	A.Hermanne+	D4335

29 Copper 65

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* α, n	^{68}Ga	CS	2BLGVUB	3.7+06	3.8+07	Jour	NIM/B,356-357,28	15	A.Hermanne+	D4335

31 Gallium 80

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	^{80}Ge	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

31 Gallium 81

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	^{81}Ge	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

31 Gallium 82

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	^{82}Ge	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

31 Gallium 83

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	^{83}Ge	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

32 Germanium 74

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* $\gamma, 0$		RP	2GERZFK			Jour	PR/C,92,044309	15	R.Massarczyk+	G0050
* γ, sct	^{74}Ge	CS	2GERZFK	3.5+06	1.0+07	Jour	PR/C,92,044309	15	R.Massarczyk+	G0050

32 Germanium 86

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* 0,B-	^{86}As	NUD	1USAORL	Spont		Jour	PRL,111,132502	13	K.Miernik+	14380

37 Rubidium 97

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	⁹⁷ Sr	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

37 Rubidium 98

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	⁹⁸ Sr	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

37 Rubidium 99

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	⁹⁹ Sr	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

37 Rubidium 100

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹⁰⁰ Sr	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

38 Strontium 97

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	⁹⁷ Y	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

38 Strontium 98

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	⁹⁸ Y	NUD	1USABNL	Spont		Jour	PR/C,28,1740	Oct 83	P.L.Reeder+	12856
0,B-	⁹⁸ Y	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

38 Strontium 99

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	⁹⁹ Y	NUD	1USABNL	Spont		Jour	PR/C,28,1740	Oct 83	P.L.Reeder+	12856
0,B-	⁹⁹ Y	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

38 Strontium 100

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹⁰⁰ Y	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

38 Strontium 101

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹⁰¹ Y	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

38 Strontium 102

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹⁰² Y	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

39 Yttrium 97

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	⁹⁷ Zr	NUD	1USABNL	Spont		Jour	PR/C,28,1740	Oct 83	P.L.Reeder+	12856
0,B-	⁹⁷ Zr	NUD	1USABNL	Spont		Jour	PR/C,28,1740	Oct 83	P.L.Reeder+	12856
0,B-	⁹⁷ Zr	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946
0,B-	⁹⁷ Zr	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

39 Yttrium 98

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	⁹⁸ Zr	NUD	1USABNL	Spont		Jour	PR/C,28,1740	Oct 83	P.L.Reeder+	12856
0,B-	⁹⁸ Zr	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

39 Yttrium 99

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	⁹⁹ Zr	NUD	1USABNL	Spont		Jour	PR/C,28,1740	Oct 83	P.L.Reeder+	12856
0,B-	⁹⁹ Zr	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

39 Yttrium 100

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹⁰⁰ Zr	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

39 Yttrium 101

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹⁰¹ Zr	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

39 Yttrium 102

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹⁰² Zr	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

40 Zirconium 91

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,t</i>	⁸⁹ Zr	CSP	2JPNTOK	5.2+07	5.2+07	Jour	JPI,32,1169	72	T.Awaya+	E2308
<i>p,t</i>	⁸⁹ Zr	DAP	2JPNTOK	5.2+07	5.2+07	Jour	JPI,32,1169	72	T.Awaya+	E2308

40 Zirconium 96

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* ⁴⁰ Ca,fus		CS	2ITYPAD	8.4+07	1.1+08	Jour	PL/B,728,639	14	A.M.Stefanini+	D0801

41 Niobium 93

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* <i>d,2n</i>	⁹³ Mo	CS	2BLGLVN	3.1+07	4.8+07	Jour	NIM/B,373,17	16	F.Ditroi+	D4344
* <i>d,5n</i>	⁹⁰ Mo	CS	2BLGLVN	4.2+07	4.8+07	Jour	NIM/B,373,17	16	F.Ditroi+	D4344
* <i>d,x</i>	⁸⁷ Y	CS	2BLGLVN	4.4+07	4.8+07	Jour	NIM/B,373,17	16	F.Ditroi+	D4344
* <i>d,x</i>	⁹⁰ Y	CS	2BLGLVN	3.1+07	4.8+07	Jour	NIM/B,373,17	16	F.Ditroi+	D4344
* <i>d,x</i>	⁸⁸ Zr	CS	2BLGLVN	3.3+07	4.8+07	Jour	NIM/B,373,17	16	F.Ditroi+	D4344
* <i>d,x</i>	⁸⁹ Zr	CS	2BLGLVN	3.1+07	4.8+07	Jour	NIM/B,373,17	16	F.Ditroi+	D4344
* <i>d,x</i>	⁹⁰ Nb	CS	2BLGLVN	3.1+07	4.8+07	Jour	NIM/B,373,17	16	F.Ditroi+	D4344
* <i>d,x</i>	⁹¹ Nb	CS	2BLGLVN	3.1+07	4.8+07	Jour	NIM/B,373,17	16	F.Ditroi+	D4344
* <i>d,x</i>	⁹² Nb	CS	2BLGLVN	3.1+07	4.8+07	Jour	NIM/B,373,17	16	F.Ditroi+	D4344

