

# EXFOR News (February 2012)

## New experimental data available from Nuclear Reaction Data Centres

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### Quantity codes

ALF	$\alpha$ -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	$\eta$ -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	tcx	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)

<sup>a</sup> [NNDC](#) (USA), [NEADB](#) (France), [NDS](#) (Austria), [CJD](#) (Russia), [CNDC](#) (China), [ATOMKI](#) (Hungary), [BARC](#) (India), [JAEA](#) (Japan), [JCPRG](#) (Japan), [KAERI](#) (Korea), [CAJaD](#) (Russia), [CDFE](#) (Russia), [CNPD](#) (Russia), [UkrNDC](#) (Ukraine)

0 Neutron 1

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,tot</i>		CS	1USACHI	2.1+08	3.2+08	Jour	<a href="#">PR,96,398</a>	54	H.G.Decarvalho	<a href="#">C1860</a>

1 Hydrogen 1

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\gamma,\pi^0$	$^1\text{H}$	DA	4RUSLEB		3.2+08	Jour	YF,25,80	77	Yu.A.Aleksandrov+	<a href="#">M0822</a>
<i>p,tot</i>		CS	1USACHI	2.1+08	3.2+08	Jour	<a href="#">PR,96,398</a>	54	H.G.Decarvalho	<a href="#">C1860</a>
<i>p,tot</i>		CS	1USACHI	4.1+08	4.1+08	Jour	<a href="#">PR,91,767(2)</a>	53	J.Marshall+	<a href="#">C1859</a>
<i>d,el</i>	$^1\text{H}$	POD	2JPNIPC	5.0+08	5.0+08	Jour	<a href="#">PR/C,83,(6),061001</a>	Jun 11	K.Sekiguchi+	<a href="#">E2346</a>
$^6\text{He,el}$	$^1\text{H}$	DA	4ZZZDUB	1.9+08	1.9+08	Jour	IZV,67,686	03	R.A.Astabatyan+	<a href="#">F1129</a>
$^9\text{Be,non}$		CS	2JPNIPC	3.6+08	3.6+08	Jour	<a href="#">NP/A,864,(1),1</a>	Aug 11	T.Yamaguchi+	<a href="#">E2350</a>
$^{18}\text{C,x}$	Many	CS	2JPNIPC	7.2+08	7.2+08	Jour	<a href="#">NP/A,864,(1),1</a>	Aug 11	T.Yamaguchi+	<a href="#">E2350</a>
$^{18}\text{C,x}$	$^{16}\text{C}$	CS	2JPNIPC	7.2+08	7.2+08	Jour	<a href="#">NP/A,864,(1),1</a>	Aug 11	T.Yamaguchi+	<a href="#">E2350</a>
$^{18}\text{C,x}$	$^{17}\text{C}$	CS	2JPNIPC	7.2+08	7.2+08	Jour	<a href="#">NP/A,864,(1),1</a>	Aug 11	T.Yamaguchi+	<a href="#">E2350</a>
$^{19}\text{C,non}$		CS	2JPNIPC	7.6+08	7.6+08	Jour	<a href="#">NP/A,864,(1),1</a>	Aug 11	T.Yamaguchi+	<a href="#">E2350</a>
$^{19}\text{C,tcc}$		CS	2JPNIPC	7.6+08	7.6+08	Jour	<a href="#">NP/A,864,(1),1</a>	Aug 11	T.Yamaguchi+	<a href="#">E2350</a>
$^{19}\text{C,x}$	Many	CS	2JPNIPC	7.6+08	7.6+08	Jour	<a href="#">NP/A,864,(1),1</a>	Aug 11	T.Yamaguchi+	<a href="#">E2350</a>
$^{19}\text{C,x}$	$^{17}\text{C}$	CS	2JPNIPC	7.6+08	7.6+08	Jour	<a href="#">NP/A,864,(1),1</a>	Aug 11	T.Yamaguchi+	<a href="#">E2350</a>
$^{19}\text{C,x}$	$^{18}\text{C}$	CS	2JPNIPC	7.6+08	7.6+08	Jour	<a href="#">NP/A,864,(1),1</a>	Aug 11	T.Yamaguchi+	<a href="#">E2350</a>
$^{20}\text{C,non}$		CS	2JPNIPC	8.0+08	8.0+08	Jour	<a href="#">NP/A,864,(1),1</a>	Aug 11	T.Yamaguchi+	<a href="#">E2350</a>
$^{20}\text{C,tcc}$		CS	2JPNIPC	8.0+08	8.0+08	Jour	<a href="#">NP/A,864,(1),1</a>	Aug 11	T.Yamaguchi+	<a href="#">E2350</a>
$^{20}\text{C,x}$	Many	CS	2JPNIPC	8.0+08	8.0+08	Jour	<a href="#">NP/A,864,(1),1</a>	Aug 11	T.Yamaguchi+	<a href="#">E2350</a>
$^{20}\text{C,x}$	$^{18}\text{C}$	CS	2JPNIPC	8.0+08	8.0+08	Jour	<a href="#">NP/A,864,(1),1</a>	Aug 11	T.Yamaguchi+	<a href="#">E2350</a>
$^{20}\text{C,x}$	$^{19}\text{C}$	CS	2JPNIPC	8.0+08	8.0+08	Jour	<a href="#">NP/A,864,(1),1</a>	Aug 11	T.Yamaguchi+	<a href="#">E2350</a>
$^{21}\text{N,inel}$	$^1\text{H}$	CSP	2JPNIPC	1.1+09	1.1+09	Jour	<a href="#">PR/C,82,(2),027305</a>	Aug 10	Z.Elekes+	<a href="#">E2345</a>
$^{33}\text{Cl},\alpha$	$^{30}\text{S}$	?	1USAANL	6.2+06	7.4+06	Jour	<a href="#">PR/C,84,045802</a>	11	C.M.Deibel+	<a href="#">C1869</a>

1 Hydrogen 2

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,tot</i>		CS	1USACHI	2.1+08	3.2+08	Jour	<a href="#">PR,96,398</a>	54	H.G.Decarvalho	<a href="#">C1860</a>
<i>d,n</i>	$^3\text{He}$	DA	1USALAS	2.0+04	1.2+05	Jour	<a href="#">PR/C,41,1391</a>	Apr 90	R.E.Brown+	<a href="#">C0109</a>
<i>d,p</i>	$^3\text{H}$	DA	1USALAS	2.0+04	1.2+05	Jour	<a href="#">PR/C,41,1391</a>	Apr 90	R.E.Brown+	<a href="#">C0109</a>
$^7\text{Be,sct}$	$^2\text{H}$	DA	1USAORL	9.8+04	5.0+05	Jour	<a href="#">PR/C,84,042801</a>	11	P.D.O'Malley+	<a href="#">C1870</a>
$^{132}\text{Sn,el}$	$^2\text{H}$	?	1USAORL	6.3+08	6.3+08	Jour	<a href="#">PR/C,84,034601</a>	11	K.L.Jones+	<a href="#">C1857</a>
$^{132}\text{Sn,p}$	$^{133}\text{Sn}$	?	1USAORL	6.3+08	6.3+08	Jour	<a href="#">PR/C,84,034601</a>	11	K.L.Jones+	<a href="#">C1857</a>
$^{136}\text{Xe,p}$	$^{137}\text{Xe}$	DAP	1USAANL	1.4+09	1.4+09	Jour	<a href="#">PR/C,84,024325</a>	11	B.P.Kay+	<a href="#">C1855</a>
$^{136}\text{Xe,p}$	$^{137}\text{Xe}$	?	1USAANL	1.4+09	1.4+09	Jour	<a href="#">PR/C,84,024325</a>	11	B.P.Kay+	<a href="#">C1855</a>

**1 Hydrogen**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$^{12}\text{C},x$	Many	CS	4ZZZDUB	3.4+08	4.6+08	Jour	<a href="#">RM,45,856</a>	10	A.N.Golovchenko+	<a href="#">A0900</a>
$^{24}\text{Mg},tcc$		CS	4ZZZDUB	8.2+09	1.1+10	Jour	<a href="#">RM,45,856</a>	10	A.N.Golovchenko+	<a href="#">A0900</a>

