

## Japan Charged-Particle Nuclear Reaction Data Group (JCPRG)

### EXFOR : Recent Compilation List (Added in Aug 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:

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#### 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					
$^8\text{He,el}$	$^1\text{H}$	DA	4ZZZDUB	2.1+08		Jour	NP/A,701,29	02	R.Wolski+	D0218

1 Hydrogen 2										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,n</i>	incl	KE	3CZRUJF	1.4+07		Jour	NIM/A,425,522	99	P.Bem+	D0273
<i>p,n</i>	incl	TTD	3CZRUJF	1.4+07		Jour	NIM/A,425,522	99	P.Bem+	D0273
<i>d,n</i>	incl	KE	3CZRUJF	1.2+07		Jour	NIM/A,425,522	99	P.Bem+	D0273
<i>d,n</i>	incl	TTD	3CZRUJF	1.2+07		Jour	NIM/A,425,522	99	P.Bem+	D0273
<i>d,p</i>	$^3\text{H}$	POD	3CZRUJF	2.5+05	9.8+05	Jour	NP/A,442,17	85	P.Kozma+	F0145
$^3\text{He,el}$	$^2\text{H}$	POD	2UK BIR	2.2+07	3.3+07	Jour	NP/A,671,33	00	N.T.Okumusoglu+	F0264

2 Helium 4										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,n</i>	incl	TTD	3CZRUJF	1.7+07		Jour	NIM/A,466,509	01	P.Bem+	D0278
$^8\text{He,el}$	$^4\text{He}$	DA	4ZZZDUB	2.1+08		Jour	NP/A,701,29	02	R.Wolski+	D0218

3 Lithium										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	$^{nat}\text{Li}$	DA	2SWDUPP	1.6+08		Jour	NP,21,383	60	A.Johansson+	D0283
<i>p,el</i>	$^{nat}\text{Li}$	POD	2SWDUPP	1.6+08		Jour	NP,21,383	60	A.Johansson+	D0283
<i>p,el</i>	$^{nat}\text{Li}$	POD	2SWDUPP	1.8+08		Jour	NP,11,540	59	A.Johansson+	D0285
<i>p,incl</i>	$^{nat}\text{Li}$	POD	2SWDUPP	1.8+08		Jour	NP,11,540	59	A.Johansson+	D0285
<i>t,incl</i>	$^{nat}\text{Li}$	TTD	2FR STR	2.0+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$\alpha,incl$	$^7\text{Li}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

3 Lithium 7										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,0</i>		RP	2FR VNV	0.0+00		Jour	JPR,33,485	72	J.Decharge+	F0231
<i>d,<math>\alpha</math></i>	$^5\text{He}$	DA	2FR VNV	4.5+05	2.0+06	Jour	JPR,33,485	72	J.Decharge+	F0231
<i>d,n+<math>\alpha</math></i>	$^4\text{He}$	D3A	2ITYCAT	1.0+06		Jour	NC/A,22,313	74	V.D'Amico+	F0253
<i>d,n+<math>\alpha</math></i>	$^4\text{He}$	DAA	2ITYCAT	1.0+06		Jour	NC/A,22,313	74	V.D'Amico+	F0253
<i>d,n+<math>\alpha</math></i>	$^4\text{He}$	POD	2ITYCAT	1.0+06		Jour	NC/A,22,313	74	V.D'Amico+	F0253

**4                      Beryllium                      7**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,\gamma$	$^8\text{B}$	CS	2FR PAR	0.0+00	1.9+05	Jour	PRL,86,3985	01	F.Hammache+	F0502

**4                      Beryllium                      9**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,\text{el}$	$^9\text{Be}$	POD	2SWDUPP	1.8+08		Jour	NP,11,540	59	A.Johansson+	D0285
$p,\text{inel}$	$^9\text{Be}$	POD	2SWDUPP	1.8+08		Jour	NP,11,540	59	A.Johansson+	D0285
$p,\text{non}$		CS	2SWDUPP	6.6+07		Jour	NP/A,653,341	99	A.Ingemarsson+	D0174
$^3\text{He},\text{non}$		CS	2SWDUPP	9.6+07	1.7+08	Jour	NP/A,696,3	01	A.Ingemarsson+	D0185
$\alpha,\text{el}$	$^9\text{Be}$	DA	3INDVEC	6.5+07		Jour	PR/C,52,1524	95	S.Roy+	D0157
$\alpha,\text{inel}$	$^9\text{Be}$	DAP	3INDVEC	6.5+07		Jour	PR/C,52,1524	95	S.Roy+	D0157
$\alpha,n$	$^{12}\text{C}$	POD	2GERIFS	1.9+06	3.0+06	Jour	NIM/A,292,359	90	W.Weiss+	F0699
$^6\text{He},^5\text{He}$	$^{10}\text{Be}$	DA	2JPNIPC	1.5+08		Jour	CPL,20,1034	Jul 03	Geyu-Cheng+	S0045
$^6\text{He},\alpha$	$^{11}\text{Be}$	DA	2JPNIPC	1.5+08		Jour	CPL,20,1034	Jul 03	Geyu-Cheng+	S0045
$^{11}\text{B},^{10}\text{Be}$	$^{10}\text{B}$	DAP	3POLWWA	4.5+07		Jour	NP/A,726,231	03	V.M.Kyryanchuk+	D0308

**5                      Boron**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,\text{el}$	$^{nat}\text{B}$	POD	2SWDUPP	1.8+08		Jour	NP,11,540	59	A.Johansson+	D0285
$p,\text{inel}$	$^{nat}\text{B}$	POD	2SWDUPP	1.8+08		Jour	NP,11,540	59	A.Johansson+	D0285
$\alpha,\text{inel}$	$^{10}\text{B}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$\alpha,p$	$^{13}\text{C}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

**5                      Boron                      10**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$t,2n$	$^{11}\text{C}$	TT	1USALAS	3.4+06	1.2+07	Jour	NIM/B,24/25,722	87	N.Bordes+	F0703

**5                      Boron                      11**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,\text{el}$	$^{11}\text{B}$	DA	2UK BIR	3.0+07		Jour	NP/A,133,255	69	O.Karban+	D0291
$p,\text{el}$	$^{11}\text{B}$	POD	2UK BIR	3.0+07		Jour	NP/A,133,255	69	O.Karban+	D0291
$p,\text{inel}$	$^{11}\text{B}$	DAP	2UK BIR	3.0+07		Jour	NP/A,133,255	69	O.Karban+	D0291
$p,\text{inel}$	$^{11}\text{B}$	POD	2UK BIR	3.0+07		Jour	NP/A,133,255	69	O.Karban+	D0291
$^3\text{He},\text{el}$	$^{11}\text{B}$	DA	2UK HAR	1.8+07	4.0+07	Jour	NP/A,284,83	77	M.A.M.Shahabuddin+	F0722
$^3\text{He},\text{el}$	$^{11}\text{B}$	DAP	2UK HAR	1.8+07	4.0+07	Jour	NP/A,284,83	77	M.A.M.Shahabuddin+	F0722

$\alpha,el$	$^{11}\text{B}$	DA	2GERBON	4.9+07	5.4+07	Jour	ZP/A,326,373	87	H.Abele+	D0146
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**6 Carbon**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$t,x$	$^{14}\text{N}$	TTD	2FR STR	2.0+06		Jour	NIM,156,483	78	B.Borderie+	F0239

**6 Carbon 12**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,el$	$^{12}\text{C}$	DA	2FR CSN	1.5+08		Jour	NP,80,625	66	C.Rolland+	D0290
$p,el$	$^{12}\text{C}$	DA	3CPRAEP	2.2+07		Jour	CPL,20,478	Apr 03	Anzhu+	S0046
$p,el$	$^{12}\text{C}$	DA	2ITYMIL	3.5+07		Jour	PR/C,33,40	86	M.Pignanelli+	F0256
$p,el$	$^{12}\text{C}$	DA	2FR CSN	7.5+07		Jour	NP,80,625	66	C.Rolland+	D0290
$p,el$	$^{12}\text{C}$	DA	2UK BIR	9.7+08		Jour	PPS,73,100	59	C.J.Batty+	D0301
$p,el$	$^{12}\text{C}$	POD	2FR CSN	1.5+08		Jour	NP,80,625	66	C.Rolland+	D0290
$p,el$	$^{12}\text{C}$	POD	2FR SAC	5.4+06	2.0+07	Jour	NP,33,458	62	L.Rosen+	D0292
$p,el$	$^{12}\text{C}$	POD	2FR CSN	7.5+07		Jour	NP,80,625	66	C.Rolland+	D0290
$p,inel$	$^{12}\text{C}$	DAP	2ITYMIL	3.5+07	4.0+07	Jour	PR/C,33,40	86	M.Pignanelli+	F0256
$p,inel$	$^{12}\text{C}$	POD	2FR SAC	2.0+07		Jour	NP,33,458	62	L.Rosen+	D0292
$p,non$		CS	2SWDUPP	6.6+07		Jour	NP/A,653,341	99	A.Ingemarsson+	D0174
$d,el$	$^{12}\text{C}$	DA	2GERZFK	1.4+07		Jour	NP/A,140,129	70	H.Guratzsch+	F0714
$d,el$	$^{12}\text{C}$	DA	2FR PAR	8.0+07		Jour	NP/A,174,485	71	G.Duhamel+	D0228
$d,el$	$^{12}\text{C}$	POD	2UK BIR	1.2+07		Jour	NP/A,112,209	68	A.M.Baxter+	D0264
$d,inel$	$^{12}\text{C}$	DAP	2GERZFK	1.4+07		Jour	NP/A,140,129	70	H.Guratzsch+	F0714
$d,inel$	$^{12}\text{C}$	DAP	2FR PAR	8.2+07		Jour	NP/A,174,485	71	G.Duhamel+	D0228
$d,p$	$^{13}\text{C}$	DAP	2FR PAR	8.0+07		Jour	NP/A,174,485	71	G.Duhamel+	D0228
$d,p$	$^{13}\text{C}$	TTP	2GERZFK	1.9+06	3.6+06	Rept	ZFK-443,107	80	C.Bauer+	D0316
$t,\alpha$	$^{11}\text{B}$	DAP	2UK ALD	3.8+07		Jour	NP/A,482,653	88	P.J.Simmonds+	F0079
$t,d$	$^{13}\text{C}$	DAP	2UK ALD	3.8+07		Jour	NP/A,482,653	88	P.J.Simmonds+	F0079
$t,el$	$^{12}\text{C}$	DA	2UK ALD	3.8+07		Jour	NP/A,482,653	88	P.J.Simmonds+	F0079
$t,inel$	$^{12}\text{C}$	DAP	2UK ALD	3.8+07		Jour	NP/A,482,653	88	P.J.Simmonds+	F0079
$^3\text{He},non$		CS	2SWDUPP	9.6+07	1.7+08	Jour	NP/A,696,3	01	A.Ingemarsson+	D0185
$\alpha,2p+\alpha$	$^{10}\text{Be}$	CS	2ZZZITU	4.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,d+\alpha$	$^{10}\text{B}$	CS	2ZZZITU	4.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,d+t$	$^{11}\text{C}$	CS	2ZZZITU	5.1+07		Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,el$	$^{12}\text{C}$	DA	4RUSTPI	1.8+07	2.7+07	Jour	YF,18,950	73	B.I.Kuznetsov+	F0697
$\alpha,el$	$^{12}\text{C}$	DA	2UK BIR	2.0+07	2.4+07	Jour	ARS,64,273	68	J.Aguilar+	D0324
$\alpha,el$	$^{12}\text{C}$	DA	2UK BIR	2.4+07		Jour	ARS,63,217	67	J.Aguilar+	D0315
$\alpha,el$	$^{12}\text{C}$	DA	2UK BIR	2.4+07	2.0+07	Jour	ARS,64,273	68	J.Aguilar+	D0324
$\alpha,el$	$^{12}\text{C}$	DA	4KASKAZ	2.9+07	5.0+07	Jour	IZV,53,37	89	S.Ya.Aisina+	F0497
$\alpha,el$	$^{12}\text{C}$	DA	2GERBON	4.9+07	5.4+07	Jour	ZP/A,326,373	87	H.Abele+	D0146
$\alpha,el$	$^{12}\text{C}$	DA	3CPRFUD	5.9+06	7.1+06	Conf	89ALBUQU,153	89	Zhouzhuying+	D0318
$\alpha,inel$	$^{12}\text{C}$	DAA	3ISLWZI	1.7+07		Jour	NP/A,178,155	71	Z.Berant+	F0272
$\alpha,inel$	$^{12}\text{C}$	DAP	2ITYMIL	1.2+08		Jour	PR/C,33,40	86	M.Pignanelli+	F0256
$\alpha,non$		CS	2SWDTLU	7.4+07	1.9+08	Jour	PR/C,50,871	94	A.Auce+	D0169
$\alpha,p+2\alpha$	$^7\text{Li}$	CS	2ZZZITU	4.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,p+^6\text{Li}$	$^9\text{Be}$	CS	2ZZZITU	5.1+07		Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,p+\alpha$	$^{11}\text{B}$	CS	2ZZZITU	3.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,x$	$^6\text{Li}$	CS	2ZZZITU	4.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,x$	$^9\text{Be}$	CS	2ZZZITU	4.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586