42 Molybdenum

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	^{nat} Mo	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPI,17,729	62	S.Yamabe+	E2234

45 Rhodium 103

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #	
				Min	Max						
*	<i>d,2p</i>	¹⁰³ Ru	CS	2BLGLVN	3.7+07	5.0+07	Jour	NIM/B,362,110	15	A.Hermanne+	D4337
*	<i>d,4n</i>	¹⁰¹ Pd	CS	2BLGLVN	3.7+07	5.0+07	Jour	NIM/B,362,110	15	A.Hermanne+	D4337
*	<i>d,4n+α</i>	⁹⁷ Ru	CS	2BLGLVN	4.4+07	5.0+07	Jour	NIM/B,362,110	15	A.Hermanne+	D4337
*	<i>d,5n</i>	¹⁰⁰ Pd	CS	2BLGLVN	3.7+07	5.0+07	Jour	NIM/B,362,110	15	A.Hermanne+	D4337
*	<i>d,x</i>	⁹⁹ Rh	CS	2BLGLVN	4.1+07	5.0+07	Jour	NIM/B,362,110	15	A.Hermanne+	D4337
*	<i>d,x</i>	¹⁰⁰ Rh	CS	2BLGLVN	3.7+07	5.0+07	Jour	NIM/B,362,110	15	A.Hermanne+	D4337
*	<i>d,x</i>	¹⁰¹ Rh	CS	2BLGLVN	3.7+07	5.0+07	Jour	NIM/B,362,110	15	A.Hermanne+	D4337
*	<i>d,x</i>	¹⁰² Rh	CS	2BLGLVN	3.7+07	5.0+07	Jour	NIM/B,362,110	15	A.Hermanne+	D4337
*	¹⁴ N,x	⁹⁴ Tc	CS	3SAFITH	1.6+08	4.0+08	Jour	PR/C,93,024608	16	J.Acharya+	D0792
*	¹⁴ N,x	⁹⁵ Tc	CS	3SAFITH	1.6+08	4.0+08	Jour	PR/C,93,024608	16	J.Acharya+	D0792
*	¹⁴ N,x	⁹⁶ Tc	CS	3SAFITH	1.9+08	4.0+08	Jour	PR/C,93,024608	16	J.Acharya+	D0792
*	¹⁴ N,x	⁹⁵ Ru	CS	3SAFITH	1.9+08	4.0+08	Jour	PR/C,93,024608	16	J.Acharya+	D0792
*	¹⁴ N,x	⁹⁷ Ru	CS	3SAFITH	1.5+08	4.0+08	Jour	PR/C,93,024608	16	J.Acharya+	D0792
*	¹⁴ N,x	⁹⁷ Rh	CS	3SAFITH	1.9+08	4.0+08	Jour	PR/C,93,024608	16	J.Acharya+	D0792
*	¹⁴ N,x	⁹⁹ Rh	CS	3SAFITH	1.5+08	4.0+08	Jour	PR/C,93,024608	16	J.Acharya+	D0792
*	¹⁴ N,x	¹⁰¹ Rh	CS	3SAFITH	1.1+08	4.0+08	Jour	PR/C,93,024608	16	J.Acharya+	D0792
*	¹⁴ N,x	⁹⁹ Pd	CS	3SAFITH	1.5+08	3.7+08	Jour	PR/C,93,024608	16	J.Acharya+	D0792
*	¹⁴ N,x	¹⁰⁰ Pd	CS	3SAFITH	8.9+07	3.9+08	Jour	PR/C,93,024608	16	J.Acharya+	D0792
*	¹⁴ N,x	¹⁰¹ Pd	CS	3SAFITH	8.9+07	3.9+08	Jour	PR/C,93,024608	16	J.Acharya+	D0792
*	¹⁴ N,x	¹⁰³ Ag	CS	3SAFITH	1.5+08	4.0+08	Jour	PR/C,93,024608	16	J.Acharya+	D0792
*	¹⁴ N,x	¹⁰⁴ Ag	CS	3SAFITH	1.5+08	4.0+08	Jour	PR/C,93,024608	16	J.Acharya+	D0792
*	¹⁴ N,x	¹⁰⁵ Ag	CS	3SAFITH	8.9+07	4.0+08	Jour	PR/C,93,024608	16	J.Acharya+	D0792
*	¹⁴ N,x	¹⁰⁴ Cd	CS	3SAFITH	1.1+08	4.0+08	Jour	PR/C,93,024608	16	J.Acharya+	D0792