**2 Helium**

4

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\gamma,2n+p$	$^1\text{H}$	CS	4UKRKFT	3.0+07	1.2+08	Jour	YF,10,1123	69	Yu.M.Arkotov+	<a href="#">M0823</a>
$\gamma,d$	$^2\text{H}$	CS	4UKRKFT	3.0+07	7.5+07	Jour	YF,16,12	72	Yu.M.Arkotov+	<a href="#">M0826</a>
$\gamma,d$	$^2\text{H}$	DA	4UKRKFT	3.0+07	5.0+07	Jour	YF,16,12	72	Yu.M.Arkotov+	<a href="#">M0826</a>
$\gamma,n+p$	$^2\text{H}$	CS	4UKRKFT	2.8+07	1.2+08	Jour	YF,10,1123	69	Yu.M.Arkotov+	<a href="#">M0823</a>
$\gamma,n+p$	$^2\text{H}$	DA	4UKRKFT	2.8+07	1.2+08	Jour	YF,10,1123	69	Yu.M.Arkotov+	<a href="#">M0823</a>
$p,tot$		CS	1USAHRV	1.3+08	1.5+08	Jour	<a href="#">NP,59,253</a>	64	J.N.Palmieri+	<a href="#">C1866</a>

**3 Lithium**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\gamma,abs$		CS	2GERMNZ	1.0+07	2.1+08	Jour	<a href="#">NP/A,251,479</a>	75	J.Ahrens+	<a href="#">M0825</a>
$p,tot$		CS	1USACHI	4.1+08	4.1+08	Jour	PR,91,767(2)	53	J.Marshall+	<a href="#">C1859</a>

**3 Lithium**

6

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,tot$		CS	1USACHI	2.1+08	3.2+08	Jour	<a href="#">PR,96,398</a>	54	H.G.Decarvalho	<a href="#">C1860</a>

**3 Lithium**

7

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\gamma,n$	$^6\text{Li}$	CSP	1USATNL	1.0+07	3.5+07	Jour	<a href="#">PR/C,84,044601</a>	11	W.A.Wurtz+	<a href="#">L0163</a>
$\gamma,n$	$^6\text{Li}$	DA	1USATNL	1.0+07	3.0+07	Jour	<a href="#">PR/C,84,044601</a>	11	W.A.Wurtz+	<a href="#">L0163</a>
$p,n$	$^7\text{Be}$	CS	2JPNTOK	2.9+06	1.5+07	Jour	<a href="#">JPJ,15,(5),741</a>	May 60	K.Hisatake+	<a href="#">E2216</a>
$p,n$	$^7\text{Be}$	DAP	2JPNTOK	8.1+06	1.4+07	Jour	<a href="#">JPJ,15,(5),741</a>	May 60	K.Hisatake+	<a href="#">E2216</a>
$p,x+n$	inclusive	TTD	2JPNIPC	7.0+07	2.1+08	Jour	<a href="#">NIM/A,420,(1-2),218</a>	99	N.Nakao+	<a href="#">E2298</a>

**4 Beryllium**

9

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\gamma,abs$		CS	2GERMNZ	1.0+07	2.1+08	Jour	<a href="#">NP/A,251,479</a>	75	J.Ahrens+	<a href="#">M0825</a>

$\gamma,n+\alpha$	$^4\text{He}$	CS	4RUSFTI	2.0+06	1.6+07	Jour	IZV,37,2657	73	G.P.Antropov+	M0828
$p,d$	$^8\text{Be}$	CSP	1USAUSC	1.7+07	2.9+07	Jour	NP/A,199,457	73	D.G.Montague+	C1867
$p,\text{inel}$	$^9\text{Be}$	CSP	1USAUSC	1.7+07	2.9+07	Jour	NP/A,199,457	73	D.G.Montague+	C1867
$p,\text{non}$		CS	1USAUSC	1.6+07	2.8+07	Jour	NP/A,199,457	73	D.G.Montague+	C1867
$p,\text{tot}$		CS	1USACHI	2.1+08	3.2+08	Jour	PR,96,398	54	H.G.Decarvalho	C1860
$p,\text{tot}$		CS	1USACHI	4.1+08	4.1+08	Jour	PR,91,767(2)	53	J.Marshall+	C1859
$d,x+n$	inclusive	TTD	1USAANL	7.0+06	7.0+06	Rept	ANL-NDM-90	Apr 85	D.L.Smith+	C1858
$^{12}\text{C},^8\text{Be}$	$^{13}\text{C}$	DAP	2SWTZUR	1.2+07	1.5+07	Jour	NP/A,155,401	70	P.H.Barker+	F1132
$^{12}\text{C},\text{el}$	$^9\text{Be}$	DA	2SWTZUR	1.2+07	2.1+07	Jour	NP/A,155,401	70	P.H.Barker+	F1132
$^{16}\text{O},^8\text{Be}$	$^{17}\text{O}$	DAP	2SWTZUR	1.5+07	1.8+07	Jour	NP/A,155,401	70	P.H.Barker+	F1132
$^{16}\text{O},\text{el}$	$^9\text{Be}$	DA	2SWTZUR	1.5+07	2.5+07	Jour	NP/A,155,401	70	P.H.Barker+	F1132

### 5 Boron

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,\text{tot}$		CS	1USACHI	2.1+08	3.2+08	Jour	PR,96,398	54	H.G.Decarvalho	C1860

### 5 Boron 10

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\alpha,\text{el}$	$^{10}\text{B}$	DA	4RUSSUL	2.4+07	2.4+07	Jour	YF,24,249	76	A.E.Denisov+	F1138
$\alpha,\text{inel}$	$^{10}\text{B}$	DAP	4RUSSUL	2.4+07	2.4+07	Jour	YF,24,249	76	A.E.Denisov+	F1138

### 5 Boron 11

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,n$	$^{11}\text{C}$	DAP	2JPN TOK	8.1+06	1.4+07	Jour	JPJ,15,(5),741	May 60	K.Hisatake+	E2216
$\alpha,\text{el}$	$^{11}\text{B}$	DA	4RUSSUL	2.4+07	2.4+07	Jour	YF,24,249	76	A.E.Denisov+	F1138
$\alpha,\text{inel}$	$^{11}\text{B}$	DAP	4RUSSUL	2.4+07	2.4+07	Jour	YF,24,249	76	A.E.Denisov+	F1138

### 6 Carbon

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\gamma,\text{abs}$		CS	2GERMNZ	1.0+07	1.6+08	Jour	NP/A,251,479	75	J.Ahrens+	M0825
$p,x$	Many	DAE	2JPNIRS	4.0+07	8.0+07	Jour	KPS,59,(2),1805	Aug 11	T.Sanami+	E2339
$^9\text{Be},\text{tcc}$		CS	2JPNIRS	2.5+09	2.5+09	Jour	PRL,107,032502	Jul 11	T.Yamaguchi+	E2349
$^{10}\text{Be},\text{tcc}$		CS	2JPNIRS	2.8+09	2.8+09	Jour	PRL,107,032502	Jul 11	T.Yamaguchi+	E2349
$^{11}\text{Be},\text{tcc}$		CS	2JPNIRS	3.0+09	3.0+09	Jour	PRL,107,032502	Jul 11	T.Yamaguchi+	E2349
$^{12}\text{C},x+n$	inclusive	DAE	2JPNIRS	3.5+09	3.5+09	Jour	NIM/A,644,(1),59	Jul 11	D.Satoh+	E2341
$^{14}\text{C},\text{tcc}$		CS	2JPNIRS	4.0+09	4.0+09	Jour	PRL,107,032502	Jul 11	T.Yamaguchi+	E2349
$^{15}\text{C},\text{tcc}$		CS	2JPNIRS	4.3+09	4.3+09	Jour	PRL,107,032502	Jul 11	T.Yamaguchi+	E2349
$^{16}\text{C},\text{tcc}$		CS	2JPNIRS	4.5+09	4.5+09	Jour	PRL,107,032502	Jul 11	T.Yamaguchi+	E2349
$^{16}\text{O},\text{tcc}$		CS	2JPNIRS	4.6+09	4.6+09	Jour	PRL,107,032502	Jul 11	T.Yamaguchi+	E2349
$^{16}\text{O},x+n$	inclusive	DAE	2JPNIRS	4.6+09	4.6+09	Jour	NIM/A,644,(1),59	Jul 11	D.Satoh+	E2341

<sup>17</sup> O,tcc	CS	2JPNIRS	5.0+09	5.0+09	Jour	<a href="#">PRL,107,032502</a>	Jul 11	T.Yamaguchi+	<a href="#">E2349</a>	
<sup>18</sup> O,tcc	CS	2JPNIRS	5.4+09	5.4+09	Jour	<a href="#">PRL,107,032502</a>	Jul 11	T.Yamaguchi+	<a href="#">E2349</a>	
<sup>24</sup> Mg,tcc	CS	4ZZZDUB	8.3+09	1.0+10	Jour	<a href="#">RM,45,856</a>	10	A.N.Golovchenko+	<a href="#">A0900</a>	
<sup>24</sup> Mg,x	Many	CS	4ZZZDUB	3.4+08	4.2+08	Jour	<a href="#">RM,45,856</a>	10	A.N.Golovchenko+	<a href="#">A0900</a>