$^{12}\text{C}, ^8\text{Be}$   $^{16}\text{O}$  DE 3AULCBR 8.2+07 1.2+08 Jour PR/C,70,064311 04 M.Freer+ D0277

**6 Carbon 13**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,\alpha$	$^{10}\text{B}$	CSP	2GERJUL	1.8+07	4.5+07	Jour	NP/A,487,353	88	S.Abdel-Kariem+	F0534
$p,\alpha$	$^{10}\text{B}$	DAP	2GERJUL	1.8+07	4.5+07	Jour	NP/A,487,353	88	S.Abdel-Kariem+	F0534
$p,\text{el}$	$^{13}\text{C}$	DA	3CPRAEP	2.2+07		Jour	CPL,20,478	Apr 03	Anzhu+	S0046
$p,\text{inel}$	$^{13}\text{C}$	DAP	3CPRAEP	2.2+07		Jour	CPL,20,478	Apr 03	Anzhu+	S0046
$d,\text{el}$	$^{13}\text{C}$	DA	2GERZFK	1.4+07		Jour	NP/A,140,129	70	H.Guratzsch+	F0714
$d,\text{inel}$	$^{13}\text{C}$	DAP	2GERZFK	1.4+07		Jour	NP/A,140,129	70	H.Guratzsch+	F0714
$t,\alpha$	$^{12}\text{B}$	DAP	2UK ALD	3.8+07		Jour	NP/A,482,653	88	P.J.Simmonds+	F0079
$t,d$	$^{14}\text{C}$	DAP	2UK ALD	3.8+07		Jour	NP/A,482,653	88	P.J.Simmonds+	F0079
$t,\text{el}$	$^{13}\text{C}$	DA	2UK ALD	3.8+07		Jour	NP/A,482,653	88	P.J.Simmonds+	F0079
$t,\text{inel}$	$^{13}\text{C}$	DAP	2UK ALD	3.8+07		Jour	NP/A,482,653	88	P.J.Simmonds+	F0079
$\alpha,\text{el}$	$^{13}\text{C}$	DA	4RUSTPI	1.8+07	2.7+07	Jour	YF,18,950	73	B.I.Kuznetsov+	F0697
$\alpha,\text{el}$	$^{13}\text{C}$	DA	2GERBON	4.9+07	5.4+07	Jour	ZP/A,326,373	87	H.Abele+	D0146
$\alpha,n$	$^{16}\text{O}$	POD	2GERIFS	2.4+06	3.3+06	Jour	NIM/A,292,359	90	W.Weiss+	F0699

**6 Carbon 14**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$^{11}\text{B},\text{el}$	$^{14}\text{C}$	DA	3POLWWA	4.5+07		Jour	NP/A,753,13	05	S.Yu.Mezhevych+	D0284
$^{11}\text{B},\text{inel}$	$^{14}\text{C}$	DAP	3POLWWA	4.5+07		Jour	NP/A,753,13	05	S.Yu.Mezhevych+	D0284

**7 Nitrogen 14**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$d,\alpha$	$^{12}\text{C}$	CSP	2SWTZUR	2.3+06	5.8+06	Jour	HPA,40,973	67	K.Boehle+	F0719
$d,\alpha$	$^{12}\text{C}$	DA	2SWTZUR	2.3+06	5.7+06	Jour	HPA,40,973	67	K.Boehle+	F0719
$d,\alpha$	$^{12}\text{C}$	DAP	2SWTZUR	2.0+06	5.7+06	Jour	HPA,40,973	67	K.Boehle+	F0719
$d,\text{el}$	$^{14}\text{N}$	DA	2SWTZUR	2.0+06	3.7+06	Jour	HPA,40,973	67	K.Boehle+	F0719
$d,n$	$^{15}\text{O}$	DAP	2GERBER	5.6+06	6.0+06	Jour	NP/A,172,618	71	J.Bommer+	F0708
$d,p$	$^{15}\text{N}$	CSP	3HUNDEB	3.2+05	6.3+05	Jour	NP/A,270,200	76	A.Valek+	F0706
$d,p$	$^{15}\text{N}$	DA	2SWTZUR	2.4+06	3.2+06	Jour	HPA,40,973	67	K.Boehle+	F0719
$d,p$	$^{15}\text{N}$	DAP	2SWTZUR	2.0+06	3.7+06	Jour	HPA,40,973	67	K.Boehle+	F0719
$d,p$	$^{15}\text{N}$	DAP	3HUNDEB	3.1+05	6.4+05	Jour	NP/A,270,200	76	A.Valek+	F0706
$\alpha,3\alpha$	$^6\text{Li}$	CS	2ZZZITU	3.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,\alpha+^7\text{Li}$	$^7\text{Be}$	CS	2ZZZITU	4.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,d+^6\text{Li}$	$^{10}\text{B}$	CS	2ZZZITU	5.1+07		Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,d+^7\text{Be}$	$^9\text{Be}$	CS	2ZZZITU	5.1+07		Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,\text{el}$	$^{14}\text{N}$	DA	2UK BIR	2.0+07	2.3+07	Jour	ARS,65,307	69	J.L.Ferrero+	D0311
$\alpha,\text{el}$	$^{14}\text{N}$	DA	2GERBON	4.9+07	5.4+07	Jour	ZP/A,326,373	87	H.Abele+	D0146
$\alpha,p+^6\text{He}$	$^{11}\text{C}$	CS	2ZZZITU	4.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,p+^6\text{Li}$	$^{11}\text{B}$	CS	2ZZZITU	4.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,p+^7\text{Li}$	$^{10}\text{B}$	CS	2ZZZITU	4.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,p+^7\text{Be}$	$^{10}\text{Be}$	CS	2ZZZITU	5.1+07		Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586

$\alpha,x$	${}^7\text{Li}$	CS	2ZZZITU	5.1+07		Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,x$	${}^7\text{Be}$	CS	2ZZZITU	4.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,x$	${}^9\text{Be}$	CS	2ZZZITU	3.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,x$	${}^{10}\text{Be}$	CS	2ZZZITU	4.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,x$	${}^{10}\text{B}$	CS	2ZZZITU	3.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,x$	${}^{11}\text{B}$	CS	2ZZZITU	3.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,x$	${}^{11}\text{C}$	CS	2ZZZITU	3.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586

**7 Nitrogen 15**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\alpha,el$	${}^{15}\text{N}$	DA	2GERBON	4.9+07	5.4+07	Jour	ZP/A,326,373	87	H.Abele+	D0146

**8 Oxygen**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$t,x$	${}^{18}\text{O}$	TTD	2FR STR	2.0+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$t,x$	${}^{18}\text{F}$	TTD	2FR STR	2.0+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$\alpha,n$	${}^{21}\text{Ne}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

**8 Oxygen 16**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,el$	${}^{16}\text{O}$	DA	3BZLUSP	1.5+06	3.0+06	Jour	NP,68,417	65	V.Gomes+	D0323
$p,non$		CS	2SWDUPP	6.6+07		Jour	NP/A,653,341	99	A.Ingemarsson+	D0174
$d,el$	${}^{16}\text{O}$	DA	2UK LVP	1.0+07	1.3+07	Jour	NP/A,97,541	67	J.L.Altly+	F0713
$d,el$	${}^{16}\text{O}$	DA	2GERMUN	2.0+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
$d,el$	${}^{16}\text{O}$	POD	2GERMUN	2.0+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
$d,inel$	${}^{16}\text{O}$	DAP	2GERMUN	2.0+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
$d,inel$	${}^{16}\text{O}$	POD	2GERMUN	2.0+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
$d,n$	${}^{17}\text{F}$	CS	2SWTZUR	1.9+06	1.2+07	Jour	HPA,41,1028	68	P.Marmier+	F0720
$d,n$	${}^{17}\text{F}$	CSP	2SWDAE	3.0+06	5.5+06	Jour	ZP,233,181	70	G.Lodin+	F0724
$d,n$	${}^{17}\text{F}$	DAP	2SWDAE	2.5+06	5.5+06	Jour	ZP,233,181	70	G.Lodin+	F0724
$d,p$	${}^{17}\text{O}$	DAP	2UK LVP	1.1+07	1.3+07	Jour	NP/A,97,541	67	J.L.Altly+	F0713
$d,p$	${}^{17}\text{O}$	DAP	2UK LVP	6.0+06	1.1+07	Jour	NP/A,112,76	68	I.M.Naqib+	F0712
$d,p$	${}^{17}\text{O}$	TTP	2GERZFK	6.4+05	3.6+06	Rept	ZFK-443,107	80	C.Bauer+	D0316
$t,n$	${}^{18}\text{F}$	DA	1USALAS	1.6+07	2.0+07	Jour	NIM/B,73,387	93	M.Drosg+	F0710
$t,n$	${}^{18}\text{F}$	TT	1USALAS	3.9+06	1.2+07	Jour	NIM/B,24/25,722	87	N.Bordes+	F0703
${}^3\text{He},\alpha$	${}^{15}\text{O}$	DA	2FR PAR	1.6+06	2.6+06	Jour	NIM/B,45,100	90	F.Abel+	D0326
${}^3\text{He},non$		CS	2SWDUPP	9.6+07	1.7+08	Jour	NP/A,696,3	01	A.Ingemarsson+	D0185
$\alpha,0$		RP	2NEDUTR	0.0+00		Jour	NIM,211,193	83	Z.L.Wang+	F0258
$\alpha,2p+{}^6\text{He}$	${}^{12}\text{C}$	CS	2ZZZITU	5.1+07		Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,2p+2\alpha$	${}^{10}\text{Be}$	CS	2ZZZITU	5.1+07		Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,\alpha+{}^6\text{Li}$	${}^{10}\text{B}$	CS	2ZZZITU	5.1+07		Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,\alpha+{}^7\text{Be}$	${}^9\text{Be}$	CS	2ZZZITU	5.1+07		Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,d+{}^6\text{Li}$	${}^{12}\text{C}$	CS	2ZZZITU	4.3+07	5.1+07	Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586
$\alpha,d+{}^7\text{Be}$	${}^{11}\text{B}$	CS	2ZZZITU	5.1+07		Jour	NC/A,49,235	79	A.Vidal-Quadras+	F0586



$\alpha,n$	$^{22}\text{Na}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$\alpha,p$	$^{22}\text{Ne}$	DAP	3HUNDEB	1.5+06	3.7+06	Jour	NP/A,413,311	84	J.Cseh+	D0325
$\alpha,p$	$^{22}\text{Ne}$	TTD	3HUNDEB	1.5+06	3.7+06	Jour	NP/A,413,311	84	J.Cseh+	D0325
$\alpha,p$	$^{22}\text{Ne}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

**10 Neon 20**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\alpha,d$	$^{22}\text{Na}$	DAP	2BLGPCL	2.1+07		Jour	JPR/L,1,1	74	E.Labie+	F0678
$\alpha,el$	$^{20}\text{Ne}$	DA	2GERBON	5.4+07		Jour	ZP/A,326,373	87	H.Abele+	D0146