46 Palladium 105

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,n</i>	¹⁰⁵ Ag	SPC	4RUSSUL	6.0+06	6.0+06	Jour	SNP,26,1	77	R.Mihu+	A0699

46 Palladium 106

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,n</i>	¹⁰⁶ Ag	SPC	4RUSSUL	6.0+06	6.0+06	Jour	SNP,26,1	77	R.Mihu+	A0699

47 Silver

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	^{nat} Ag	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729	62	S.Yamabe+	E2234
<i>p</i> ,el	^{nat} Ag	POD	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729	62	S.Yamabe+	E2234
<i>p</i> , <i>x</i> + <i>p</i>	inclusive	DAE	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,1817	62	I.Nonaka+	E2237
* ³ He, <i>x</i>	¹⁰⁹ In	CS	2BLGLVN	1.2+07	2.7+07	Jour	NIM/B,351,6	15	F.Tarkanyi+	D4327
* ³ He, <i>x</i>	¹¹⁰ In	CS	2BLGLVN	1.0+07	2.7+07	Jour	NIM/B,351,6	15	F.Tarkanyi+	D4327
* α , <i>x</i>	¹⁰⁹ In	CS	2BLGLVN	1.7+07	2.6+07	Jour	NIM/B,351,6	15	F.Tarkanyi+	D4327
α , <i>x</i> + α	inclusive	DAE	2JPNKTO	2.8+07	2.8+07	Jour	JPJ,23,147	67	I.Kumabe+	E2256

47 Silver 107

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* α , γ	¹¹¹ In	CS	3HUNDEB	7.8+06	1.2+07	Jour	PR/C,91,034610	15	C.Yalcin+	D4328
* α , <i>n</i>	¹¹⁰ In	CS	2BLGLVN	1.2+07	2.6+07	Jour	NIM/B,351,6	15	F.Tarkanyi+	D4327
* α , <i>n</i>	¹¹⁰ In	CS	3HUNDEB	8.6+06	1.2+07	Jour	PR/C,91,034610	15	C.Yalcin+	D4328
* α , <i>n</i>	¹¹⁰ In	CS	2BLGLVN	9.9+06	2.6+07	Jour	NIM/B,351,6	15	F.Tarkanyi+	D4327

47 Silver 109

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* ³ He, <i>2n</i>	¹¹⁰ In	CS	2BLGLVN	1.3+07	2.7+07	Jour	NIM/B,351,6	15	F.Tarkanyi+	D4327
* ³ He, <i>n</i>	¹¹¹ In	CS	2BLGLVN	1.3+07	2.7+07	Jour	NIM/B,351,6	15	F.Tarkanyi+	D4327
* α , <i>2n</i>	¹¹¹ In	CS	2BLGLVN	1.2+07	2.6+07	Jour	NIM/B,351,6	15	F.Tarkanyi+	D4327

48 Cadmium

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	^{nat} Cd	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729	62	S.Yamabe+	E2234
<i>p</i> ,el	^{nat} Cd	POD	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729	62	S.Yamabe+	E2234