**6 Carbon 12**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\gamma,2n$	<sup>10</sup> C	CS	2SWDLND	1.5+08	6.9+08	Jour	<a href="#">NP/A,278,365</a>	77	B.Johnsson+	<a href="#">M0829</a>
$p,inel$	<sup>12</sup> C	DAP	1USAYAL	2.5+07	2.5+07	Jour	<a href="#">PR/C,84,027304</a>	11	W.R.Zimmerman+	<a href="#">C1856</a>
$p,non$		CS	1USAHRV	7.7+07	1.3+08	Jour	<a href="#">NP,29,474</a>	62	R.Goloskie+	<a href="#">C1865</a>
$p,tot$		CS	1USACHI	2.1+08	3.2+08	Jour	<a href="#">PR,96,398</a>	54	H.G.Decarvalho	<a href="#">C1860</a>
$p,tot$		CS	1USACHI	4.1+08	4.1+08	Jour	<a href="#">PR,91,767(2)</a>	53	J.Marshall+	<a href="#">C1859</a>
$d,\alpha$	<sup>10</sup> B	CSP	2JPNTOK	1.5+07	2.0+07	Jour	<a href="#">JPJ,18,(6),747</a>	Jun 63	T.Yanabu+	<a href="#">E2167</a>
$d,\alpha$	<sup>10</sup> B	DAE	1USAPUP	1.5+07	1.5+07	Jour	<a href="#">NP,24,372</a>	61	F.Pellegrini	<a href="#">F1113</a>
$d,\alpha$	<sup>10</sup> B	DAP	2JPNTOK	1.5+07	1.5+07	Jour	<a href="#">JPJ,18,(6),747</a>	Jun 63	T.Yanabu+	<a href="#">E2167</a>
$d,\alpha$	<sup>10</sup> B	DAP	1USAPUP	1.5+07	1.5+07	Jour	<a href="#">NP,24,372</a>	61	F.Pellegrini	<a href="#">F1113</a>
$d,\alpha$	<sup>10</sup> B	DAP	2JPNTOK	1.5+07	2.0+07	Jour	<a href="#">JPJ,18,(6),747</a>	Jun 63	T.Yanabu+	<a href="#">E2167</a>
<sup>3</sup> He,n	<sup>14</sup> O	CS	3AULCBR	3.0+06	6.6+06	Jour	<a href="#">NP,60,503</a>	64	D.R.Osgood+	<a href="#">P0100</a>

**6 Carbon 13**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$d,\gamma$		RP	2GERBOC	1.7+06	1.7+06	Jour	<a href="#">CJP,56,3</a>	78	W.Delbianco+	<a href="#">F1078</a>
$d,\gamma$	<sup>15</sup> N	DAP	2GERBOC	1.1+06	4.2+06	Jour	<a href="#">CJP,56,3</a>	78	W.Delbianco+	<a href="#">F1078</a>
$d,n$	<sup>14</sup> N	DAP	2UK CAV	7.8+05	1.3+06	Jour	<a href="#">NP,24,132</a>	61	A.N.James	<a href="#">F1115</a>
<sup>16</sup> O, <sup>12</sup> C	<sup>17</sup> O	DAP	2SWTZUR	1.4+07	2.0+07	Jour	<a href="#">NP/A,155,401</a>	70	P.H.Barker+	<a href="#">F1132</a>
<sup>16</sup> O,el	<sup>13</sup> C	DA	2SWTZUR	1.4+07	2.0+07	Jour	<a href="#">NP/A,155,401</a>	70	P.H.Barker+	<a href="#">F1132</a>

**6 Carbon 14**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,0$		RP	1USAWIS			Jour	<a href="#">PR,104,1434</a>	56	R.M.Sanders	<a href="#">C1853</a>
$p,n$	<sup>14</sup> N	CS	1USAWIS	6.6+05	3.4+06	Jour	<a href="#">PR,104,1434</a>	56	R.M.Sanders	<a href="#">C1853</a>
$p,n$	<sup>14</sup> N	?	1USAWIS	1.2+06	2.9+06	Jour	<a href="#">PR,104,1434</a>	56	R.M.Sanders	<a href="#">C1853</a>
$\alpha,0$		RP	1USAWIS			Jour	<a href="#">PR,104,1434</a>	56	R.M.Sanders	<a href="#">C1853</a>
$\alpha,n$	<sup>17</sup> O	CS	1USAWIS	2.3+06	3.6+06	Jour	<a href="#">PR,104,1434</a>	56	R.M.Sanders	<a href="#">C1853</a>
$\alpha,n$	<sup>17</sup> O	DA	1USAWIS	2.6+06	2.6+06	Jour	<a href="#">PR,104,1434</a>	56	R.M.Sanders	<a href="#">C1853</a>

**7 Nitrogen**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,x$	Many	DAE	2JPNIRS	7.0+07	7.0+07	Jour	<a href="#">KPS,59,(2),1805</a>	Aug 11	T.Sanami+	<a href="#">E2339</a>

7 Nitrogen 14

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,tot</i>		CS	1USACHI	2.1+08	3.2+08	Jour	<a href="#">PR,96,398</a>	54	H.G.Decarvalho	<a href="#">C1860</a>
<i>d,el</i>	<sup>14</sup> N	DA	3ARGCNE	2.7+07	2.7+07	Jour	<a href="#">NP,34,532</a>	62	H.J.Erramuspe+	<a href="#">F1120</a>
<i>d,n</i>	<sup>15</sup> O	DA	1USACOL	1.0+06	5.3+06	Jour	<a href="#">PR,112,1975</a>	58	J.L.Weil+	<a href="#">F1117</a>
<i>d,p</i>	<sup>15</sup> N	DA	3ARGCNE	2.7+07	2.7+07	Jour	<a href="#">NP,34,532</a>	62	H.J.Erramuspe+	<a href="#">F1120</a>
<i>d,p</i>	<sup>15</sup> N	DAP	2UK ALD	2.0+06	2.0+06	Jour	<a href="#">NP,34,628</a>	62	V.M.Rout+	<a href="#">F1119</a>

7 Nitrogen 15

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>γ,p</i>	<sup>14</sup> C	CS	4RUSFTI	2.0+07	3.0+07	Jour	<a href="#">YF,14,889</a>	71	V.P.Denisov+	<a href="#">M0827</a>
<i>γ,p</i>	<sup>14</sup> C	CSP	4RUSFTI	1.4+07	3.6+07	Jour	<a href="#">YF,14,889</a>	71	V.P.Denisov+	<a href="#">M0827</a>
<i>γ,p</i>	<sup>14</sup> C	DAP	4RUSFTI	1.4+07	3.6+07	Jour	<a href="#">YF,14,889</a>	71	V.P.Denisov+	<a href="#">M0827</a>
<i>γ,p</i>	<sup>14</sup> C	INT	4RUSFTI		3.6+07	Jour	<a href="#">YF,14,889</a>	71	V.P.Denisov+	<a href="#">M0827</a>
<i>d,n</i>	<sup>16</sup> O	DA	1USACOL	5.5+05	5.3+06	Jour	<a href="#">PR,112,1975</a>	58	J.L.Weil+	<a href="#">F1117</a>

8 Oxygen

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>γ,abs</i>		CS	2GERMNZ	1.0+07	1.6+08	Jour	<a href="#">NP/A,251,479</a>	75	J.Ahrens+	<a href="#">M0825</a>
<i>p,x</i>	Many	DAE	2JPNIRS	7.0+07	7.0+07	Jour	<a href="#">KPS,59,(2),1805</a>	Aug 11	T.Sanami+	<a href="#">E2339</a>