**10 Neon 22**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\alpha,d$	$^{24}\text{Na}$	DAP	2BLGPCL	2.2+07		Jour	JPR/L,1,1	74	E.Labie+	F0678

**11 Sodium 23**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$d,p$	$^{24}\text{Na}$	DAP	2GERLMU	1.7+07		Jour	PR/C,69,014312	04	I.Tomandl+	D0297
$d,p$	$^{24}\text{Na}$	POD	2GERLMU	1.7+07		Jour	PR/C,69,014312	04	I.Tomandl+	D0297
$t,\alpha$	$^{22}\text{Ne}$	TTD	2FR STR	2.0+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$t,d$	$^{24}\text{Na}$	TTD	2FR STR	2.0+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$t,p$	$^{25}\text{Na}$	TTD	2FR STR	2.0+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$\alpha,inel$	$^{23}\text{Na}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$\alpha,p$	$^{26}\text{Mg}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

**12 Magnesium**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$d,el$	$^{nat}\text{Mg}$	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
$t,x$	$^{23}\text{Na}$	TTD	2FR STR	2.0+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$t,x$	$^{26}\text{Al}$	TTD	2FR STR	2.0+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$\alpha,el$	$^{nat}\text{Mg}$	DA	3CPRFUD	2.1+06	8.4+06	Jour	NIM/B,85,47	94	C.Huan-Sheng+	D0155

**12 Magnesium 24**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,el$	$^{24}\text{Mg}$	CS	4RUSMOS	4.8+06	1.3+07	Jour	IZV,48,977	84	E.A.Romanovskij+	F0578
$p,el$	$^{24}\text{Mg}$	DA	2ITYMIL	3.5+07		Jour	PR/C,33,40	86	M.Pignanelli+	F0256
$p,el$	$^{24}\text{Mg}$	DA	4RUSMOS	4.3+06	4.9+06	Jour	IZV,48,977	84	E.A.Romanovskij+	F0578



<i>p</i> ,el	<sup>24</sup> Mg	DA	2UK NIN	5.0+07		Jour	NP/A,104,340	67	A.A.Rush+	D0294
<i>p</i> ,el	<sup>24</sup> Mg	DA	4RUSMOS	5.8+06	7.6+06	Jour	IZV,48,977	84	E.A.Romanovskij+	F0578
<i>p</i> ,el	<sup>24</sup> Mg	DAP	2UK NIN	5.0+07		Jour	NP/A,104,340	67	A.A.Rush+	D0294
<i>p</i> ,el	<sup>24</sup> Mg	POD	2UK NIN	4.9+07		Jour	NP/A,101,589	67	V.E.Lewis+	D0293
<i>p</i> ,inel	<sup>24</sup> Mg	DAP	2ITYMIL	3.5+07	5.0+07	Jour	PR/C,33,40	86	M.Pignanelli+	F0256
<i>d</i> ,inel	<sup>24</sup> Mg	DAP	2FR PAR	8.2+07		Jour	NP/A,174,485	71	G.Duhamel+	D0228
$\alpha$ ,0		RP	2NEDGRN	0.0+00		Jour	NCL,2,209	69	J.D.A.Roeders+	F0694
$\alpha$ ,el	<sup>24</sup> Mg	DA	2ITYMIL	1.2+08		Jour	PR/C,33,40	86	M.Pignanelli+	F0256
$\alpha$ ,el	<sup>24</sup> Mg	DA	4KASKAZ	3.9+07	5.0+07	Jour	IZV,53,37	89	S.Ya.Aisina+	F0497
$\alpha$ ,inel	<sup>24</sup> Mg	DAP	2ITYMIL	1.2+08		Jour	PR/C,33,40	86	M.Pignanelli+	F0256
$\alpha$ ,inel	<sup>24</sup> Mg	DAP	4KASKAZ	3.9+07	5.0+07	Jour	IZV,53,37	89	S.Ya.Aisina+	F0497

**12                      Magnesium                      25**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>t</i> , <i>p</i>	<sup>27</sup> Mg	TT	1USALAS	3.5+06	1.2+07	Jour	NIM/B,24/25,722	87	N.Bordes+	F0703

**12                      Magnesium                      26**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>t</i> , <i>p</i>	<sup>28</sup> Mg	TT	1USALAS	3.5+06	1.2+07	Jour	NIM/B,24/25,722	87	N.Bordes+	F0703

**13                      Aluminium                      27**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	<sup>27</sup> Al	DA	2SWDUPP	1.6+08		Jour	NP,21,383	60	A.Johansson+	D0283
<i>p</i> ,el	<sup>27</sup> Al	POD	2SWDUPP	1.6+08		Jour	NP,21,383	60	A.Johansson+	D0283
<i>p</i> ,non		CS	2UK HAR	8.9+06	1.0+07	Jour	NP,73,206	65	K.Bearpark+	D0314
<i>d</i> ,el	<sup>27</sup> Al	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
<i>d</i> ,el	<sup>27</sup> Al	DA	2FR PAR	8.0+07		Jour	NP/A,174,485	71	G.Duhamel+	D0228
<i>d</i> ,tot		CS	4UKRIJD	1.3+07		Jour	YF,20,624	74	L.V.Dubar+	F0579
<i>t</i> , <i>p</i>	<sup>29</sup> Al	TT	1USALAS	3.9+06	1.2+07	Jour	NIM/B,24/25,722	87	N.Bordes+	F0703
$\alpha$ ,el	<sup>27</sup> Al	DA	3CPRFUD	2.1+06	9.0+06	Jour	NIM/B,85,47	94	C.Huan-Sheng+	D0155
$\alpha$ ,el	<sup>27</sup> Al	DA	3POLIFJ	2.8+07		Jour	APP/B,3,533	72	A.Bobrowska+	F0598

**14                      Silicon**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d</i> ,el	<sup>nat</sup> Si	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
<i>t</i> , <i>x</i>	<sup>30</sup> P	TTD	2FR STR	3.0+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$\alpha$ ,el	<sup>nat</sup> Si	DA	3CPRFUD	2.0+06	9.0+06	Jour	NIM/B,85,47	94	C.Huan-Sheng+	D0155

14 Silicon 28										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>28</sup> Si	DA	2ITYMIL	3.5+07		Jour	PR/C,33,40	86	M.Pignanelli+	F0256
<i>p,inel</i>	<sup>28</sup> Si	DAP	2ITYMIL	3.5+07	4.0+07	Jour	PR/C,33,40	86	M.Pignanelli+	F0256
<i>p,non</i>		CS	2SWDUPP	6.6+07		Jour	NP/A,653,341	99	A.Ingemarsson+	D0174
<i>t,n</i>	<sup>30</sup> P	TT	1USALAS	3.6+06	1.2+07	Jour	NIM/B,24/25,722	87	N.Bordes+	F0703
<sup>3</sup> He,non		CS	2SWDUPP	9.6+07	1.7+08	Jour	NP/A,696,3	01	A.Ingemarsson+	D0185
<sup>3</sup> He, <i>p</i>	<sup>30</sup> P	DAP	4ZZZDUB	3.0+06	4.3+06	Jour	YF,18,954	73	Yu.V.Nikitenko+	F0696
<i>α,0</i>		RP	2SF ABA	0.0+00		Jour	EPJ/A,16,159	03	K.-M.Kallman+	F0608
<i>α,d</i>	<sup>30</sup> P	DAP	3POLIFJ	2.6+07		Jour	NP/A,426,1	84	K.Jankowski+	F0655
<i>α,el</i>	<sup>28</sup> Si	DA	3POLPOL	2.4+07	2.8+07	Jour	APP/B,7,531	76	L.Jarczyk+	F0595
<i>α,el</i>	<sup>28</sup> Si	DA	3POLIFJ	2.8+07		Jour	APP/B,3,533	72	A.Bobrowska+	F0598
<i>α,el</i>	<sup>28</sup> Si	DA	4KASKAZ	3.9+07		Jour	IZV,53,37	89	S.Ya.Aisina+	F0497
<i>α,el</i>	<sup>28</sup> Si	DA	3SAFITH	4.4+06	1.1+07	Jour	ZP/A,325,175	86	J.J.Lawrie+	F0658
<i>α,el</i>	<sup>28</sup> Si	DA	2SF ABA	6.4+06	1.9+07	Jour	EPJ/A,16,159	03	K.-M.Kallman+	F0608
<i>α,el</i>	<sup>28</sup> Si	DAP	3POLIFJ	2.6+07		Jour	NP/A,426,1	84	K.Jankowski+	F0655
<i>α,inel</i>	<sup>28</sup> Si	DAA	3POLIFJ	2.8+07	2.7+07	Jour	APP/B,13,767	82	K.Bodek+	F0597
<i>α,inel</i>	<sup>28</sup> Si	DAP	3POLPOL	2.4+07	2.8+07	Jour	APP/B,7,531	76	L.Jarczyk+	F0595
<i>α,inel</i>	<sup>28</sup> Si	DAP	3POLIFJ	2.4+07	2.8+07	Jour	APP/B,13,767	82	K.Bodek+	F0597
<i>α,non</i>		CS	2SWDTLU	7.4+07	1.9+08	Jour	PR/C,50,871	94	A.Auce+	D0169
<i>α,p</i>	<sup>31</sup> P	DAP	3POLIFJ	2.6+07		Jour	NP/A,426,1	84	K.Jankowski+	F0655

14 Silicon 30										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>α,el</i>	<sup>30</sup> Si	DA	4KASKAZ	4.1+07		Jour	IZV,53,37	89	S.Ya.Aisina+	F0497

15 Phosphorus 31										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>α,n</i>	<sup>34</sup> Cl	TT	2JPNTOH	8.9+06	3.7+07	Jour	JRC,78,233	83	K.Masumoto+	F0618

16 Sulphur										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,el</i>	<sup>nat</sup> S	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
<i>t,x</i>	<sup>33</sup> S	TTD	2FR STR	3.0+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t,x</i>	<sup>34</sup> Cl	TTD	2FR STR	3.0+06		Jour	NIM,156,483	78	B.Borderie+	F0239

16 Sulphur 32										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					

$t,n$	$^{34}\text{Cl}$	TT	1USALAS	3.4+06	1.2+07	Jour	NIM/B,24/25,722	87	N.Bordes+	F0703
$\alpha,el$	$^{32}\text{S}$	DA	3POLIFJ	2.8+07		Jour	APP/B,3,533	72	A.Bobrowska+	F0598
$\alpha,n+p$	$^{34}\text{Cl}$	TT	2JPNTOH	1.7+07	3.7+07	Jour	JRC,78,233	83	K.Masumoto+	F0618
$\alpha,p$	$^{35}\text{Cl}$	DAA	2UK LVP	1.5+07		Jour	JP/A,7,1977	74	P.R.G.Lornie+	F0686

**17 Chlorine**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\alpha,el$	$^{nat}\text{Cl}$	DA	3CPRFUD	2.1+06	8.7+06	Jour	NIM/B,85,47	94	C.Huan-Sheng+	D0155

**17 Chlorine 35**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$d,0$		RP	3CZRUFJ	1.2+07		Jour	NP/A,481,269	88	S.Piskor+	F0157
$d,p$	$^{36}\text{Cl}$	DAP	3CZRUFJ	1.2+07		Jour	NP/A,481,269	88	S.Piskor+	F0157
$\alpha,n+\alpha$	$^{34}\text{Cl}$	TT	2JPNTOH	2.0+07	3.7+07	Jour	JRC,78,233	83	K.Masumoto+	F0618

**18 Argon 38**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$d,p$	$^{39}\text{Ar}$	DAP	2GERMPH	1.2+07		Jour	NP/A,114,392	68	W.Fitz+	D0268
$d,t$	$^{37}\text{Ar}$	DAP	2GERMPH	1.2+07		Jour	NP/A,114,392	68	W.Fitz+	D0268

**18 Argon 40**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$d,p$	$^{41}\text{Ar}$	DAP	2GERMPH	1.2+07		Jour	NP/A,114,392	68	W.Fitz+	D0268
$d,t$	$^{39}\text{Ar}$	DAP	2GERMPH	1.2+07		Jour	NP/A,114,392	68	W.Fitz+	D0268