49 Indium

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	^{nat} In	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729	62	S.Yamabe+	E2234
* <i>p</i> , <i>x</i>	¹⁰⁹ Cd	CS	2JPNTOH	3.8+07	6.5+07	Jour	ARI,107,391	16	F.Tarkanyi+	D4333
* <i>p</i> , <i>x</i>	¹¹¹ Cd	CS	2JPNTOH	1.7+07	3.3+07	Jour	ARI,107,391	16	F.Tarkanyi+	D4333
* <i>p</i> , <i>x</i>	¹⁰⁹ In	CS	2JPNTOH	4.3+07	6.9+07	Jour	ARI,107,391	16	F.Tarkanyi+	D4333
* <i>p</i> , <i>x</i>	¹¹⁰ In	CS	2JPNTOH	3.8+07	7.0+07	Jour	ARI,107,391	16	F.Tarkanyi+	D4333
* <i>p</i> , <i>x</i>	¹¹¹ In	CS	2JPNTOH	1.5+07	7.0+07	Jour	ARI,107,391	16	F.Tarkanyi+	D4333
* <i>p</i> , <i>x</i>	¹¹² In	CS	2JPNTOH	1.7+07	3.2+07	Jour	ARI,107,391	16	F.Tarkanyi+	D4333
* <i>p</i> , <i>x</i>	¹¹³ In	CS	2JPNTOH	8.9+06	6.5+07	Jour	ARI,107,391	16	F.Tarkanyi+	D4333

*	p,x	¹¹⁴ In	CS	2JPNTOH	1.5+07	7.0+07	Jour	ARI,107,391	16	F.Tarkanyi+	D4333
*	p,x	¹¹⁵ In	CS	2JPNTOH	8.9+06	7.0+07	Jour	ARI,107,391	16	F.Tarkanyi+	D4333
*	p,x	¹¹⁰ Sn	CS	2JPNTOH	3.1+07	7.0+07	Jour	ARI,107,391	16	F.Tarkanyi+	D4333
*	p,x	¹¹⁰ Sn	CS	2BLGLVN	3.8+07	7.0+07	Jour	NIM/B,351,6	15	F.Tarkanyi+	D4327
*	p,x	¹¹¹ Sn	CS	2JPNTOH	2.4+07	3.3+07	Jour	ARI,107,391	16	F.Tarkanyi+	D4333
*	p,x	¹¹³ Sn	CS	2JPNTOH	8.9+06	7.0+07	Jour	ARI,107,391	16	F.Tarkanyi+	D4333
*	d,x	¹¹⁵ Cd	CS	2BLGLVN	3.2+07	4.9+07	Jour	ARI,105,26	15	F.Tarkanyi+	D4332
*	d,x	¹⁰⁹ In	CS	2BLGLVN	4.7+07	4.9+07	Jour	ARI,105,26	15	F.Tarkanyi+	D4332
*	d,x	¹¹⁰ In	CS	2BLGLVN	3.8+07	4.9+07	Jour	ARI,105,26	15	F.Tarkanyi+	D4332
*	d,x	¹¹¹ In	CS	2BLGLVN	3.2+07	4.9+07	Jour	ARI,105,26	15	F.Tarkanyi+	D4332
*	d,x	¹¹³ In	CS	2BLGLVN	3.2+07	4.9+07	Jour	ARI,105,26	15	F.Tarkanyi+	D4332
*	d,x	¹¹⁴ In	CS	2BLGLVN	3.2+07	4.9+07	Jour	ARI,105,26	15	F.Tarkanyi+	D4332
*	d,x	¹¹⁵ In	CS	2BLGLVN	3.2+07	4.9+07	Jour	ARI,105,26	15	F.Tarkanyi+	D4332
*	d,x	¹¹⁶ In	CS	2BLGLVN	3.2+07	4.9+07	Jour	ARI,105,26	15	F.Tarkanyi+	D4332
*	d,x	¹¹⁰ Sn	CS	2BLGLVN	3.8+07	4.9+07	Jour	ARI,105,26	15	F.Tarkanyi+	D4332
*	d,x	¹¹³ Sn	CS	2BLGLVN	3.2+07	4.9+07	Jour	ARI,105,26	15	F.Tarkanyi+	D4332

49 Indium 127

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹²⁷ Sn	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

49 Indium 128

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹²⁸ Sn	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

49 Indium 129

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹²⁹ Sn	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946
0,B-	¹²⁹ Sn	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

49 Indium 130

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹³⁰ Sn	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946
0,B-	¹³⁰ Sn	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

49 Indium 131

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹³¹ Sn	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

49 Indium 132

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹³² Sn	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