8 Oxygen 16

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>γ,2n</i>	<sup>14</sup> O	CS	2SWDLND	2.2+08	7.1+08	Jour	<a href="#">NP/A,278,365</a>	77	B.Johnsson+	<a href="#">M0829</a>
<i>p,α</i>	<sup>13</sup> N	CSP	1USAPTN	1.5+07	1.5+07	Jour	<a href="#">PR,123,1304</a>	61	D.R.Maxson	<a href="#">C0246</a>
<i>p,el</i>	<sup>16</sup> O	DA	1USAPTN	1.4+07	1.8+07	Jour	<a href="#">PR,123,1304</a>	61	D.R.Maxson	<a href="#">C0246</a>
<i>p,n</i>	<sup>16</sup> F	DAE	2JPNOSA	3.0+08	3.0+08	Jour	<a href="#">PR/C,84,014614</a>	Jul 11	T.Wakasa+	<a href="#">E2352</a>
<i>p,n</i>	<sup>16</sup> F	POD	2JPNOSA	3.0+08	3.0+08	Jour	<a href="#">PR/C,84,014614</a>	Jul 11	T.Wakasa+	<a href="#">E2352</a>
<i>p,tot</i>		CS	1USACHI	2.1+08	3.2+08	Jour	<a href="#">PR,96,398</a>	54	H.G.Decarvalho	<a href="#">C1860</a>
<i>p,tot</i>		CS	1USACHI	4.1+08	4.1+08	Jour	<a href="#">PR,91,767(2)</a>	53	J.Marshall+	<a href="#">C1859</a>
<i>d,α</i>	<sup>14</sup> N	CSP	2JPNOK	1.5+07	2.0+07	Jour	<a href="#">JPJ,18,(6),747</a>	Jun 63	T.Yanabu+	<a href="#">E2167</a>
<i>d,α</i>	<sup>14</sup> N	DAE	1USAPUP	1.5+07	1.5+07	Jour	<a href="#">NP,24,372</a>	61	F.Pellegrini	<a href="#">F1113</a>
<i>d,α</i>	<sup>14</sup> N	DAP	2JPNOK	1.5+07	1.5+07	Jour	<a href="#">JPJ,18,(6),747</a>	Jun 63	T.Yanabu+	<a href="#">E2167</a>
<i>d,α</i>	<sup>14</sup> N	DAP	1USAPUP	1.5+07	1.5+07	Jour	<a href="#">NP,24,372</a>	61	F.Pellegrini	<a href="#">F1113</a>
<i>d,α</i>	<sup>14</sup> N	DAP	2JPNOK	1.5+07	2.0+07	Jour	<a href="#">JPJ,18,(6),747</a>	Jun 63	T.Yanabu+	<a href="#">E2167</a>
<i>α,γ</i>		RP	2NEDUTR	1.1+06	2.5+06	Jour	<a href="#">PL,18,134</a>	65	C.Vanderleun+	<a href="#">F1064</a>
<i>α,γ</i>	<sup>20</sup> Ne	CS	1CANTMF	2.3+06	2.3+06	Jour	<a href="#">PR/C,84,022801</a>	11	U.Hager+	<a href="#">C1854</a>
<i>α,γ</i>	<sup>20</sup> Ne	CSP	1CANTMF	2.3+06	2.3+06	Jour	<a href="#">PR/C,84,022801</a>	11	U.Hager+	<a href="#">C1854</a>
<i>α,γ</i>	<sup>20</sup> Ne	DAP	2NEDUTR	1.1+06	1.4+06	Jour	<a href="#">PL,18,134</a>	65	C.Vanderleun+	<a href="#">F1064</a>
<sup>16</sup> O,el	<sup>16</sup> O	DA	1USAYAL	4.5+07	1.5+08	Jour	<a href="#">NP,29,544</a>	62	P.G.Roll+	<a href="#">F1103</a>

## 8

## Oxygen

18

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,x+n$	inclusive	TTD	2JPNJAE	1.8+07	1.8+07	Jour	<a href="#">KPS,59,(2),2035</a>	Aug 11	M.Hagiwara+	<a href="#">E2340</a>

## 9

## Fluorine

19

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$d,^3\text{He}$	$^{18}\text{O}$	DAP	2GERKFK	5.2+07	5.2+07	Jour	<a href="#">NP/A,155,417</a>	70	G.Th.Kaschl+	<a href="#">F1131</a>

## 10

## Neon

20

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$d,^3\text{He}$	$^{19}\text{F}$	DAP	2GERKFK	5.2+07	5.2+07	Jour	<a href="#">NP/A,155,417</a>	70	G.Th.Kaschl+	<a href="#">F1131</a>

## 10

## Neon

22

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$d,^3\text{He}$	$^{21}\text{F}$	DAP	2GERKFK	5.2+07	5.2+07	Jour	<a href="#">NP/A,155,417</a>	70	G.Th.Kaschl+	<a href="#">F1131</a>

## 12

## Magnesium

24

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,\text{el}$	$^{24}\text{Mg}$	DA	4RUSSUL	5.9+06	5.9+06	Jour	IZV,34,106	70	A.E.Antropov+	<a href="#">F1135</a>
$p,\text{inel}$	$^{24}\text{Mg}$	DAP	4RUSSUL	5.9+06	5.9+06	Jour	IZV,34,106	70	A.E.Antropov+	<a href="#">F1135</a>
$p,\text{non}$		CS	1CANMNA	1.8+07	4.8+07	Jour	<a href="#">NP/A,290,45</a>	77	N.E.Davison+	<a href="#">C1868</a>
$d,\alpha$	$^{22}\text{Na}$	DAE	1USAPUP	1.5+07	1.5+07	Jour	<a href="#">NP,24,372</a>	61	F.Pellegrini	<a href="#">F1113</a>
$d,\alpha$	$^{22}\text{Na}$	DAP	1USAPUP	1.5+07	1.5+07	Jour	<a href="#">NP,24,372</a>	61	F.Pellegrini	<a href="#">F1113</a>
$d,\text{el}$	$^{24}\text{Mg}$	DA	2UK ALD	1.0+07	1.0+07	Jour	<a href="#">NP,34,404</a>	62	R.Middleton+	<a href="#">F1104</a>
$d,\text{el}$	$^{24}\text{Mg}$	DA	1USAWAU	2.1+07	2.1+07	Jour	<a href="#">NP,17,641</a>	60	J.S.Blair+	<a href="#">F1126</a>
$d,\text{inel}$	$^{24}\text{Mg}$	DAP	1USAWAU	2.1+07	2.1+07	Jour	<a href="#">NP,17,641</a>	60	J.S.Blair+	<a href="#">F1126</a>
$d,p$	$^{25}\text{Mg}$	DAP	2UK ALD	1.0+07	1.0+07	Jour	<a href="#">NP,34,404</a>	62	R.Middleton+	<a href="#">F1104</a>
$\alpha,\text{el}$	$^{24}\text{Mg}$	DA	1USAWAU	2.8+07	4.1+07	Jour	<a href="#">NP,17,641</a>	60	J.S.Blair+	<a href="#">F1126</a>
$\alpha,\text{inel}$	$^{24}\text{Mg}$	DAP	1USAWAU	2.8+07	4.1+07	Jour	<a href="#">NP,17,641</a>	60	J.S.Blair+	<a href="#">F1126</a>

12                      Magnesium                      25

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	<sup>25</sup> Mg	DA	4RUSSUL	5.8+06	6.0+06	Jour	IZV,34,106	70	A.E.Antropov+	<a href="#">F1135</a>
<i>p</i> ,inel	<sup>25</sup> Mg	DAP	4RUSSUL	6.0+06	6.0+06	Jour	IZV,34,106	70	A.E.Antropov+	<a href="#">F1135</a>

12                      Magnesium                      26

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	<sup>26</sup> Mg	DA	4RUSSUL	5.8+06	6.0+06	Jour	IZV,34,106	70	A.E.Antropov+	<a href="#">F1135</a>

13                      Aluminium                      26

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,0		RP	1USAANL			Jour	<a href="#">PR/C,80,055802</a>	09	G.Lotay+	<a href="#">C1765</a>