**19 Potassium 39**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$d,el$	$^{39}\text{K}$	DA	2DENNBI	1.3+07		Jour	NP/A,187,355	72	B.Elbek+	D0341
$d,inel$	$^{39}\text{K}$	DAP	2DENNBI	1.3+07		Jour	NP/A,187,355	72	B.Elbek+	D0341
$\alpha,el$	$^{39}\text{K}$	DA	3POLIFJ	2.2+07	2.8+07	Jour	NP/A,126,361	69	A.Bobrowska+	F0715

**20 Calcium**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,el</i>	<sup>nat</sup> Ca	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266

**20 Calcium 40**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>40</sup> Ca	DA	2FR CSN	7.5+07	1.5+08	Jour	NP,80,625	66	C.Rolland+	D0290
<i>p,el</i>	<sup>40</sup> Ca	POD	2FR CSN	7.5+07	1.5+08	Jour	NP,80,625	66	C.Rolland+	D0290
<i>p,non</i>		CS	2SWDUPP	6.6+07		Jour	NP/A,653,341	99	A.Ingemarsson+	D0174
<sup>3</sup> He, $\alpha$	<sup>39</sup> Ca	DAP	2DENNBI	1.6+07	2.7+07	Jour	NP/A,246,477	75	H.J.Apell+	F0629
<sup>3</sup> He,non		CS	2SWDUPP	9.6+07	1.7+08	Jour	NP/A,696,3	01	A.Ingemarsson+	D0185
$\alpha,el$	<sup>40</sup> Ca	DA	2DENNBI	1.9+07	2.6+07	Jour	NP/A,246,477	75	H.J.Apell+	F0629
$\alpha,el$	<sup>40</sup> Ca	DA	3POLIFJ	2.5+07		Jour	NP/A,126,361	69	A.Bobrowska+	F0715
$\alpha,non$		CS	2SWDTLU	7.4+07	1.9+08	Jour	PR/C,50,871	94	A.Auce+	D0169

**20 Calcium 41**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<sup>3</sup> He, $\alpha$	<sup>40</sup> Ca	DAP	2DENNBI	1.6+07	2.7+07	Jour	NP/A,246,477	75	H.J.Apell+	F0629
$\alpha,el$	<sup>41</sup> Ca	DA	2DENNBI	1.9+07	2.6+07	Jour	NP/A,246,477	75	H.J.Apell+	F0629

**20 Calcium 42**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\alpha,el$	<sup>42</sup> Ca	DA	4KASKAZ	4.2+07		Jour	IZV,53,37	89	S.Ya.Aisina+	F0497

**20 Calcium 48**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,el</i>	<sup>48</sup> Ca	DA	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<i>d,el</i>	<sup>48</sup> Ca	POD	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<i>d,inel</i>	<sup>48</sup> Ca	DAP	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<i>d,inel</i>	<sup>48</sup> Ca	POD	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
$\alpha,non$		CS	2SWDTLU	7.4+07	1.9+08	Jour	PR/C,50,871	94	A.Auce+	D0169

**21 Scandium 45**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					

<i>d</i> ,non	CS	4UKRIJD	1.4+07	Jour	JP/G,7,1699	81	M.P.Bilaniuk+	D5003
<i>α</i> ,non	CS	4UKRIJD	2.7+07	Jour	JP/G,7,1699	81	M.P.Bilaniuk+	D5003

**22 Titanium**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d</i> ,el	<sup>nat</sup> Ti	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
<i>t</i> ,x	<sup>49</sup> Ti	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> ,x	<sup>50</sup> Ti	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> ,x	<sup>48</sup> V	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> ,x	<sup>50</sup> V	TTD	2FR STR	3.0+06	3.5+06	Jour	NIM,156,483	78	B.Borderie+	F0239
<i>α</i> ,el	<sup>nat</sup> Ti	DA	3POLIFJ	2.8+07		Jour	APP/B,3,533	72	A.Bobrowska+	F0598
<i>α</i> ,inel	<sup>47</sup> Ti	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

**22 Titanium 48**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	<sup>48</sup> Ti	DA	2FR SAC	1.9+07		Jour	NP/A,94,513	67	P.Kossanyi-Demay+	D0286
<i>p</i> ,el	<sup>48</sup> Ti	POD	2FR SAC	1.9+07		Jour	NP/A,94,513	67	P.Kossanyi-Demay+	D0286
<i>d</i> ,non	CS	4UKRIJD	1.4+07	Jour	JP/G,7,1699	81	M.P.Bilaniuk+	D5003		
<i>α</i> ,non	CS	4UKRIJD	2.7+07	Jour	JP/G,7,1699	81	M.P.Bilaniuk+	D5003		

**22 Titanium 50**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	<sup>50</sup> Ti	DA	2FR SAC	1.9+07		Jour	NP/A,94,513	67	P.Kossanyi-Demay+	D0286
<i>p</i> ,el	<sup>50</sup> Ti	POD	2FR SAC	1.9+07		Jour	NP/A,94,513	67	P.Kossanyi-Demay+	D0286

**23 Vanadium**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,x	<sup>46</sup> Sc	TT	2ITYMIL	3.2+07	4.4+07	Jour	JRC,34,191	76	E.Acerbi+	D0260
<i>p</i> ,x	<sup>47</sup> Sc	TT	2ITYMIL	2.4+07	4.4+07	Jour	JRC,34,191	76	E.Acerbi+	D0260
<i>p</i> ,x	<sup>48</sup> V	TT	2ITYMIL	2.7+07	4.4+07	Jour	JRC,34,191	76	E.Acerbi+	D0260
<i>p</i> ,x	<sup>51</sup> Cr	TT	2ITYMIL	6.9+06	4.4+07	Jour	JRC,34,191	76	E.Acerbi+	D0260
<i>t</i> ,x	<sup>52</sup> V	?	2FR STR	3.0+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>α</i> ,inel	<sup>51</sup> V	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

## 23

## Vanadium

51

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d</i> ,non	<sup>52</sup> V	CS	4UKRIJD	1.4+07		Jour	JP/G,7,1699	81	M.P.Bilaniuk+	D5003
<i>t</i> , <i>d</i>		DAP	2UK ALD	3.3+07		Jour	NP/A,472,189	87	O.Karban+	F0087
<i>α</i> ,non		CS	4UKRIJD	2.7+07		Jour	JP/G,7,1699	81	M.P.Bilaniuk+	D5003

## 24

## Chromium

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>t</i> , <i>x</i>	<sup>53</sup> Cr	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> , <i>x</i>	<sup>54</sup> Cr	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> , <i>x</i>	<sup>54</sup> Mn	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> , <i>x</i>	<sup>55</sup> Mn	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> , <i>x</i>	<sup>56</sup> Mn	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

## 24

## Chromium

52

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n</i> , <i>2n</i>	<sup>51</sup> Cr	CSP	2ZZZGEL	1.3+07	1.8+07	Jour	NIM/A,531,375	04	L.C.Mihailescu+	22870
<i>n</i> , <i>2n</i>	<sup>51</sup> Cr	DAP	2ZZZGEL	1.3+07	1.8+07	Jour	NIM/A,531,375	04	L.C.Mihailescu+	22870
<i>n</i> ,inel	<sup>52</sup> Cr	CS	2ZZZGEL	1.5+06	1.8+07	Jour	NIM/A,531,375	04	L.C.Mihailescu+	22870
<i>n</i> ,inel	<sup>52</sup> Cr	CSP	2ZZZGEL	1.5+06	1.8+07	Jour	NIM/A,531,375	04	L.C.Mihailescu+	22870
<i>n</i> ,inel	<sup>52</sup> Cr	DAP	2ZZZGEL	1.5+06	1.8+07	Jour	NIM/A,531,375	04	L.C.Mihailescu+	22870
<i>p</i> ,el	<sup>52</sup> Cr	DA	2FR SAC	1.9+07		Jour	NP/A,94,513	67	P.Kossanyi-Demay+	D0286
<i>p</i> ,el	<sup>52</sup> Cr	POD	2FR SAC	1.6+07	1.9+07	Jour	NP/A,94,513	67	P.Kossanyi-Demay+	D0286
<i>d</i> ,non	<sup>53</sup> Cr	CS	4UKRIJD	1.4+07		Jour	JP/G,7,1699	81	M.P.Bilaniuk+	D5003
<i>d</i> , <i>p</i>		DAP	2UK LVP	7.0+06	8.0+06	Jour	NP,56,465	64	P.T.Andrews+	D0265
<i>α</i> ,non		CS	4UKRIJD	2.7+07		Jour	JP/G,7,1699	81	M.P.Bilaniuk+	D5003

## 24

## Chromium

53

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d</i> ,non	CS		4UKRIJD	1.4+07		Jour	JP/G,7,1699	81	M.P.Bilaniuk+	D5003
<i>α</i> ,non			4UKRIJD	2.7+07		Jour	JP/G,7,1699	81	M.P.Bilaniuk+	D5003

## 24

## Chromium

54

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d</i> ,non	CS		4UKRIJD	1.4+07		Jour	JP/G,7,1699	81	M.P.Bilaniuk+	D5003
<i>α</i> ,non			4UKRIJD	2.7+07		Jour	JP/G,7,1699	81	M.P.Bilaniuk+	D5003



**26 Iron 57**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$^3\text{He},\alpha$	$^{56}\text{Fe}$	DAE	4KASKAZ	2.3+07		Jour	IZV,48,1006	84	N.T.Burtebaeva.D.Dujsebaev+	F0570
$^3\text{He},d$	$^{58}\text{Co}$	DAE	4KASKAZ	2.3+07		Jour	IZV,48,1006	84	N.T.Burtebaeva.D.Dujsebaev+	F0570
$^3\text{He},p$	$^{59}\text{Co}$	DAE	4KASKAZ	2.3+07		Jour	IZV,48,1006	84	N.T.Burtebaeva.D.Dujsebaev+	F0570

**26 Iron 58**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\alpha,\text{el}$	$^{58}\text{Fe}$	DA	4KASKAZ	6.4+07		Jour	IZV,53,37	89	S.Ya.Aisina+	F0497

**27 Cobalt 59**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,\alpha$	$^{56}\text{Fe}$	DAE	4KASKAZ	3.0+07		Jour	IZV,48,1006	84	N.T.Burtebaeva.D.Dujsebaev+	F0570
$p,d$	$^{58}\text{Co}$	DAE	4KASKAZ	3.0+07		Jour	IZV,48,1006	84	N.T.Burtebaeva.D.Dujsebaev+	F0570
$p,\text{el}$	$^{59}\text{Co}$	DAE	4KASKAZ	3.0+07		Jour	IZV,48,1006	84	N.T.Burtebaeva.D.Dujsebaev+	F0570
$p,\text{non}$		CS	2UK HAR	8.7+06	1.0+07	Jour	NP,73,206	65	K.Bearpark+	D0314
$d,\text{tot}$		CS	4UKRIJD	1.3+07		Jour	YF,20,624	74	L.V.Dubar+	F0579
$t,d$	$^{60}\text{Co}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$t,n$	$^{61}\text{Ni}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$\alpha,\text{el}$	$^{59}\text{Co}$	DA	3POLIFJ	2.8+07		Jour	APP/B,3,533	72	A.Bobrowska+	F0598
$^{12}\text{C},x$	$^8\text{Be}$	CSP	3SAFITH	1.0+08	4.0+08	Jour	EPJ/A,11,161	01	E.Gadioli+	D0302
$^{12}\text{C},x$	$^8\text{Be}$	DAE	3SAFITH	1.0+08	4.0+08	Jour	EPJ/A,11,161	01	E.Gadioli+	D0302

**28 Nickel**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,\text{non}$		CS	2UK HAR	1.1+07	1.2+07	Jour	NIM,35,235	65	K.Bearpark+	D0337
$p,\text{non}$		CS	2UK HAR	9.7+06	1.1+07	Jour	NP,73,206	65	K.Bearpark+	D0314
$d,\text{el}$	$^{nat}\text{Ni}$	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
$d,\text{non}$		CS	2UK HAR	1.1+07	1.2+07	Jour	NP,73,206	65	K.Bearpark+	D0314
$d,\text{tot}$		CS	4UKRIJD	1.3+07		Jour	YF,20,624	74	L.V.Dubar+	F0579
$t,x$	$^{59}\text{Ni}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$t,x$	$^{60}\text{Ni}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$t,x$	$^{62}\text{Cu}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$t,x$	$^{64}\text{Cu}$	?	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