50 Tin

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	^{nat} Sn	DA	2JPNTOK	5.2+07	5.7+07	Jour	JPJ,17,729	62	S.Yamabe+	E2234
<i>p</i> ,el	^{nat} Sn	POD	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729	62	S.Yamabe+	E2234
<i>p</i> ,x+ <i>p</i>	inclusive	DAE	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,1817	62	I.Nonaka+	E2237
* ³ He,x	¹¹³ Sn	CS	3HUNDEB	1.5+07	2.5+07	Jour	NIM/B,362,93	15	B.M.Ali+	D4338
* ³ He,x	¹¹⁷ Sn	CS	3HUNDEB	1.3+07	2.4+07	Jour	NIM/B,362,93	15	B.M.Ali+	D4338
* ³ He,x	¹¹⁵ Sb	CS	3HUNDEB	1.4+07	2.4+07	Jour	NIM/B,362,93	15	B.M.Ali+	D4338
* ³ He,x	¹¹⁶ Sb	CS	3HUNDEB	2.1+07	2.5+07	Jour	NIM/B,362,93	15	B.M.Ali+	D4338
* ³ He,x	¹¹⁷ Sb	CS	3HUNDEB	1.2+07	2.5+07	Jour	NIM/B,362,93	15	B.M.Ali+	D4338
* ³ He,x	¹¹⁸ Sb	CS	3HUNDEB	1.3+07	2.5+07	Jour	NIM/B,362,93	15	B.M.Ali+	D4338
* ³ He,x	¹²⁰ Sb	CS	3HUNDEB	1.3+07	2.5+07	Jour	NIM/B,362,93	15	B.M.Ali+	D4338
* ³ He,x	¹²² Sb	CS	3HUNDEB	1.2+07	2.5+07	Jour	NIM/B,362,93	15	B.M.Ali+	D4338
* ³ He,x	¹²⁴ Sb	CS	3HUNDEB	1.5+07	2.5+07	Jour	NIM/B,362,93	15	B.M.Ali+	D4338
* ³ He,x	¹¹⁶ Te	CS	3HUNDEB	1.4+07	2.5+07	Jour	NIM/B,362,93	15	B.M.Ali+	D4338
* ³ He,x	¹¹⁷ Te	CS	3HUNDEB	1.2+07	2.5+07	Jour	NIM/B,362,93	15	B.M.Ali+	D4338
* ³ He,x	¹¹⁸ Te	CS	3HUNDEB	1.5+07	2.5+07	Jour	NIM/B,362,93	15	B.M.Ali+	D4338
* ³ He,x	¹¹⁹ Te	CS	3HUNDEB	1.2+07	2.5+07	Jour	NIM/B,362,93	15	B.M.Ali+	D4338
* ³ He,x	¹²¹ Te	CS	3HUNDEB	1.2+07	2.5+07	Jour	NIM/B,362,93	15	B.M.Ali+	D4338
* ³ He,x	¹²³ Te	CS	3HUNDEB	1.3+07	2.4+07	Jour	NIM/B,362,93	15	B.M.Ali+	D4338

50 Tin 124

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* ¹⁷ O,inel	¹²⁴ Sn	DAP	2ITYPAD	3.4+08	3.4+08	Jour	PR/C,92,014330	15	L.Pellegrini+	D0793

55 Caesium 133

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* <i>d</i> ,x	¹²⁹ Xe	CS	2JPNTOH	2.3+07	3.9+07	Jour	ARI,110,109	16	F.Tarkanyi+	D4334
* <i>d</i> ,x	¹³² Cs	CS	2JPNTOH	6.0+05	3.9+07	Jour	ARI,110,109	16	F.Tarkanyi+	D4334
* <i>d</i> ,x	¹³⁴ Cs	CS	2JPNTOH	6.0+05	3.9+07	Jour	ARI,110,109	16	F.Tarkanyi+	D4334

*	d,x	¹³¹ Ba	CS	2JPNTOH	2.3+07	3.9+07	Jour	ARI,110,109	16	F.Tarkanyi+	D4334
*	d,x	¹³³ Ba	CS	2JPNTOH	6.0+05	3.9+07	Jour	ARI,110,109	16	F.Tarkanyi+	D4334

55 Caesium 147

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹⁴⁷ Ba	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

55 Caesium 148

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹⁴⁸ Ba	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

56 Barium 146

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹⁴⁶ La	NUD	1USABNL	Spont		Jour	PR/C,28,1740	Oct 83	P.L.Reeder+	12856

56 Barium 147

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹⁴⁷ La	NUD	1USABNL	Spont		Jour	PR/C,28,1740	Oct 83	P.L.Reeder+	12856
0,B-	¹⁴⁷ La	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

56 Barium 148

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹⁴⁸ La	NUD	1USABNL	Spont		Jour	PR/C,28,1740	Oct 83	P.L.Reeder+	12856
0,B-	¹⁴⁸ La	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