13                      Aluminium                      27

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\gamma$ ,abs		CS	2GERMNZ	1.0+07	1.6+08	Jour	<a href="#">NP/A,251,479</a>	75	J.Ahrens+	<a href="#">M0825</a>
<i>n</i> ,tot		CS	1USALAS	5.0+06	7.0+06	Jour	<a href="#">PR/C,47,1033</a>	93	W.Abfalterer+	<a href="#">14184</a>
<i>p</i> , <i>n</i>	<sup>27</sup> Si	DAP	2JPNTOK	1.4+07	1.4+07	Jour	<a href="#">JPJ,15,(5),741</a>	May 60	K.Hisatake+	<a href="#">E2216</a>
<i>p</i> ,non		CS	1USAHRV	7.7+07	1.3+08	Jour	<a href="#">NP,29,474</a>	62	R.Goloskie+	<a href="#">C1865</a>
<i>p</i> ,tot		CS	1USACHI	2.1+08	3.2+08	Jour	<a href="#">PR,96,398</a>	54	H.G.Decarvalho	<a href="#">C1860</a>
<i>p</i> , <i>x</i>	<sup>7</sup> Be	CS	4RUSITE	4.1+07	2.6+09	Jour	YF,74,531	11	Yu.E.Titarenko+	<a href="#">A0902</a>
<i>p</i> , <i>x</i>	<sup>22</sup> Na	CS	4RUSITE	4.1+07	2.6+09	Jour	YF,74,531	11	Yu.E.Titarenko+	<a href="#">A0902</a>
<i>p</i> , <i>x</i>	<sup>24</sup> Na	CS	4RUSITE	4.1+07	2.6+09	Jour	YF,74,531	11	Yu.E.Titarenko+	<a href="#">A0902</a>
<sup>3</sup> He,el	<sup>27</sup> Al	DA	2UK BIR	2.9+07	2.9+07	Jour	<a href="#">NP,24,334</a>	61	G.W.Greenlees+	<a href="#">F1114</a>
$\alpha$ ,el	<sup>27</sup> Al	DA	1USAPUR	1.9+07	2.0+07	Jour	<a href="#">PR,112,1989</a>	58	O.H.Gailar+	<a href="#">F1116</a>
$\alpha$ ,inel	<sup>27</sup> Al	DAP	1USAPUR	1.9+07	1.9+07	Jour	<a href="#">PR,112,1989</a>	58	O.H.Gailar+	<a href="#">F1116</a>

13                      Aluminium                      28

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,0		NQ	1USALAS	Spont		Jour	<a href="#">PR/C,47,1033</a>	93	W.Abfalterer+	<a href="#">14184</a>

14                      Silicon

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\gamma$ ,abs		CS	2GERMNZ	1.0+07	3.0+07	Jour	<a href="#">NP/A,251,479</a>	75	J.Ahrens+	<a href="#">M0825</a>



## 14

## Silicon

29

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,0		NQ	1USALAS	Spont		Jour	<a href="#">PR/C,47,1033</a>	93	W.Abfaltrerer+	<a href="#">14184</a>

## 16

## Sulphur

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p$ ,tot		CS	1USACHI	2.1+08	3.2+08	Jour	<a href="#">PR,96,398</a>	54	H.G.Decarvalho	<a href="#">C1860</a>

## 16

## Sulphur

30

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\alpha$ , $p$	$^{33}\text{Cl}$	CSP	1USAANL	4.1+06	5.4+06	Jour	<a href="#">PR/C,84,045802</a>	11	C.M.Deibel+	<a href="#">C1869</a>

## 16

## Sulphur

32

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\gamma$ ,abs		CS	4RUSLEB	9.6+06	2.9+07	Jour	YF,8,1080	68	B.S.Dolbilkin+	<a href="#">M0824</a>
$\gamma$ ,abs		INT	4RUSLEB		3.0+07	Jour	YF,8,1080	68	B.S.Dolbilkin+	<a href="#">M0824</a>

## 17

## Chlorine

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p$ ,tot		CS	1USACHI	2.1+08	3.2+08	Jour	<a href="#">PR,96,398</a>	54	H.G.Decarvalho	<a href="#">C1860</a>
$^3\text{He}$ ,el	$^{nat}\text{Cl}$	DA	2UK BIR	2.9+07	2.9+07	Jour	<a href="#">NP,25,259</a>	61	J.Aguilar+	<a href="#">F1107</a>

## 19

## Potassium

39

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p$ ,el	$^{39}\text{K}$	DA	4RUSMOS	6.3+06	6.7+06	Jour	IZV,32,2013	68	S.S.Vasilev+	<a href="#">F1096</a>
$p$ ,inel	$^{39}\text{K}$	DAP	4RUSMOS	6.3+06	6.7+06	Jour	IZV,32,2013	68	S.S.Vasilev+	<a href="#">F1096</a>

**20 Calcium**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\gamma$ ,abs		CS	2GERMNZ	1.1+07	1.6+08	Jour	<a href="#">NP/A,251,479</a>	75	J.Ahrens+	<a href="#">M0825</a>

**20 Calcium**

40

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p$ ,non		CS	1USALAS	7.0+08	7.0+08	Jour	<a href="#">PR/C,19,905</a>	79	B.D.Anderson+	<a href="#">C1863</a>

**20 Calcium**

41

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,0		NQ	1USALAS	Spont		Jour	<a href="#">PR/C,47,1033</a>	93	W.Abfalterer+	<a href="#">14184</a>

**20 Calcium**

42

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\gamma$ ,x+n	inclusive	CS	3AULAML	1.2+07	2.7+07	Jour	<a href="#">NP/A,357,429</a>	81	Y.I.Assafiri+	<a href="#">M0830</a>
$\gamma$ ,x+n	inclusive	INT	3AULAML		2.7+07	Jour	<a href="#">NP/A,357,429</a>	81	Y.I.Assafiri+	<a href="#">M0830</a>

**20 Calcium**

44

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p$ ,non		CS	1USALAS	7.0+08	7.0+08	Jour	<a href="#">PR/C,19,905</a>	79	B.D.Anderson+	<a href="#">C1863</a>

**20 Calcium**

48

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$\gamma$ ,n	<sup>47</sup> Ca	CS	1USATNL	9.3+06	1.5+07	Jour	<a href="#">PR/C,84,044331</a>	11	J.R.Tompkins+	<a href="#">L0164</a>
$p$ ,non		CS	1USALAS	7.0+08	7.0+08	Jour	<a href="#">PR/C,19,905</a>	79	B.D.Anderson+	<a href="#">C1863</a>

**23 Vanadium**

51

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$n$ , $\gamma$	<sup>52</sup> V	CS	3GHALGN	2.5-02	2.5-02	Jour	<a href="#">ANE,38,1616</a>	11	S.E.Agbemava+	<a href="#">31716</a>
$n$ , $\gamma$	<sup>52</sup> V	RI	3GHALGN		5.5-01	Jour	<a href="#">ANE,38,1616</a>	11	S.E.Agbemava+	<a href="#">31716</a>

<i>p</i> ,el	<sup>51</sup> V	POD	4RUSMOS	5.8+06	6.5+06	Jour	IZV,37,88	73	Z.F.Kalacheva+	F1125
<sup>3</sup> He,el	<sup>51</sup> V	DA	2UK BIR	2.9+07	2.9+07	Jour	NP,24,334	61	G.W.Greenlees+	F1114

**24 Chromium**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,x	<sup>7</sup> Be	CS	4RUSITE	4.0+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>22</sup> Na	CS	4RUSITE	4.0+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>24</sup> Na	CS	4RUSITE	1.5+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>27</sup> Mg	CS	4RUSITE	4.0+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>28</sup> Mg	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>29</sup> Al	CS	4RUSITE	4.0+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>38</sup> S	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>34</sup> Cl	CS	4RUSITE	1.5+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>38</sup> Cl	CS	4RUSITE	9.7+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>39</sup> Cl	CS	4RUSITE	1.5+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>41</sup> Ar	CS	4RUSITE	9.7+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>38</sup> K	CS	4RUSITE	1.5+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>42</sup> K	CS	4RUSITE	6.6+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>43</sup> K	CS	4RUSITE	6.6+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>44</sup> K	CS	4RUSITE	4.0+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>45</sup> K	CS	4RUSITE	4.0+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>47</sup> Ca	CS	4RUSITE	1.5+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>43</sup> Sc	CS	4RUSITE	4.2+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>44</sup> Sc	CS	4RUSITE	4.2+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>46</sup> Sc	CS	4RUSITE	4.2+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>47</sup> Sc	CS	4RUSITE	4.2+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>48</sup> Sc	CS	4RUSITE	4.2+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>48</sup> V	CS	4RUSITE	4.2+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>48</sup> Cr	CS	4RUSITE	4.2+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>49</sup> Cr	CS	4RUSITE	4.2+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>51</sup> Cr	CS	4RUSITE	4.2+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>52</sup> Mn	CS	4RUSITE	4.2+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p</i> ,x	<sup>54</sup> Mn	CS	4RUSITE	4.2+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901

**24 Chromium**

50

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	<sup>50</sup> Cr	DA	4RUSSUL	6.0+06	6.0+06	Jour	IZV,35,2355	71	A.E.Antropov+	F1144
<i>p</i> ,el	<sup>50</sup> Cr	POD	4RUSMOS	5.8+06	6.5+06	Jour	IZV,37,88	73	Z.F.Kalacheva+	F1125
<i>p</i> ,inel	<sup>50</sup> Cr	DAP	4RUSSUL	6.0+06	6.0+06	Jour	IZV,35,2355	71	A.E.Antropov+	F1144