**28 Nickel 58**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,\text{el}$	$^{58}\text{Ni}$	DA	2SWDUPP	1.8+08		Jour	NP/A,365,426	81	A.Ingemarsson+	D0189



<i>p</i> ,el	<sup>58</sup> Ni	DA	2FR SAC	1.9+07		Jour	NP/A,94,513	67	P.Kossanyi-Demay+	D0286
<i>p</i> ,el	<sup>58</sup> Ni	POD	2SWDUPP	1.8+08		Jour	NP/A,365,426	81	A.Ingemarsson+	D0189
<i>p</i> ,el	<sup>58</sup> Ni	POD	2FR SAC	1.9+07		Jour	NP/A,94,513	67	P.Kossanyi-Demay+	D0286
<i>p</i> ,inel	<sup>58</sup> Ni	DAP	2SWDUPP	1.8+08		Jour	NP/A,365,426	81	A.Ingemarsson+	D0189
<i>p</i> ,inel	<sup>58</sup> Ni	POD	2SWDUPP	1.8+08		Jour	NP/A,365,426	81	A.Ingemarsson+	D0189
<i>p</i> ,non		CS	2SWDUPP	6.6+07		Jour	NP/A,653,341	99	A.Ingemarsson+	D0174
<i>p</i> ,non		CS	2UK HAR	9.1+06		Jour	NP,73,206	65	K.Bearpark+	D0314
<i>d</i> ,el	<sup>58</sup> Ni	DA	2GERMUN	2.0+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<i>d</i> ,el	<sup>58</sup> Ni	DA	2FR PAR	8.0+07		Jour	NP/A,174,485	71	G.Duhamel+	D0228
<i>d</i> ,el	<sup>58</sup> Ni	POD	2UK BIR	1.2+07		Jour	NP/A,112,209	68	A.M.Baxter+	D0264
<i>d</i> ,el	<sup>58</sup> Ni	POD	2GERMUN	2.0+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<i>d</i> ,inel	<sup>58</sup> Ni	DAP	2FR PAR	8.2+07		Jour	NP/A,174,485	71	G.Duhamel+	D0228
<i>d</i> ,non		CS	2UK HAR	1.1+07		Jour	NP,73,206	65	K.Bearpark+	D0314
<sup>3</sup> He,non		CS	2SWDUPP	9.6+07	1.7+08	Jour	NP/A,696,3	01	A.Ingemarsson+	D0185
$\alpha$ ,el	<sup>58</sup> Ni	DA	2BLGPCL	2.5+07	5.8+07	Jour	PR/C,17,951	78	A.Budzanowski+	D0296
$\alpha$ ,el	<sup>58</sup> Ni	DA	4KASKAZ	5.0+07		Jour	IZV,53,37	89	S.Ya.Aisina+	F0497
$\alpha$ ,inel	<sup>58</sup> Ni	DAP	2BLGPCL	2.9+07	5.8+07	Jour	PR/C,17,951	78	A.Budzanowski+	D0296
$\alpha$ ,non		CS	2SWDTLU	7.4+07	1.9+08	Jour	PR/C,50,871	94	A.Auce+	D0169

**28                      Nickel                      60**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	<sup>60</sup> Ni	DA	2SWDUPP	1.8+08		Jour	NP/A,365,426	81	A.Ingemarsson+	D0189
<i>p</i> ,el	<sup>60</sup> Ni	DA	2FR SAC	1.9+07		Jour	NP/A,94,513	67	P.Kossanyi-Demay+	D0286
<i>p</i> ,el	<sup>60</sup> Ni	POD	2FR SAC	1.6+07		Jour	NP/A,94,513	67	P.Kossanyi-Demay+	D0286
<i>p</i> ,el	<sup>60</sup> Ni	POD	2SWDUPP	1.8+08		Jour	NP/A,365,426	81	A.Ingemarsson+	D0189
<i>p</i> ,inel	<sup>60</sup> Ni	DAP	2SWDUPP	1.8+08		Jour	NP/A,365,426	81	A.Ingemarsson+	D0189
<i>p</i> ,inel	<sup>60</sup> Ni	POD	2SWDUPP	1.8+08		Jour	NP/A,365,426	81	A.Ingemarsson+	D0189
<i>p</i> ,non		CS	2SWDUPP	6.6+07		Jour	NP/A,653,341	99	A.Ingemarsson+	D0174
<i>p</i> ,non		CS	2UK HAR	9.2+06		Jour	NP,73,206	65	K.Bearpark+	D0314
<i>d</i> ,non		CS	2UK HAR	1.0+07	1.1+07	Jour	NP,73,206	65	K.Bearpark+	D0314
<i>d</i> ,p	<sup>61</sup> Ni	DAE	4KASKAZ	2.5+07		Jour	IZV,48,1006	84	N.T.Burtebaeva.D.Dujsebaev+	F0570
<i>d</i> ,tot		CS	4UKRIJD	1.4+07		Jour	YF,20,624	74	L.V.Dubar+	F0579
<sup>3</sup> He,non		CS	2SWDUPP	9.6+07	1.7+08	Jour	NP/A,696,3	01	A.Ingemarsson+	D0185
$\alpha$ ,el	<sup>60</sup> Ni	DA	2BLGPCL	2.5+07	3.8+07	Jour	PR/C,17,951	78	A.Budzanowski+	D0296
$\alpha$ ,el	<sup>60</sup> Ni	DA	4KASKAZ	3.2+07		Jour	IZV,53,37	89	S.Ya.Aisina+	F0497
$\alpha$ ,non		CS	2SWDTLU	7.4+07	1.9+08	Jour	PR/C,50,871	94	A.Auce+	D0169

**28                      Nickel                      61**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	<sup>61</sup> Ni	DAE	4KASKAZ	3.0+07		Jour	IZV,48,1006	84	N.T.Burtebaeva.D.Dujsebaev+	F0570

**28                      Nickel                      62**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	<sup>62</sup> Ni	DA	2FR SAC	1.9+07		Jour	NP/A,94,513	67	P.Kossanyi-Demay+	D0286

<i>p</i> ,el	<sup>62</sup> Ni	POD	2FR SAC	1.6+07	1.9+07	Jour	NP/A,94,513	67	P.Kossanyi-Demay+	D0286
$\alpha$ ,el	<sup>62</sup> Ni	DA	2BLGPCL	4.8+07		Jour	PR/C,17,810	78	C.Pirart+	D0288

**28 Nickel 64**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	<sup>64</sup> Ni	DA	2FR SAC	1.9+07		Jour	NP/A,94,513	67	P.Kossanyi-Demay+	D0286
<i>p</i> ,el	<sup>64</sup> Ni	POD	2FR SAC	1.9+07		Jour	NP/A,94,513	67	P.Kossanyi-Demay+	D0286
<i>d</i> ,tot		CS	4UKRIJD	1.3+07		Jour	YF,20,624	74	L.V.Dubar+	F0579
$\alpha$ ,el	<sup>64</sup> Ni	DA	2BLGPCL	4.8+07		Jour	PR/C,17,810	78	C.Pirart+	D0288

**29 Copper**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	<sup>nat</sup> Cu	POD	2UK BIR	9.1+06		Jour	PR,130,707	63	A.B.Robbins+	D0300
<i>p</i> ,non		CS	2UK HAR	8.8+06	1.1+07	Jour	NP,73,206	65	K.Bearpark+	D0314
<i>p</i> ,non		CS	2UK HAR	8.8+06	1.1+07	Jour	NIM,35,235	65	K.Bearpark+	D0337
<i>p</i> ,x	<sup>57</sup> Co	TT	2ITYMIL	3.8+07	4.4+07	Jour	JRC,34,191	76	E.Acerbi+	D0260
<i>p</i> ,x	<sup>58</sup> Co	TT	2ITYMIL	2.7+07	4.4+07	Jour	JRC,34,191	76	E.Acerbi+	D0260
<i>p</i> ,x	<sup>65</sup> Zn	TT	2ITYMIL	6.5+06	4.4+07	Jour	JRC,34,191	76	E.Acerbi+	D0260
<i>d</i> ,el	<sup>nat</sup> Cu	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
<i>d</i> ,non		CS	2UK HAR	1.1+07		Jour	NP,73,206	65	K.Bearpark+	D0314
<i>t</i> ,x	<sup>64</sup> Cu	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> ,x	<sup>65</sup> Zn	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

**29 Copper 63**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	<sup>63</sup> Cu	DA	2FR SAC	1.9+07		Jour	NP/A,94,513	67	P.Kossanyi-Demay+	D0286
<i>p</i> ,el	<sup>63</sup> Cu	POD	2FR SAC	1.9+07		Jour	NP/A,94,513	67	P.Kossanyi-Demay+	D0286
<i>p</i> ,non		CS	2UK HAR	9.1+06	1.1+07	Jour	NP,73,206	65	K.Bearpark+	D0314
<i>d</i> ,non		CS	2UK HAR	1.2+07		Jour	NP,73,206	65	K.Bearpark+	D0314
<i>d</i> ,tot		CS	4UKRIJD	1.3+07		Jour	YF,20,624	74	L.V.Dubar+	F0579
$\alpha$ ,el	<sup>63</sup> Cu	DA	2BLGPCL	4.8+07		Jour	PR/C,17,810	78	C.Pirart+	D0288

**29 Copper 65**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,non		CS	2UK HAR	9.2+06	1.1+07	Jour	NP,73,206	65	K.Bearpark+	D0314
<i>d</i> ,non		CS	2UK HAR	1.1+07		Jour	NP,73,206	65	K.Bearpark+	D0314
<i>d</i> ,tot		CS	4UKRIJD	1.3+07		Jour	YF,20,624	74	L.V.Dubar+	F0579
$\alpha$ ,el	<sup>65</sup> Cu	DA	2BLGPCL	4.8+07		Jour	PR/C,17,810	78	C.Pirart+	D0288

**30                      Zinc**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,non		CS	2UK HAR	8.8+06	1.1+07	Jour	NP,73,206	65	K.Bearpark+	D0314
<i>p</i> ,x	<sup>65</sup> Zn	TT	2ITYMIL	1.9+07	4.4+07	Jour	JRC,34,191	76	E.Acerbi+	D0260
<i>p</i> ,x	<sup>66</sup> Ga	TT	2ITYMIL	6.1+06	4.4+07	Jour	JRC,34,191	76	E.Acerbi+	D0260
<i>p</i> ,x	<sup>67</sup> Ga	TT	2ITYMIL	6.1+06	4.4+07	Jour	JRC,34,191	76	E.Acerbi+	D0260
<i>d</i> ,el	<sup>nat</sup> Zn	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
<i>d</i> ,tot		CS	4UKRIJD	1.3+07		Jour	YF,20,624	74	L.V.Dubar+	F0579
<i>t</i> ,x	<sup>65</sup> Zn	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> ,x	<sup>67</sup> Zn	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> ,x	<sup>68</sup> Ga	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

**30                      Zinc                      64**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n</i> , <i>p</i>	<sup>64</sup> Cu	CS	2GERJUL	1.4+07		Jour	RCA,92,183	Jan 04	I.Spahn+	22857
<i>p</i> ,el	<sup>64</sup> Zn	POD	2UK NIN	4.9+07		Jour	NP/A,101,589	67	V.E.Lewis+	D0293
$\alpha$ ,el	<sup>64</sup> Zn	DA	4KASKAZ	2.9+07	5.0+07	Jour	IZV,53,37	89	S.Ya.Aisina+	F0497
$\alpha$ ,el	<sup>64</sup> Zn	DA	2BLGPCL	4.8+07		Jour	PR/C,17,810	78	C.Pirart+	D0288

**30                      Zinc                      66**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\alpha$ ,el	<sup>66</sup> Zn	DA	4KASKAZ	2.9+07	5.0+07	Jour	IZV,53,37	89	S.Ya.Aisina+	F0497
$\alpha$ ,el	<sup>66</sup> Zn	DA	2BLGPCL	4.8+07		Jour	PR/C,17,810	78	C.Pirart+	D0288