56 Barium 149

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹⁴⁹ La	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

57 Lanthanum 146

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹⁴⁶ Ce	NUD	1USABNL	Spont		Jour	PR/C,28,1740	Oct 83	P.L.Reeder+	12856

57 Lanthanum 147

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹⁴⁷ Ce	NUD	1USABNL	Spont		Jour	PR/C,28,1740	Oct 83	P.L.Reeder+	12856
0,B-	¹⁴⁷ Ce	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

57 Lanthanum 148

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹⁴⁸ Ce	NUD	1USABNL	Spont		Jour	PR/C,28,1740	Oct 83	P.L.Reeder+	12856
0,B-	¹⁴⁸ Ce	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

57 Lanthanum 149

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,B-	¹⁴⁹ Ce	NUD	1USABNL	Spont		Conf	85SANTA,1,701	May 85	R.A.Warner+	12946

59 Praseodymium 141

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,t</i>	¹³⁹ Pr	DAP	2JPNTOK	5.2+07	5.2+07	Jour	JPI,33,1482	72	K.Yagi+	E2313

62 Samarium

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #		
				Min	Max							
*	γ,x		¹⁴⁸ Pm	CS	3KORPUE		6.4+07	Jour	JRN,302,467	14	S.C.Yang+	G3120

66 Dysprosium

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #			
				Min	Max								
*	<i>p,x</i>		¹⁵¹ Tb	CS	2BLGLVN		6.1+07	6.5+07	Jour	ARI,98,87	15	F.Tarkanyi+	D4326
*	<i>p,x</i>		¹⁵² Tb	CS	2BLGLVN		5.1+07	6.5+07	Jour	ARI,98,87	15	F.Tarkanyi+	D4326

*	<i>p,x</i>	¹⁵³ Tb	CS	2BLGLVN	4.0+07	6.5+07	Jour	ARI,98,87	15	F.Tarkanyi+	D4326
*	<i>p,x</i>	¹⁵⁴ Tb	CS	2BLGLVN	4.5+07	6.5+07	Jour	ARI,98,87	15	F.Tarkanyi+	D4326
*	<i>p,x</i>	¹⁵⁵ Tb	CS	2BLGLVN	3.7+07	6.5+07	Jour	ARI,98,87	15	F.Tarkanyi+	D4326
*	<i>p,x</i>	¹⁵⁶ Tb	CS	2BLGLVN	3.7+07	6.5+07	Jour	ARI,98,87	15	F.Tarkanyi+	D4326
*	<i>p,x</i>	¹⁶⁰ Tb	CS	2BLGLVN	3.7+07	6.4+07	Jour	ARI,98,87	15	F.Tarkanyi+	D4326
*	<i>p,x</i>	¹⁶¹ Tb	CS	2BLGLVN	3.7+07	6.5+07	Jour	ARI,98,87	15	F.Tarkanyi+	D4326
*	<i>p,x</i>	¹⁵⁵ Dy	CS	2BLGLVN	3.7+07	6.5+07	Jour	ARI,98,87	15	F.Tarkanyi+	D4326
*	<i>p,x</i>	¹⁵⁷ Dy	CS	2BLGLVN	3.7+07	6.5+07	Jour	ARI,98,87	15	F.Tarkanyi+	D4326
*	<i>p,x</i>	¹⁵⁹ Dy	CS	2BLGLVN	3.7+07	6.5+07	Jour	ARI,98,87	15	F.Tarkanyi+	D4326

73 Tantalum

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	^{nat} Ta	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729	62	S.Yamabe+	E2234
<i>p,el</i>	^{nat} Ta	POD	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729	62	S.Yamabe+	E2234
<i>α,x+α</i>	inclusive	DAE	2JPNKTO	2.8+07	2.8+07	Jour	JPJ,23,147	67	I.Kumabe+	E2256

73 Tantalum 181

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>α,n</i>	¹⁸⁴ Re	CS	2GERKFK	9.9+06	8.1+07	Jour	JRN,172,155	93	M.J.Ozafra+	A0556

74 Tungsten

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>α,x</i>	¹⁸⁴ Re	?	2GERKFK	3.3+07	8.1+07	Jour	JRN,172,155	93	M.J.Ozafra+	A0556

74 Tungsten 182

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,p</i>	¹⁸³ W	CSP	2JPNTOK	1.5+07	1.5+07	Jour	JPJ,32,886	72	A.Isoya+	E2307
<i>d,p</i>	¹⁸³ W	DAP	2JPNTOK	1.5+07	1.5+07	Jour	JPJ,32,886	72	A.Isoya+	E2307