**24 Chromium**

52

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	<sup>52</sup> Cr	DA	4RUSSUL	6.0+06	6.0+06	Jour	IZV,35,2355	71	A.E.Antropov+	F1144
<i>p</i> ,el	<sup>52</sup> Cr	POD	4RUSMOS	5.8+06	6.5+06	Jour	IZV,37,88	73	Z.F.Kalacheva+	F1125

*p*,inel <sup>52</sup>Cr DAP 4RUSSUL 6.0+06 6.0+06 Jour IZV,35,2355 71 A.E.Antropov+ [F1144](#)

**24 Chromium 53**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	<sup>53</sup> Cr	POD	4RUSMOS	5.8+06	6.5+06	Jour	IZV,37,88	73	Z.F.Kalacheva+	<a href="#">F1125</a>

**24 Chromium 54**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,el	<sup>54</sup> Cr	DA	4RUSSUL	6.0+06	6.0+06	Jour	IZV,35,2355	71	A.E.Antropov+	<a href="#">F1144</a>
<i>p</i> ,el	<sup>54</sup> Cr	POD	4RUSMOS	5.8+06	6.5+06	Jour	IZV,37,88	73	Z.F.Kalacheva+	<a href="#">F1125</a>
<i>p</i> ,inel	<sup>54</sup> Cr	DAP	4RUSSUL	6.0+06	6.0+06	Jour	IZV,35,2355	71	A.E.Antropov+	<a href="#">F1144</a>

**26 Iron**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,non		CS	1CANUBC	1.6+07	1.6+07	Jour	<a href="#">NIM,66,13</a>	68	C.Hojvat+	<a href="#">C1864</a>
<i>p</i> ,x+t	inclusive	CS	1USABNL	4.3+08	4.3+08	Jour	<a href="#">PR,113,674</a>	59	O.A.Schaeffer+	<a href="#">C0277</a>

**26 Iron 56**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,x	<sup>9</sup> Be	CS	4RUSITE	4.5+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>22</sup> Na	CS	4RUSITE	4.0+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>24</sup> Na	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>27</sup> Mg	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>28</sup> Mg	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>29</sup> Al	CS	4RUSITE	4.0+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>38</sup> S	CS	4RUSITE	4.0+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>34</sup> Cl	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>38</sup> Cl	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>39</sup> Cl	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>41</sup> Ar	CS	4RUSITE	1.5+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>38</sup> K	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>42</sup> K	CS	4RUSITE	9.9+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>43</sup> K	CS	4RUSITE	9.9+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>44</sup> K	CS	4RUSITE	4.0+08	1.2+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>47</sup> Ca	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>43</sup> Sc	CS	4RUSITE	9.9+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>44</sup> Sc	CS	4RUSITE	6.8+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>46</sup> Sc	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>47</sup> Sc	CS	4RUSITE	6.8+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>
<i>p</i> ,x	<sup>48</sup> Sc	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	<a href="#">A0901</a>

<i>p,x</i>	<sup>48</sup> V	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p,x</i>	<sup>48</sup> Cr	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p,x</i>	<sup>49</sup> Cr	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p,x</i>	<sup>51</sup> Cr	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p,x</i>	<sup>52</sup> Mn	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p,x</i>	<sup>54</sup> Mn	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p,x</i>	<sup>56</sup> Mn	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p,x</i>	<sup>52</sup> Fe	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p,x</i>	<sup>53</sup> Fe	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p,x</i>	<sup>55</sup> Co	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p,x</i>	<sup>56</sup> Co	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901
<i>p,x</i>	<sup>57</sup> Co	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,548	11	Yu.E.Titarenko+	A0901

**28 Nickel**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,x</i>	<sup>7</sup> Be	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>22</sup> Na	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>24</sup> Na	CS	4RUSITE	8.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>27</sup> Mg	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>28</sup> Mg	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>29</sup> Al	CS	4RUSITE	8.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>38</sup> S	CS	4RUSITE	1.6+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>34</sup> Cl	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>38</sup> Cl	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>39</sup> Cl	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>41</sup> Ar	CS	4RUSITE	4.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>38</sup> K	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>42</sup> K	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>43</sup> K	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>47</sup> Ca	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>43</sup> Sc	CS	4RUSITE	1.5+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>44</sup> Sc	CS	4RUSITE	9.7+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>46</sup> Sc	CS	4RUSITE	9.7+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>47</sup> Sc	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>48</sup> Sc	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>48</sup> V	CS	4RUSITE	6.6+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>48</sup> Cr	CS	4RUSITE	6.6+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>49</sup> Cr	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>51</sup> Cr	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>52</sup> Mn	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>54</sup> Mn	CS	4RUSITE	6.6+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>56</sup> Mn	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>52</sup> Fe	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>53</sup> Fe	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>59</sup> Fe	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>55</sup> Co	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>56</sup> Co	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>57</sup> Co	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>58</sup> Co	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>60</sup> Co	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>62</sup> Co	CS	4RUSITE	8.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>56</sup> Ni	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
<i>p,x</i>	<sup>57</sup> Ni	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906

<i>p,x</i>	<sup>60</sup> Cu	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	<a href="#">A0906</a>
<i>p,x</i>	<sup>61</sup> Cu	CS	4RUSITE	4.3+07	2.5+08	Jour	YF,74,561	11	Yu.E.Titarenko+	<a href="#">A0906</a>

**28 Nickel 58**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>58</sup> Ni	DA	4RUSEPA	3.2+06	7.6+06	Jour	IZV,30,271	66	I.M.Borkin+	<a href="#">F1133</a>
<i>p,el</i>	<sup>58</sup> Ni	DA	4RUSSUL	6.0+06	6.1+06	Jour	IZV,32,1741	69	A.E.Antropov+	<a href="#">F1134</a>
<i>p,inel</i>	<sup>58</sup> Ni	DAP	4RUSSUL	6.0+06	6.1+06	Jour	IZV,32,1741	69	A.E.Antropov+	<a href="#">F1134</a>

**28 Nickel 60**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>60</sup> Ni	DA	4RUSEPA	3.2+06	7.6+06	Jour	IZV,30,271	66	I.M.Borkin+	<a href="#">F1133</a>
<i>p,el</i>	<sup>60</sup> Ni	DA	4RUSSUL	6.0+06	6.1+06	Jour	IZV,32,1741	69	A.E.Antropov+	<a href="#">F1134</a>
<i>p,inel</i>	<sup>60</sup> Ni	DAP	4RUSSUL	6.0+06	6.1+06	Jour	IZV,32,1741	69	A.E.Antropov+	<a href="#">F1134</a>

**28 Nickel 61**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,inel</i>	<sup>61</sup> Ni	DAP	4RUSSUL	6.0+06	6.1+06	Jour	IZV,32,1741	69	A.E.Antropov+	<a href="#">F1134</a>
<i>p,n</i>	<sup>61</sup> Cu	DA	4RUSEPA	3.2+06	4.7+06	Jour	IZV,30,271	66	I.M.Borkin+	<a href="#">F1133</a>

**28 Nickel 62**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>62</sup> Ni	DA	4RUSEPA	2.2+06	7.7+06	Jour	IZV,30,271	66	I.M.Borkin+	<a href="#">F1133</a>
<i>p,el</i>	<sup>62</sup> Ni	DA	4RUSSUL	6.0+06	6.1+06	Jour	IZV,32,1741	69	A.E.Antropov+	<a href="#">F1134</a>
<i>p,inel</i>	<sup>62</sup> Ni	DAP	4RUSSUL	6.0+06	6.1+06	Jour	IZV,32,1741	69	A.E.Antropov+	<a href="#">F1134</a>
<i>p,n</i>	<sup>62</sup> Cu	DA	4RUSEPA	4.8+06	6.2+06	Jour	IZV,30,271	66	I.M.Borkin+	<a href="#">F1133</a>