**30                      Zinc                      67**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n</i> , <i>p</i>	<sup>67</sup> Cu	CS	2GERJUL	1.4+07		Jour	RCA,92,183	Jan 04	I.Spahn+	22857

**30                      Zinc                      68**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	<sup>68</sup> Zn	POD	2UK NIN	5.0+07		Jour	NP/A,101,589	67	V.E.Lewis+	D0293
<i>d</i> ,el	<sup>68</sup> Zn	DA	2FR PAR	8.0+07		Jour	NP/A,174,485	71	G.Duhamel+	D0228
<i>d</i> ,inel	<sup>68</sup> Zn	DAP	2FR PAR	8.2+07		Jour	NP/A,174,485	71	G.Duhamel+	D0228
$\alpha$ ,el	<sup>68</sup> Zn	DA	4KASKAZ	2.9+07	5.0+07	Jour	IZV,53,37	89	S.Ya.Aisina+	F0497

## 30

## Zinc

## 70

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\alpha,el$	$^{70}\text{Zn}$	DA	4KASKAZ	2.9+07	5.0+07	Jour	IZV,53,37	89	S.Ya.Aisina+	F0497

## 31

## Gallium

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$t,x$	$^{71}\text{Ge}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

## 31

## Gallium

## 71

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$t,p$	$^{73}\text{Ga}$	TT	1USALAS	4.5+06	1.2+07	Jour	NIM/B,24/25,722	87	N.Bordes+	F0703

## 32

## Germanium

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$t,x$	$^{71}\text{Ge}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$t,x$	$^{74}\text{Ge}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

## 33

## Arsenic

## 75

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$t,d$	$^{76}\text{As}$	TT	1USALAS	4.5+06	1.2+07	Jour	NIM/B,24/25,722	87	N.Bordes+	F0703
$t,inel$	$^{75}\text{As}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

## 34

## Selenium

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$d,el$	$^{nat}\text{Se}$	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
$t,inel$	$^{76}\text{Se}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$t,inel$	$^{77}\text{Se}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$t,inel$	$^{78}\text{Se}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$t,inel$	$^{80}\text{Se}$	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

**38 Strontium**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,el</i>	<sup>nat</sup> Sr	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266

**39 Yttrium 89**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,p</i>	<sup>89</sup> Sr	CS	2GERJUL	1.4+07		Jour	RCA,92,183	Jan 04	I.Spahn+	22857
<i>d,el</i>	<sup>89</sup> Y	DA	2FR PAR	8.0+07		Jour	NP/A,174,485	71	G.Duhamel+	D0228
<i>α,el</i>	<sup>89</sup> Y	DA	2GERMUN	1.8+07	2.5+07	Jour	PR/C,12,1447	75	M.Wit+	D0345

**40 Zirconium**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,el</i>	<sup>nat</sup> Zr	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266

**40 Zirconium 90**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>90</sup> Zr	DA	2FR GRE	3.0+07		Jour	CJP,55,43	77	R.Deswiniarski+	D0295
<i>p,el</i>	<sup>90</sup> Zr	POD	2FR GRE	3.0+07		Jour	CJP,55,43	77	R.Deswiniarski+	D0295
<i>p,inel</i>	<sup>90</sup> Zr	DAP	2FR GRE	3.0+07		Jour	CJP,55,43	77	R.Deswiniarski+	D0295
<i>p,inel</i>	<sup>90</sup> Zr	POD	2FR GRE	3.0+07		Jour	CJP,55,43	77	R.Deswiniarski+	D0295
<i>d,el</i>	<sup>90</sup> Zr	DA	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<i>d,el</i>	<sup>90</sup> Zr	POD	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<i>d,inel</i>	<sup>90</sup> Zr	DAP	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<i>d,inel</i>	<sup>90</sup> Zr	POD	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<i>α,el</i>	<sup>90</sup> Zr	DA	2GERMUN	1.8+07	2.5+07	Jour	PR/C,12,1447	75	M.Wit+	D0345

**40 Zirconium 91**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>α,el</i>	<sup>91</sup> Zr	DA	2GERMUN	1.8+07	2.6+07	Jour	PR/C,12,1447	75	M.Wit+	D0345

**40 Zirconium 92**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>92</sup> Zr	DA	2FR GRE	3.0+07		Jour	CJP,55,43	77	R.Deswiniarski+	D0295
<i>p,el</i>	<sup>92</sup> Zr	POD	2FR GRE	3.0+07		Jour	CJP,55,43	77	R.Deswiniarski+	D0295

<i>p</i> ,inel	<sup>92</sup> Zr	DAP	2FR GRE	3.0+07		Jour	CJP,55,43	77	R.Deswiniarski+	D0295
<i>p</i> ,inel	<sup>92</sup> Zr	POD	2FR GRE	3.0+07		Jour	CJP,55,43	77	R.Deswiniarski+	D0295

**40                      Zirconium                      94**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					

$\alpha$ ,el	<sup>94</sup> Zr	DA	2GERMUN	1.8+07	2.5+07	Jour	PR/C,12,1447	75	M.Wit+	D0345
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**41                      Niobium                      93**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					

<i>d</i> ,el	<sup>93</sup> Nb	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
$\alpha$ ,el	<sup>93</sup> Nb	DA	3POLITJ	2.3+07	2.7+07	Jour	APP/B,3,525	72	W.Karcz+	F0700
<sup>12</sup> C,x	<sup>6</sup> Li	CS	3SAFITH	2.0+08	4.0+08	Jour	EPJ/A,18,639	03	B.Becker+	D0304
<sup>12</sup> C,x	<sup>7</sup> Li	CS	3SAFITH	2.0+08	4.0+08	Jour	EPJ/A,18,639	03	B.Becker+	D0304
<sup>12</sup> C,x	<sup>7</sup> Li	DAE	3SAFITH	2.0+08	4.0+08	Jour	EPJ/A,18,639	03	B.Becker+	D0304
<sup>12</sup> C,x	<sup>7</sup> Be	CS	3SAFITH	2.0+08	4.0+08	Jour	EPJ/A,18,639	03	B.Becker+	D0304
<sup>12</sup> C,x	<sup>7</sup> Be	DAE	3SAFITH	2.0+08	4.0+08	Jour	EPJ/A,18,639	03	B.Becker+	D0304
<sup>12</sup> C,x	<sup>8</sup> Be	CSP	3SAFITH	1.0+08	4.0+08	Jour	EPJ/A,11,161	01	E.Gadioli+	D0302
<sup>12</sup> C,x	<sup>8</sup> Be	CSP	3SAFITH	2.0+08	4.0+08	Jour	EPJ/A,18,639	03	B.Becker+	D0304
<sup>12</sup> C,x	<sup>8</sup> Be	DAE	3SAFITH	1.0+08	4.0+08	Jour	EPJ/A,11,161	01	E.Gadioli+	D0302
<sup>12</sup> C,x	<sup>9</sup> Be	CS	3SAFITH	2.0+08	4.0+08	Jour	EPJ/A,18,639	03	B.Becker+	D0304
<sup>12</sup> C,x	<sup>9</sup> Be	DAE	3SAFITH	2.0+08	4.0+08	Jour	EPJ/A,18,639	03	B.Becker+	D0304
<sup>12</sup> C,x	<sup>11</sup> B	CS	3SAFITH	3.0+08	4.0+08	Jour	EPJ/A,18,639	03	B.Becker+	D0304
<sup>12</sup> C,x	<sup>11</sup> B	DAE	3SAFITH	2.0+08	4.0+08	Jour	EPJ/A,18,639	03	B.Becker+	D0304

**42                      Molybdenum**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					

<i>t</i> ,inel	<sup>95</sup> Mo	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> ,inel	<sup>100</sup> Mo	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

**42                      Molybdenum                      92**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					

<i>p</i> ,el	<sup>92</sup> Mo	DA	2FR GRE	3.0+07		Jour	CJP,55,43	77	R.Deswiniarski+	D0295
<i>p</i> ,el	<sup>92</sup> Mo	POD	2FR GRE	3.0+07		Jour	CJP,55,43	77	R.Deswiniarski+	D0295
<i>p</i> ,inel	<sup>92</sup> Mo	DAP	2FR GRE	3.0+07		Jour	CJP,55,43	77	R.Deswiniarski+	D0295
<i>p</i> ,inel	<sup>92</sup> Mo	POD	2FR GRE	3.0+07		Jour	CJP,55,43	77	R.Deswiniarski+	D0295

**42 Molybdenum 94**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>94</sup> Mo	DA	2GERHAM	2.6+07		Jour	NP/A,468,247	87	E.Fretwurst+	F0506
<i>p,inel</i>	<sup>94</sup> Mo	CSP	2GERHAM	2.6+07		Jour	NP/A,468,247	87	E.Fretwurst+	F0506
<i>p,inel</i>	<sup>94</sup> Mo	DAP	2GERHAM	2.6+07		Jour	NP/A,468,247	87	E.Fretwurst+	F0506

**42 Molybdenum 96**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>96</sup> Mo	DA	2GERHAM	2.6+07		Jour	NP/A,468,247	87	E.Fretwurst+	F0506
<i>p,inel</i>	<sup>96</sup> Mo	CSP	2GERHAM	2.6+07		Jour	NP/A,468,247	87	E.Fretwurst+	F0506
<i>p,inel</i>	<sup>96</sup> Mo	DAP	2GERHAM	2.6+07		Jour	NP/A,468,247	87	E.Fretwurst+	F0506

**42 Molybdenum 100**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>100</sup> Mo	DA	2GERHAM	2.6+07		Jour	NP/A,468,247	87	E.Fretwurst+	F0506
<i>p,inel</i>	<sup>100</sup> Mo	CSP	2GERHAM	2.6+07		Jour	NP/A,468,247	87	E.Fretwurst+	F0506
<i>p,inel</i>	<sup>100</sup> Mo	DAP	2GERHAM	2.6+07		Jour	NP/A,468,247	87	E.Fretwurst+	F0506

**43 Technetium 99**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,0</i>		RP	2JPNKTO	0.0+00		Jour	NSE,146,209	04	Katsuheikobayashi+	22866
<i>n,γ</i>	<sup>100</sup> Tc	CS	2JPNTIT	1.9+05	5.4+05	Jour	NST,40,(2),61	Feb 03	T.Matsumoto+	22850
<i>n,γ</i>	<sup>100</sup> Tc	CS	2JPNKTO	4.5-03	4.7+04	Jour	NSE,146,209	04	Katsuheikobayashi+	22866
<i>n,γ</i>	<sup>100</sup> Tc	MLT	2JPNTIT	1.9+05	5.4+05	Jour	NST,40,(2),61	Feb 03	T.Matsumoto+	22850
<i>n,γ</i>	<sup>100</sup> Tc	RI	2JPNKTO	5.0-01		Jour	NSE,146,209	04	Katsuheikobayashi+	22866
<i>n,γ</i>	<sup>100</sup> Tc	SPC	2JPNTIT	4.5+04	5.4+05	Jour	NST,40,(2),61	Feb 03	T.Matsumoto+	22850

**45 Rhodium 103**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,el</i>	<sup>103</sup> Rh	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
<sup>12</sup> C,x	<sup>85</sup> Y	CS	3SAFITH	3.9+08		Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>86</sup> Y	CS	3SAFITH	3.9+08		Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>87</sup> Y	CS	3SAFITH	3.9+08		Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>86</sup> Zr	CS	3SAFITH	3.9+08		Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>88</sup> Zr	CS	3SAFITH	3.9+08		Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>90</sup> Nb	CS	3SAFITH	3.9+08		Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>90</sup> Mo	CS	3SAFITH	3.9+08		Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>93</sup> Mo	CS	3SAFITH	3.9+08		Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305