74 Tungsten 183

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,p</i>	¹⁸⁴ W	CSP	2JPNTOK	1.5+07	1.5+07	Jour	JPJ,32,886	72	A.Isoya+	E2307
<i>d,p</i>	¹⁸⁴ W	DAP	2JPNTOK	1.5+07	1.5+07	Jour	JPJ,32,886	72	A.Isoya+	E2307

78 Platinum

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	^{nat} Pt	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729	62	S.Yamabe+	E2234
<i>p</i> ,el	^{nat} Pt	POD	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729	62	S.Yamabe+	E2234

78 Platinum 198

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
* ¹³⁶ Xe,eI	¹⁹⁸ Pt	DA	2FR GAN	1.1+09	1.1+09	Jour	PRL,115,172503	15	Y.X.Watanabe+	D0799
* ¹³⁶ Xe,x	Many	CS	2FR GAN	1.1+09	1.1+09	Jour	PRL,115,172503	15	Y.X.Watanabe+	D0799

79 Gold 197

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	¹⁹⁷ Au	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729	62	S.Yamabe+	E2234
<i>p</i> ,el	¹⁹⁷ Au	POD	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729	62	S.Yamabe+	E2234
* <i>d</i> ,2 <i>n</i>	¹⁹⁷ Hg	CS	2BLGLVN	5.1+06	5.0+07	Jour	NIM/B,362,116	15	F.Tarkanyi+	D4336
* <i>d</i> ,4 <i>n</i>	¹⁹⁵ Hg	CS	2BLGLVN	2.3+07	5.0+07	Jour	NIM/B,362,116	15	F.Tarkanyi+	D4336
* <i>d</i> ,6 <i>n</i>	¹⁹³ Hg	CS	2BLGLVN	4.0+07	5.0+07	Jour	NIM/B,362,116	15	F.Tarkanyi+	D4336
* <i>d</i> , <i>p</i>	¹⁹⁸ Au	CS	2BLGLVN	5.1+06	5.0+07	Jour	NIM/B,362,116	15	F.Tarkanyi+	D4336
* <i>d</i> , <i>x</i>	¹⁹⁴ Au	CS	2BLGLVN	5.1+06	5.0+07	Jour	NIM/B,362,116	15	F.Tarkanyi+	D4336
* <i>d</i> , <i>x</i>	¹⁹⁵ Au	CS	2BLGLVN	1.2+07	5.0+07	Jour	NIM/B,362,116	15	F.Tarkanyi+	D4336
* <i>d</i> , <i>x</i>	¹⁹⁶ Au	CS	2BLGLVN	5.1+06	5.0+07	Jour	NIM/B,362,116	15	F.Tarkanyi+	D4336
α , <i>x</i> + α	inclusive	DAE	2JPNKTO	2.8+07	2.8+07	Jour	JPJ,23,147	67	I.Kumabe+	E2256

80 Mercury 198

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n</i> , γ	¹⁹⁹ Hg	CS	1USAORL	Maxwl		Jour	PR/C,32,738	Sep 85	H.Beer+	12879

80 Mercury 199

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n</i> , γ	²⁰⁰ Hg	CS	1USAORL	Maxwl		Jour	PR/C,32,738	Sep 85	H.Beer+	12879

80 Mercury 200

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n</i> , γ	²⁰¹ Hg	CS	1USAORL	Maxwl		Jour	PR/C,32,738	Sep 85	H.Beer+	12879

80 Mercury 201

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation		Date	Author	Data #
				Min	Max		Ref	Vol Page			
<i>n,γ</i>	²⁰² Hg	CS	1USAORL	Maxwl		Jour	PR/C,32,738		Sep 85	H.Beer+	12879

80 Mercury 202

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation		Date	Author	Data #
				Min	Max		Ref	Vol Page			
<i>n,γ</i>	²⁰³ Hg	CS	1USAORL	Maxwl		Jour	PR/C,32,738		Sep 85	H.Beer+	12879

80 Mercury 204

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation		Date	Author	Data #
				Min	Max		Ref	Vol Page			
<i>n,γ</i>	²⁰⁵ Hg	CS	1USAORL	Maxwl		Jour	PR/C,32,738		Sep 85	H.Beer+	12879