**28 Nickel 64**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>64</sup> Ni	DA	4RUSEPA	3.2+06	7.6+06	Jour	IZV,30,271	66	I.M.Borkin+	<a href="#">F1133</a>
<i>p,el</i>	<sup>64</sup> Ni	DA	4RUSSUL	6.0+06	6.1+06	Jour	IZV,32,1741	69	A.E.Antropov+	<a href="#">F1134</a>
<i>p,inel</i>	<sup>64</sup> Ni	DAP	4RUSSUL	6.0+06	6.1+06	Jour	IZV,32,1741	69	A.E.Antropov+	<a href="#">F1134</a>
<i>p,n</i>	<sup>64</sup> Cu	DA	4RUSEPA	3.1+06	6.1+06	Jour	IZV,30,271	66	I.M.Borkin+	<a href="#">F1133</a>
<sup>48</sup> Ca, <i>inel</i>	<sup>64</sup> Ni	DAP	2ITYPAD	2.8+08	2.8+08	Jour	<a href="#">PR/C,84,054613</a>	11	D.Montanari+	<a href="#">A0909</a>
<sup>48</sup> Ca, <i>x</i>	<sup>47</sup> K	DA	2ITYPAD	2.8+08	2.8+08	Jour	<a href="#">PR/C,84,054613</a>	11	D.Montanari+	<a href="#">A0909</a>
<sup>48</sup> Ca, <i>x</i>	<sup>47</sup> Ca	DA	2ITYPAD	2.8+08	2.8+08	Jour	<a href="#">PR/C,84,054613</a>	11	D.Montanari+	<a href="#">A0909</a>

<sup>48</sup> Ca,x	<sup>49</sup> Ca	DA	2ITYPAD	2.8+08	2.8+08	Jour	<a href="#">PR/C,84,054613</a>	11	D.Montanari+	<a href="#">A0909</a>
<sup>48</sup> Ca,x	<sup>49</sup> Ca	DAP	2ITYPAD	2.8+08	2.8+08	Jour	<a href="#">PR/C,84,054613</a>	11	D.Montanari+	<a href="#">A0909</a>
<sup>48</sup> Ca,x	<sup>49</sup> Sc	DA	2ITYPAD	2.8+08	2.8+08	Jour	<a href="#">PR/C,84,054613</a>	11	D.Montanari+	<a href="#">A0909</a>

**29 Copper**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,non		CS	1CANUBC	1.6+07	1.6+07	Jour	<a href="#">NIM,66,13</a>	68	C.Hojvat+	<a href="#">C1864</a>
<i>p</i> ,non		CS	1USAHRV	7.7+07	1.3+08	Jour	<a href="#">NP,29,474</a>	62	R.Goloskie+	<a href="#">C1865</a>
$\alpha$ ,el	<sup>nat</sup> Cu	DA	1USAPUR	1.9+07	1.9+07	Jour	<a href="#">PR,112,1989</a>	58	O.H.Gailar+	<a href="#">F1116</a>
$\alpha$ ,inel	<sup>nat</sup> Cu	DAP	1USAPUR	1.9+07	1.9+07	Jour	<a href="#">PR,112,1989</a>	58	O.H.Gailar+	<a href="#">F1116</a>

**29 Copper** 63

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<sup>3</sup> He,el	<sup>63</sup> Cu	DA	2UK BIR	2.9+07	2.9+07	Jour	<a href="#">NP,24,334</a>	61	G.W.Greenlees+	<a href="#">F1114</a>

**30 Zinc** 64

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,non		CS	1CANMNA	2.2+07	4.8+07	Jour	<a href="#">NP/A,290,45</a>	77	N.E.Davison+	<a href="#">C1868</a>

**30 Zinc** 66

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,non		CS	1CANMNA	2.2+07	4.8+07	Jour	<a href="#">NP/A,290,45</a>	77	N.E.Davison+	<a href="#">C1868</a>

**30 Zinc** 68

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,non		CS	1CANMNA	2.2+07	4.8+07	Jour	<a href="#">NP/A,290,45</a>	77	N.E.Davison+	<a href="#">C1868</a>

**31 Gallium** 69

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n</i> , $\gamma$	<sup>70</sup> Ga	CS	3VN DAL	2.5-02	2.5-02	Jour	<a href="#">KPS,59,1757</a>	11	P.N.Son+	<a href="#">31715</a>
<i>n</i> , $\gamma$	<sup>70</sup> Ga	RI	3VN DAL		5.5-01	Jour	<a href="#">KPS,59,1757</a>	11	P.N.Son+	<a href="#">31715</a>

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## Gallium

71

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$n,\gamma$	$^{72}\text{Ga}$	CS	3VN DAL	2.5-02	2.5-02	Jour	<a href="#">KPS,59,1757</a>	11	P.N.Son+	31715
$n,\gamma$	$^{72}\text{Ga}$	RI	3VN DAL	5.5-01	5.5-01	Jour	<a href="#">KPS,59,1757</a>	11	P.N.Son+	31715

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## Krypton

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$d,\text{el}$	$^{nat}\text{Kr}$	DA	2UK BIR	1.9+07	2.0+07	Jour	<a href="#">NP,16,52</a>	60	J.B.A.England+	F1128
$^3\text{He},\text{el}$	$^{nat}\text{Kr}$	DA	2UK BIR	2.9+07	2.9+07	Jour	<a href="#">NP,25,259</a>	61	J.Aguilar+	F1107

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## Niobium

93

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,x$	$^{22}\text{Na}$	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{24}\text{Na}$	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{27}\text{Mg}$	CS	4RUSITE	1.6+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{28}\text{Mg}$	CS	4RUSITE	1.6+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{29}\text{Al}$	CS	4RUSITE	1.6+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{38}\text{Cl}$	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{39}\text{Cl}$	CS	4RUSITE	1.6+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{41}\text{Ar}$	CS	4RUSITE	1.6+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{42}\text{K}$	CS	4RUSITE	1.6+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{43}\text{K}$	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{47}\text{Ca}$	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{43}\text{Sc}$	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{44}\text{Sc}$	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{46}\text{Sc}$	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{47}\text{Sc}$	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{48}\text{Sc}$	CS	4RUSITE	8.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{48}\text{V}$	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{48}\text{Cr}$	CS	4RUSITE	1.6+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{49}\text{Cr}$	CS	4RUSITE	1.6+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{51}\text{Cr}$	CS	4RUSITE	8.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{52}\text{Mn}$	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{54}\text{Mn}$	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{56}\text{Mn}$	CS	4RUSITE	8.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{53}\text{Fe}$	CS	4RUSITE	1.6+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{59}\text{Fe}$	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{55}\text{Co}$	CS	4RUSITE	1.6+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{56}\text{Co}$	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{57}\text{Co}$	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{58}\text{Co}$	CS	4RUSITE	4.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{60}\text{Co}$	CS	4RUSITE	8.0+08	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{62}\text{Co}$	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906
$p,x$	$^{57}\text{Ni}$	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,561	11	Yu.E.Titarenko+	A0906





**42 Molybdenum**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,x</i>	<sup>99</sup> Mo	CS	1USABRK	1.1+07	5.0+07	Jour	<a href="#">ARI,69,1447</a>	11	P.Chodash+	<a href="#">C1871</a>
<i>d,x</i>	<sup>99</sup> Mo	CS	1USABRK	9.7+06	5.8+07	Jour	<a href="#">ARI,69,1447</a>	11	P.Chodash+	<a href="#">C1871</a>

**46 Palladium 106**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>106</sup> Pd	DA	4RUSEPA	6.0+06	6.0+06	Jour	IZV,37,1880	73	B.Ya.Guzhovskii+	<a href="#">F1127</a>

**46 Palladium 108**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>108</sup> Pd	DA	4RUSEPA	6.0+06	6.5+06	Jour	IZV,37,1880	73	B.Ya.Guzhovskii+	<a href="#">F1127</a>

**46 Palladium 110**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>110</sup> Pd	DA	4RUSEPA	6.0+06	6.5+06	Jour	IZV,37,1880	73	B.Ya.Guzhovskii+	<a href="#">F1127</a>

**47 Silver**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,non</i>		CS	1USAHRV	7.7+07	1.3+08	Jour	<a href="#">NP,29,474</a>	62	R.Goloskie+	<a href="#">C1865</a>
<i>α,el</i>	<sup>nat</sup> Ag	DA	1USAPUR	1.9+07	1.9+07	Jour	<a href="#">PR,112,1989</a>	58	O.H.Gailar+	<a href="#">F1116</a>

**48 Cadmium**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,x+γ</i>	inclusive	DE	4UKRKGU	1.4+07	1.4+07	Jour	YFE,12,(2),129	11	B.M.Bondar+	<a href="#">32232</a>

**48 Cadmium 110**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>110</sup> Cd	DA	4RUSEPA	6.5+06	6.5+06	Jour	IZV,37,1880	73	B.Ya.Guzhovskii+	<a href="#">F1127</a>

**48                      Cadmium                      112**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>112</sup> Cd	DA	4RUSEPA	6.5+06	6.5+06	Jour	IZV,37,1880	73	B.Ya.Guzhovskii+	<a href="#">F1127</a>