<sup>12</sup> C,x	<sup>93</sup> Tc	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>94</sup> Tc	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>95</sup> Tc	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>96</sup> Tc	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>95</sup> Ru	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>97</sup> Ru	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>103</sup> Ru	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>97</sup> Rh	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>99</sup> Rh	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>100</sup> Rh	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>101</sup> Rh	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>102</sup> Rh	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>103</sup> Rh	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>99</sup> Pd	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>100</sup> Pd	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>101</sup> Pd	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>103</sup> Pd	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>103</sup> Ag	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>104</sup> Ag	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>12</sup> C,x	<sup>105</sup> Ag	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>85</sup> Y	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>86</sup> Y	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>87</sup> Y	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>86</sup> Zr	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>88</sup> Zr	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>90</sup> Nb	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>90</sup> Mo	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>93</sup> Mo	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>93</sup> Tc	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>94</sup> Tc	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>95</sup> Tc	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>96</sup> Tc	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>95</sup> Ru	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>97</sup> Ru	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>103</sup> Ru	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>97</sup> Rh	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>99</sup> Rh	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>100</sup> Rh	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>101</sup> Rh	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>102</sup> Rh	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>103</sup> Rh	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>99</sup> Pd	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>100</sup> Pd	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>101</sup> Pd	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>103</sup> Pd	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>103</sup> Ag	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>104</sup> Ag	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>105</sup> Ag	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305
<sup>16</sup> O,x	<sup>104</sup> Cd	CS	3SAFITH	3.9+08	Jour	JRN,258,649	03	E.Z.Buthelezi+	D0305

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## Palladium

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
d,el	<sup>nat</sup> Pd	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266



<i>t</i> ,inel	<sup>104</sup> Pd	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> ,inel	<sup>105</sup> Pd	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> ,inel	<sup>108</sup> Pd	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> ,inel	<sup>110</sup> Pd	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$\alpha$ ,el	<sup>nat</sup> Pd	DA	3POLITJ	2.3+07	2.7+07	Jour	APP/B,3,525	72	W.Karcz+	F0700

**47 Silver**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d</i> ,el	<sup>nat</sup> Ag	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
<i>d</i> ,tot		CS	4UKRIJD	1.4+07		Jour	YF,20,624	74	L.V.Dubar+	F0579
<i>t</i> ,inel	<sup>107</sup> Ag	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> ,inel	<sup>109</sup> Ag	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$\alpha$ ,el	<sup>nat</sup> Ag	DA	3POLITJ	2.3+07	2.8+07	Jour	APP/B,3,525	72	W.Karcz+	F0700

**48 Cadmium**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,non		CS	2UK HAR	9.6+06	1.1+07	Jour	NP,73,206	65	K.Bearpark+	D0314
<i>d</i> ,el	<sup>nat</sup> Cd	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
<i>t</i> ,inel	<sup>111</sup> Cd	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> ,inel	<sup>112</sup> Cd	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> ,inel	<sup>113</sup> Cd	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> ,inel	<sup>114</sup> Cd	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

**48 Cadmium 110**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\alpha$ , $\gamma$	<sup>114</sup> Sn	DE	2NEDFUL	2.4+07	2.6+07	Jour	NP/A,505,241	89	A.Stolk+	F0089
$\alpha$ , <i>n</i>	<sup>113</sup> Sn	DE	2NEDFUL	2.4+07	2.6+07	Jour	NP/A,505,241	89	A.Stolk+	F0089

**48 Cadmium 112**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d</i> , <i>p</i>	<sup>113</sup> Cd	DAP	2GERLMU	2.2+07		Jour	NP/A,756,54	05	D.Bucurescu+	D0310
<i>d</i> , <i>p</i>	<sup>113</sup> Cd	POD	2GERLMU	2.5+07		Jour	NP/A,756,54	05	D.Bucurescu+	D0310

**48 Cadmium 114**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d</i> , <i>t</i>	<sup>113</sup> Cd	DAP	2GERLMU	2.5+07		Jour	NP/A,756,54	05	D.Bucurescu+	D0310

*d,t* <sup>113</sup>Cd POD 2GERLMU 2.5+07 Jour NP/A,756,54 05 D.Bucurescu+ D0310

**49 Indium**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>nat</sup> In	DA	2SWDUPP	1.6+08		Jour	NP,21,383	60	A.Johansson+	D0283
<i>p,el</i>	<sup>nat</sup> In	POD	2SWDUPP	1.6+08		Jour	NP,21,383	60	A.Johansson+	D0283
<i>p,non</i>		CS	2UK HAR	9.2+06	1.1+07	Jour	NP,73,206	65	K.Bearpark+	D0314
<i>d,el</i>	<sup>nat</sup> In	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
<i>α,el</i>	<sup>nat</sup> In	DA	3POLITJ	2.4+07	2.8+07	Jour	APP/B,3,525	72	W.Karcz+	F0700

**50 Tin**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,el</i>	<sup>nat</sup> Sn	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
<i>α,el</i>	<sup>nat</sup> Sn	DA	3POLITJ	2.3+07	2.8+07	Jour	APP/B,3,525	72	W.Karcz+	F0700

**50 Tin 112**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,non</i>		CS	2SWDUPP	6.6+07		Jour	NP/A,653,341	99	A.Ingemarsson+	D0174
<i>d,el</i>	<sup>112</sup> Sn	DA	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<i>d,el</i>	<sup>112</sup> Sn	POD	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<sup>3</sup> He,non		CS	2SWDUPP	9.6+07	1.7+08	Jour	NP/A,696,3	01	A.Ingemarsson+	D0185

**50 Tin 116**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,non</i>		CS	2SWDUPP	6.6+07		Jour	NP/A,653,341	99	A.Ingemarsson+	D0174
<i>d,el</i>	<sup>116</sup> Sn	DA	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<i>d,el</i>	<sup>116</sup> Sn	POD	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<sup>3</sup> He,non		CS	2SWDUPP	9.6+07	1.7+08	Jour	NP/A,696,3	01	A.Ingemarsson+	D0185

**50 Tin 118**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,non</i>		CS	2SWDUPP	6.6+07		Jour	NP/A,653,341	99	A.Ingemarsson+	D0174
<sup>3</sup> He,non		CS	2SWDUPP	9.6+07	1.7+08	Jour	NP/A,696,3	01	A.Ingemarsson+	D0185

50 Tin 120										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,non		CS	2SWDUPP	6.6+07		Jour	NP/A,653,341	99	A.Ingemarsson+	D0174
<i>d</i> ,el	<sup>120</sup> Sn	DA	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<i>d</i> ,el	<sup>120</sup> Sn	DA	2FR GRE	2.9+07		Jour	NP/A,206,623	73	G.Perrin+	D0261
<i>d</i> ,el	<sup>120</sup> Sn	DA	2FR PAR	8.0+07		Jour	NP/A,174,485	71	G.Duhamel+	D0228
<i>d</i> ,el	<sup>120</sup> Sn	POD	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<i>d</i> ,el	<sup>120</sup> Sn	POD	2FR GRE	2.9+07		Jour	NP/A,206,623	73	G.Perrin+	D0261
<i>d</i> ,inel	<sup>120</sup> Sn	DAP	2FR GRE	2.9+07		Jour	NP/A,206,623	73	G.Perrin+	D0261
<i>d</i> ,inel	<sup>120</sup> Sn	DAP	2FR PAR	8.2+07		Jour	NP/A,174,485	71	G.Duhamel+	D0228
<i>d</i> ,inel	<sup>120</sup> Sn	POD	2FR GRE	2.9+07		Jour	NP/A,206,623	73	G.Perrin+	D0261
<sup>3</sup> He,non		CS	2SWDUPP	9.6+07	1.7+08	Jour	NP/A,696,3	01	A.Ingemarsson+	D0185

50 Tin 122										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d</i> ,el	<sup>122</sup> Sn	DA	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<i>d</i> ,el	<sup>122</sup> Sn	POD	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709

50 Tin 124										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,non		CS	2SWDUPP	6.6+07		Jour	NP/A,653,341	99	A.Ingemarsson+	D0174
<i>d</i> ,el	<sup>124</sup> Sn	DA	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<i>d</i> ,el	<sup>124</sup> Sn	POD	2GERMUN	2.3+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<sup>3</sup> He,non		CS	2SWDUPP	9.6+07	1.7+08	Jour	NP/A,696,3	01	A.Ingemarsson+	D0185
$\alpha$ ,non		CS	2SWDTLU	7.4+07	1.9+08	Jour	PR/C,50,871	94	A.Auce+	D0169

51 Antimony										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d</i> ,el	<sup>nat</sup> Sb	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266

52 Tellurium										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d</i> ,el	<sup>nat</sup> Te	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266

**58 Cerium**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>nat</sup> Ce	DA	2FR CSN	7.5+07		Jour	NP,80,625	66	C.Rolland+	D0290
<i>p,el</i>	<sup>nat</sup> Ce	POD	2FR CSN	7.6+07		Jour	NP,80,625	66	C.Rolland+	D0290
<i>d,el</i>	<sup>nat</sup> Ce	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266

**60 Neodymium 148**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>t,α</i>	<sup>147</sup> Pr	DAP	2UK ALD	3.5+07	3.7+07	Jour	NP/A,510,441	90	L.Zybert+	F0088

**62 Samarium**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,el</i>	<sup>nat</sup> Sm	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266

**62 Samarium 144**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,el</i>	<sup>144</sup> Sm	DA	2DENNBI	1.2+07	1.3+07	Jour	APP/B,3,643	72	M.Jaskola+	D0340
<i>d,t</i>	<sup>143</sup> Sm	DAP	2DENNBI	1.2+07	1.3+07	Jour	APP/B,3,643	72	M.Jaskola+	D0340

**62 Samarium 148**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>148</sup> Sm	DA	2UK KCL	5.0+07		Jour	NP/A,154,513	70	P.B.Woollam+	D0289
<i>p,el</i>	<sup>148</sup> Sm	POD	2UK KCL	5.0+07		Jour	NP/A,154,513	70	P.B.Woollam+	D0289

**62 Samarium 152**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>t,α</i>	<sup>151</sup> Pm	DAP	2UK ALD	3.5+07		Jour	NP/A,510,441	90	L.Zybert+	F0088

**64 Gadolinium**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					

<i>d</i> ,sct	<sup>nat</sup> Gd	DA	2DENNBI	1.2+07	Jour	NP/A,162,353	71	F.Sterba+	D0343
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**64 Gadolinium 152**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					

<i>d</i> ,inel	<sup>152</sup> Gd	DAP	2DENNBI	1.2+07	Jour	NP/A,91,576	67	R.Bloch+	D0344
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**64 Gadolinium 154**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					

<i>d</i> ,inel	<sup>154</sup> Gd	DAP	2DENNBI	1.2+07	Jour	NP/A,91,576	67	R.Bloch+	D0344
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**64 Gadolinium 155**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					

<i>d</i> ,inel	<sup>155</sup> Gd	DAP	2DENNBI	1.2+07	Jour	NP/A,162,353	71	F.Sterba+	D0343
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**64 Gadolinium 156**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					

<i>d</i> ,inel	<sup>156</sup> Gd	DAP	2DENNBI	1.2+07	Jour	NP/A,91,576	67	R.Bloch+	D0344
<i>t</i> ,α	<sup>155</sup> Eu	DAP	2UK ALD	3.5+07	Jour	NP/A,510,441	90	L.Zybert+	F0088

**64 Gadolinium 157**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					

<i>d</i> ,inel	<sup>157</sup> Gd	DAP	2DENNBI	1.2+07	Jour	NP/A,162,353	71	F.Sterba+	D0343
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**64 Gadolinium 158**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					

<i>d</i> ,inel	<sup>158</sup> Gd	DAP	2DENNBI	1.2+07	Jour	NP/A,91,576	67	R.Bloch+	D0344
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**64                      Gadolinium                      160**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d</i> ,inel	<sup>160</sup> Gd	DAP	2DENNBI	1.2+07		Jour	NP/A,91,576	67	R.Bloch+	D0344
<i>d</i> , <i>t</i>	<sup>159</sup> Gd	DAP	2DENNBI	1.2+07		Jour	NP/A,96,52	67	M.Jaskola+	D0287

**67                      Holmium                      165**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n</i> , $\gamma$	<sup>166</sup> Ho	CS	2TUKANR	Maxwl		Jour	ANE,32,1	05	H.Yuecel+	22871
<i>n</i> , $\gamma$	<sup>166</sup> Ho	RI	2TUKANR	5.5-01		Jour	ANE,32,1	05	H.Yuecel+	22871
<i>d</i> ,el	<sup>165</sup> Ho	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266