82 Lead

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation		Date	Author	Data #
				Min	Max		Ref	Vol Page			
<i>p,el</i>	^{nat} Pb	DA	2JPNTOK	5.2+07	5.7+07	Jour	JPJ,17,729		62	S.Yamabe+	E2234
<i>p,el</i>	^{nat} Pb	POD	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729		62	S.Yamabe+	E2234
<i>α,x</i>	²⁰⁵ Po	?	3ARGCNE	1.7+07	5.4+07	Jour	RRL,50,(4),211		82	C.Wasilevsky+	A0139

83 Bismuth 209

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation		Date	Author	Data #
				Min	Max		Ref	Vol Page			
<i>p,el</i>	²⁰⁹ Bi	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,729		62	S.Yamabe+	E2234
<i>p,el</i>	²⁰⁹ Bi	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,1817		62	I.Nonaka+	E2237
<i>p,x+p</i>	inclusive	DA	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,1817		62	I.Nonaka+	E2237
<i>p,x+p</i>	inclusive	DAE	2JPNTOK	5.7+07	5.7+07	Jour	JPJ,17,1817		62	I.Nonaka+	E2237

90 Thorium 232

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation		Date	Author	Data #
				Min	Max		Ref	Vol Page			
*	<i>γ,fis</i>	Many	FY	2GERZFK		Jour	EPJ/A,51,150		15	H.Naik+	G0051
*	<i>γ,fis</i>		FY	2GERZFK		Jour	EPJ/A,51,150		15	H.Naik+	G0051
*	<i>γ,fis</i>		NU	2GERZFK		Jour	EPJ/A,51,150		15	H.Naik+	G0051
	<i>p,el</i>		DA	2JPNTOK	5.7+07	Jour	JPJ,17,729		62	S.Yamabe+	E2234

p,el ²³²Th POD 2JPNTOK 5.7+07 5.7+07 Jour [JPI,17,729](#) 62 S.Yamabe+ [E2234](#)

92 Uranium 233

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,tot</i>		CS	CHOPF	2.5-02	2.5-02	Jour	PR,118,714	60	M.S.Moore+	12341

92 Uranium 235

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,fis</i>	γ	KE	1USAIRT	2.5-02	2.5-02	Jour	PR/C,7,1173	73	V.V.Verbinski+	14195
<i>n,tot</i>		CS	CHOPF	2.5-02	2.5-02	Jour	NSE,7,187	60	O.D.Simpson+	12329

92 Uranium 238

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,fis</i>		FY	2JPNTOK	5.5+07	5.5+07	Jour	JPI,19,1809	64	S.Shirato+	E2242
<i>p,fis</i>		KE	2JPNTOK	5.5+07	5.5+07	Jour	JPI,19,1809	64	S.Shirato+	E2242

94 Plutonium 239

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,fis</i>	γ	KE	1USAIRT	2.5-02	2.5-02	Jour	PR/C,7,1173	73	V.V.Verbinski+	14195
<i>n,inel</i>	²³⁹ Pu	CSP	1USALTI	7.0+05	7.0+05	Conf	94GATLIN,1,248	94	G.Yue+	14000
<i>n,inel</i>	²³⁹ Pu	DAP	1USALTI	7.0+05	7.0+05	Conf	94GATLIN,1,248	94	G.Yue+	14000

94 Plutonium 240

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
*	γ ,fis	⁹⁰ Rb	CS	4UKRIEP	9.6+06	Jour	IZV,76,1004	12	I.N.Vishnevskii+	G4038
*	γ ,fis	¹³⁴ I	CS	4UKRIEP	9.6+06	Jour	IZV,76,1004	12	I.N.Vishnevskii+	G4038
*	γ ,fis	¹³⁵ Xe	CS	4UKRIEP	9.6+06	Jour	IZV,76,1004	12	I.N.Vishnevskii+	G4038

95 Americium 241

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
*	γ ,fis	⁸⁴ Br	CS	4UKRIEP	1.7+07	Jour	IZV,76,1004	12	I.N.Vishnevskii+	G4038
*	γ ,fis	¹³⁴ I	CS	4UKRIEP	1.7+07	Jour	IZV,76,1004	12	I.N.Vishnevskii+	G4038

* γ ,fis ^{135}Xe CS 4UKRIEP 1.7+07 Jour IZV,76,1004 12 I.N.Vishnevskii+ [G4038](#)

98 Californium 252

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,fis	γ	KE	1USAIRT	Spont		Jour	PR/C,7,1173	73	V.V.Verbinski+	14195