**69                      Thulium                      169**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d</i> , <i>p</i>	<sup>170</sup> Tm	DAP	2GERLMU	1.2+07	2.6+07	Jour	PR/C,54,78	96	R.W.Hoff+	D0322

**73                      Tantalum**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d</i> ,el	<sup>nat</sup> Ta	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
<i>t</i> ,inel	<sup>181</sup> Ta	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
$\alpha$ ,el	<sup>nat</sup> Ta	DA	3POLITJ	2.4+07	2.7+07	Jour	APP/B,3,525	72	W.Karcz+	F0700

**73                      Tantalum                      181**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\alpha$ , <i>n</i>	<sup>184</sup> Re	CS	4UKRIJD	1.3+07	9.8+07	Jour	IZV,53,(1),171	89	I.N.Vishnevskij+	F0581

**74                      Tungsten**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d</i> ,sct	<sup>nat</sup> W	DA	2DENNBI	1.2+07		Jour	NP/A,172,273	71	C.Gunther+	D0342
<i>t</i> ,inel	<sup>182</sup> W	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> ,inel	<sup>184</sup> W	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> ,inel	<sup>186</sup> W	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239

<b>74 Tungsten 180</b>										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d</i> ,inel	<sup>180</sup> W	DAP	2DENNBI	1.2+07		Jour	NP/A,172,273	71	C.Gunther+	D0342
<b>74 Tungsten 182</b>										
<i>d</i> ,inel	<sup>182</sup> W	DAP	2DENNBI	1.2+07		Jour	NP/A,172,273	71	C.Gunther+	D0342
<b>74 Tungsten 184</b>										
<i>d</i> ,inel	<sup>184</sup> W	DAP	2DENNBI	1.2+07		Jour	NP/A,172,273	71	C.Gunther+	D0342
<b>74 Tungsten 185</b>										
<i>n</i> , $\gamma$	<sup>186</sup> W	CS	2JPNAIS	Maxwl		Jour	PR/C,69,032801	04	P.Mohr+	22867
<b>74 Tungsten 186</b>										
<i>d</i> ,inel	<sup>186</sup> W	DAP	2DENNBI	1.2+07		Jour	NP/A,172,273	71	C.Gunther+	D0342
<b>75 Rhenium</b>										
<i>t</i> ,inel	<sup>185</sup> Re	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t</i> ,inel	<sup>187</sup> Re	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<b>76 Osmium 189</b>										
<sup>3</sup> He, <i>d</i>	<sup>190</sup> Ir	DAP	1CANMCM	2.8+07		Jour	NP/A,581,267	95	P.E.Carrett+	F0259
$\alpha$ , <i>t</i>	<sup>190</sup> Ir	DAP	1CANMCM	3.0+07		Jour	NP/A,581,267	95	P.E.Carrett+	F0259

**77                      Iridium                      191**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,t</i>	<sup>190</sup> Ir	DAP	1CANMCM	1.8+07		Jour	NP/A,581,267	95	P.E.Carrett+	F0259

**78                      Platinum**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>t,inel</i>	<sup>194</sup> Pt	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t,inel</i>	<sup>195</sup> Pt	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>t,inel</i>	<sup>196</sup> Pt	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>α,el</i>	<sup>nat</sup> Pt	DA	3POLITJ	2.3+07	2.8+07	Jour	APP/B,3,525	72	W.Karcz+	F0700

**79                      Gold                      197**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>197</sup> Au	DA	2SWDUPP	1.6+08		Jour	NP,21,383	60	A.Johansson+	D0283
<i>p,el</i>	<sup>197</sup> Au	POD	2SWDUPP	1.6+08		Jour	NP,21,383	60	A.Johansson+	D0283
<i>p,non</i>		CS	2UK HAR	1.0+07		Jour	NP,73,206	65	K.Bearpark+	D0314
<i>p,non</i>		CS	2UK HAR	1.0+07		Jour	NIM,35,235	65	K.Bearpark+	D0337
<i>d,el</i>	<sup>197</sup> Au	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
<i>t,inel</i>	<sup>197</sup> Au	TTD	2FR STR	3.5+06		Jour	NIM,156,483	78	B.Borderie+	F0239
<i>α,el</i>	<sup>197</sup> Au	DA	3POLITJ	2.4+07	2.8+07	Jour	APP/B,3,525	72	W.Karcz+	F0700
<sup>12</sup> C,x	<sup>8</sup> Be	CSP	3SAFITH	1.0+08	4.0+08	Jour	EPJ/A,11,161	01	E.Gadioli+	D0302
<sup>12</sup> C,x	<sup>8</sup> Be	DAE	3SAFITH	1.0+08	4.0+08	Jour	EPJ/A,11,161	01	E.Gadioli+	D0302

**82                      Lead                      206**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,el</i>	<sup>206</sup> Pb	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266

**82                      Lead                      207**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>γ,n</i>	<sup>206</sup> Pb	CS	4UKRUZH	1.0+07	2.2+07	Jour	UFZ,38,(6),846	93	I.Z.Beseda+	G4001



<b>82 Lead 208</b>										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,non		CS	2SWDUPP	6.6+07		Jour	NP/A,653,341	99	A.Ingemarsson+	D0174
<i>d</i> ,el	<sup>208</sup> Pb	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266
<i>d</i> ,el	<sup>208</sup> Pb	DA	2GERMUN	2.0+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<i>d</i> ,el	<sup>208</sup> Pb	DA	2FR PAR	8.0+07		Jour	NP/A,174,485	71	G.Duhamel+	D0228
<i>d</i> ,inel	<sup>208</sup> Pb	POD	2GERMUN	2.0+07		Jour	NP/A,533,71	91	M.Ermer+	F0709
<sup>3</sup> He,non		CS	2SWDUPP	9.6+07	1.7+08	Jour	NP/A,696,3	01	A.Ingemarsson+	D0185
$\alpha$ ,el	<sup>208</sup> Pb	DA	3POLITJ	2.4+07	2.8+07	Jour	APP/B,3,525	72	W.Karcz+	F0700
$\alpha$ ,non		CS	2SWDTLU	7.4+07	1.9+08	Jour	PR/C,50,871	94	A.Auce+	D0169

<b>83 Bismuth 209</b>										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\gamma$ , <i>n</i>	<sup>208</sup> Bi	CS	4UKRUZH	1.1+07	2.4+07	Jour	UFZ,38,(6),846	93	I.Z.Beseda+	G4001
<i>n</i> , $\gamma$	<sup>210</sup> Bi	CS	2JPNTIT	6.6+03	5.2+05	Jour	NST,41,(4),406	Apr 04	K.Saito+	22848
<i>n</i> , $\gamma$	<sup>210</sup> Bi	SPC	2JPNTIT	4.3+07	5.2+08	Jour	NST,41,(4),406	Apr 04	K.Saito+	22848
<i>p</i> ,el	<sup>209</sup> Bi	DA	2FR CSN	7.8+07	1.5+08	Jour	NP,80,625	66	C.Rolland+	D0290
<i>p</i> ,el	<sup>209</sup> Bi	POD	2SWDUPP	1.8+08		Jour	NP,11,540	59	A.Johansson+	D0285
<i>p</i> ,el	<sup>209</sup> Bi	POD	2FR CSN	7.8+07	1.5+08	Jour	NP,80,625	66	C.Rolland+	D0290
<i>p</i> ,inel	<sup>209</sup> Bi	POD	2SWDUPP	1.8+08		Jour	NP,11,540	59	A.Johansson+	D0285
$\alpha$ ,el	<sup>209</sup> Bi	DA	3POLITJ	2.4+07	2.8+07	Jour	APP/B,3,525	72	W.Karcz+	F0700

<b>90 Thorium 230</b>										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> , <i>t</i>	<sup>228</sup> Th	DAP	2GERLMU	2.5+07		Jour	PR/C,69,044310	04	H.-F.Wirth+	D0171

<b>90 Thorium 232</b>										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> , <i>t</i>	<sup>230</sup> Th	DAP	2GERLMU	2.5+07		Jour	PR/C,69,044310	04	H.-F.Wirth+	D0171
<i>d</i> ,el	<sup>232</sup> Th	DA	2GERMPH	1.2+07		Jour	PL,5,331	63	T.Becker+	D0266

<b>92 Uranium</b>										
Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n</i> , $\alpha$	incl	CSP	2BLGLVN	3.4+07	6.3+07	Jour	PR/C,68,24604	Aug 03	E.Raeymackers+	22856
<i>n</i> , $\alpha$	incl	DAE	2BLGLVN	3.4+07	6.3+07	Jour	PR/C,68,24604	Aug 03	E.Raeymackers+	22856
<i>n</i> , $\alpha$	incl	DAP	2BLGLVN	3.4+07	6.3+07	Jour	PR/C,68,24604	Aug 03	E.Raeymackers+	22856
<i>n</i> , $\alpha$	incl	DE	2BLGLVN	3.4+07	6.3+07	Jour	PR/C,68,24604	Aug 03	E.Raeymackers+	22856
<i>n</i> , <i>d</i>	incl	CSP	2BLGLVN	2.8+07	6.3+07	Jour	PR/C,68,24604	Aug 03	E.Raeymackers+	22856

<i>n,d</i>	incl	DAE	2BLGLVN	2.8+07	6.3+07	Jour	PR/C,68,24604	Aug 03	E.Raeymackers+	22856
<i>n,d</i>	incl	DAP	2BLGLVN	2.8+07	6.3+07	Jour	PR/C,68,24604	Aug 03	E.Raeymackers+	22856
<i>n,d</i>	incl	DE	2BLGLVN	2.8+07	6.3+07	Jour	PR/C,68,24604	Aug 03	E.Raeymackers+	22856
<i>n,p</i>	incl	CSP	2BLGLVN	2.6+07	6.3+07	Jour	PR/C,68,24604	Aug 03	E.Raeymackers+	22856
<i>n,p</i>	incl	DAE	2BLGLVN	2.6+07	6.3+07	Jour	PR/C,68,24604	Aug 03	E.Raeymackers+	22856
<i>n,p</i>	incl	DAP	2BLGLVN	2.6+07	6.3+07	Jour	PR/C,68,24604	Aug 03	E.Raeymackers+	22856
<i>n,p</i>	incl	DE	2BLGLVN	2.6+07	6.3+07	Jour	PR/C,68,24604	Aug 03	E.Raeymackers+	22856
<i>n,t</i>	incl	CSP	2BLGLVN	4.1+07	6.3+07	Jour	PR/C,68,24604	Aug 03	E.Raeymackers+	22856
<i>n,t</i>	incl	DAE	2BLGLVN	4.1+07	6.3+07	Jour	PR/C,68,24604	Aug 03	E.Raeymackers+	22856
<i>n,t</i>	incl	DAP	2BLGLVN	4.1+07	6.3+07	Jour	PR/C,68,24604	Aug 03	E.Raeymackers+	22856
<i>n,t</i>	incl	DE	2BLGLVN	4.1+07	6.3+07	Jour	PR/C,68,24604	Aug 03	E.Raeymackers+	22856

**92                      Uranium                      234**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,t</i>	<sup>232</sup> U	DAP	2GERLMU	2.5+07		Jour	PR/C,69,044310	04	H.-F.Wirth+	D0171

**93                      Neptunium                      237**

Reaction	Product	Quantity	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,γ</i>	<sup>238</sup> Np	CS	2JPNKTO	1.5-01	1.3+03	Jour	NST,39,(2),111	Feb 02	Katsuheikobayashi+	22858
<i>n,γ</i>	<sup>238</sup> Np	CS	2JPNKTO	2.0-02	1.0+02	Jour	NST,42,(2),135	Feb 05	O.Shcherbakov+	22872
<i>n,γ</i>	<sup>238</sup> Np	CS	2JPNKTO	4.1-03	9.6+03	Jour	NST,39,(2),111	Feb 02	Katsuheikobayashi+	22858
<i>n,γ</i>	<sup>238</sup> Np	RI	2JPNKTO	3.0-01	1.0+02	Jour	NST,42,(2),135	Feb 05	O.Shcherbakov+	22872