**48                      Cadmium                      114**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>114</sup> Cd	DA	4RUSEPA	6.5+06	7.0+06	Jour	IZV,37,1880	73	B.Ya.Guzhovskii+	<a href="#">F1127</a>

**48                      Cadmium                      116**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>116</sup> Cd	DA	4RUSEPA	6.5+06	7.0+06	Jour	IZV,37,1880	73	B.Ya.Guzhovskii+	<a href="#">F1127</a>

**50                      Tin                      112**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<sup>112</sup> Sn,x	Many	CS	2GERGSI	1.1+11	1.1+11	Jour	<a href="#">PR/C,84,054605</a>	11	V.Foehr+	<a href="#">A0908</a>

**50                      Tin                      118**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>118</sup> Sn	DA	4RUSEPA	6.5+06	7.0+06	Jour	IZV,37,1880	73	B.Ya.Guzhovskii+	<a href="#">F1127</a>

**50                      Tin                      120**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>120</sup> Sn	DA	4RUSEPA	6.5+06	7.0+06	Jour	IZV,37,1880	73	B.Ya.Guzhovskii+	<a href="#">F1127</a>

**50                      Tin                      122**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	<sup>122</sup> Sn	DA	4RUSEPA	6.5+06	7.5+06	Jour	IZV,37,1880	73	B.Ya.Guzhovskii+	<a href="#">F1127</a>

**50 Tin 124**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,el$	$^{124}\text{Sn}$	DA	4RUSEPA	6.5+06	7.5+06	Jour	IZV,37,1880	73	B.Ya.Guzhovskii+	<a href="#">F1127</a>
$^{124}\text{Sn},x$	Many	CS	2GERGSI	1.2+11	1.2+11	Jour	<a href="#">PR/C,84,054605</a>	11	V.Foehr+	<a href="#">A0908</a>

**53 Iodine 127**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$n,\gamma$	$^{128}\text{I}$	CS	3GHALGN	2.5-02	2.5-02	Jour	<a href="#">ANE,38,1737</a>	11	S.E.Agbemava+	<a href="#">31717</a>

**54 Xenon**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$d,el$	$^{nat}\text{Xe}$	DA	2UK BIR	2.0+07	2.0+07	Jour	<a href="#">NP,16,52</a>	60	J.B.A.England+	<a href="#">F1128</a>
$^3\text{He},el$	$^{nat}\text{Xe}$	DA	2UK BIR	2.9+07	2.9+07	Jour	<a href="#">NP,25,259</a>	61	J.Aguilar+	<a href="#">F1107</a>

**58 Cerium 140**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$p,non$		CS	1CANMNA	1.8+07	4.8+07	Jour	<a href="#">NP/A,290,45</a>	77	N.E.Davison+	<a href="#">C1868</a>

**60 Neodymium 150**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$^3\text{He},t$	$^{150}\text{Pm}$	DAE	2JPNOSA	4.2+08	4.2+08	Jour	<a href="#">PR/C,83,(6),064318</a>	Jun 11	C.J.Guess+	<a href="#">E2347</a>
$^3\text{He},t$	$^{150}\text{Pm}$	DAP	2JPNOSA	4.2+08	4.2+08	Jour	<a href="#">PR/C,83,(6),064318</a>	Jun 11	C.J.Guess+	<a href="#">E2347</a>

**62 Samarium 147**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$n,0$		RP	1USALAS		7.0+02	Jour	<a href="#">PR/C,76,025804</a>	07	P.E.Koehler+	<a href="#">14306</a>
$n,\gamma$		RP	1USALAS	3.4+03	9.9+05	Jour	<a href="#">PR/C,76,025804</a>	07	P.E.Koehler+	<a href="#">14306</a>

**62                          Samarium                          152**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,γ</i>	<sup>153</sup> Sm	CS	3GHALGN	2.5-02	2.5-02	Jour	<a href="#">ANE,38,1737</a>	11	S.E.Agbemava+	<a href="#">31717</a>
<sup>16</sup> O,el	<sup>152</sup> Sm	DA	3CPRAEP	3.6+07	5.4+07	Jour	<a href="#">PR/C,79,064603</a>	09	C.J.Lin+	<a href="#">C1709</a>

**62                          Samarium                          154**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,γ</i>	<sup>155</sup> Sm	CS	3GHALGN	2.5-02	2.5-02	Jour	<a href="#">ANE,38,1737</a>	11	S.E.Agbemava+	<a href="#">31717</a>
<sup>16</sup> O,el	<sup>154</sup> Sm	DA	3CPRAEP	3.3+07	5.3+07	Jour	<a href="#">PR/C,79,064603</a>	09	C.J.Lin+	<a href="#">C1709</a>

**63                          Europium                          151**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,γ</i>	<sup>152</sup> Eu	CS	1USALAS	3.8+02	4.8+03	Conf	2007NICE,1,491	07	W.E.Parker+	<a href="#">14221</a>

**65                          Terbium                          159**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>γ,2n</i>	<sup>157</sup> Tb	CS	4RUSMOS	1.5+07	2.7+07	Rept	MSU-INP-2011-5/869	11	V.V.Varlamov+	<a href="#">M0831</a>
<i>γ,3n</i>	<sup>156</sup> Tb	CS	4RUSMOS	2.4+07	2.7+07	Rept	MSU-INP-2011-5/869	11	V.V.Varlamov+	<a href="#">M0831</a>
<i>γ,n</i>	<sup>158</sup> Tb	CS	4RUSMOS	7.7+06	2.7+07	Rept	MSU-INP-2011-5/869	11	V.V.Varlamov+	<a href="#">M0831</a>
<i>γ,x+n</i>	inclusive	CS	4RUSMOS	7.7+06	2.7+07	Rept	MSU-INP-2011-5/869	11	V.V.Varlamov+	<a href="#">M0831</a>

**73                          Tantalum**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,x</i>	<sup>7</sup> Be	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>22</sup> Na	CS	4RUSITE	2.6+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>24</sup> Na	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>28</sup> Mg	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>44</sup> Sc	CS	4RUSITE	2.6+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>46</sup> Sc	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>48</sup> Sc	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>48</sup> V	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>52</sup> Mn	CS	4RUSITE	2.6+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>54</sup> Mn	CS	4RUSITE	4.0+08	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>59</sup> Fe	CS	4RUSITE	4.0+08	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>56</sup> Co	CS	4RUSITE	2.6+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>58</sup> Co	CS	4RUSITE	2.6+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>60</sup> Co	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>65</sup> Zn	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>





<i>p,x</i>	<sup>175</sup> Hf	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>179</sup> Hf	CS	4RUSITE	6.6+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>180</sup> Hf	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>181</sup> Hf	CS	4RUSITE	2.6+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>172</sup> Ta	CS	4RUSITE	9.7+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>173</sup> Ta	CS	4RUSITE	9.7+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>174</sup> Ta	CS	4RUSITE	9.7+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>175</sup> Ta	CS	4RUSITE	6.6+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>176</sup> Ta	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>177</sup> Ta	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>178</sup> Ta	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>180</sup> Ta	CS	4RUSITE	4.3+07	4.0+08	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>174</sup> W	CS	4RUSITE	9.7+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>176</sup> W	CS	4RUSITE	6.6+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>177</sup> W	CS	4RUSITE	4.3+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>178</sup> W	CS	4RUSITE	4.3+07	1.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>

**73 Tantalum 181**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,x</i>	<sup>148</sup> Gd	CS	4RUSITE	4.0+08	2.6+09	Jour	YF,74,596	11	Yu.E.Titarenko+	<a href="#">A0905</a>

**74 Tungsten**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,x</i>	<sup>7</sup> Be	CS	4RUSITE	9.9+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>22</sup> Na	CS	4RUSITE	1.6+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>24</sup> Na	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>28</sup> Mg	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>44</sup> Sc	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>46</sup> Sc	CS	4RUSITE	8.0+08	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>48</sup> Sc	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>48</sup> V	CS	4RUSITE	9.9+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>52</sup> Mn	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>54</sup> Mn	CS	4RUSITE	8.0+08	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>59</sup> Fe	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>56</sup> Co	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>58</sup> Co	CS	4RUSITE	1.2+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>60</sup> Co	CS	4RUSITE	2.6+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>65</sup> Zn	CS	4RUSITE	2.6+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>69</sup> Zn	CS	4RUSITE	2.6+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>74</sup> As	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>75</sup> Se	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>77</sup> Br	CS	4RUSITE	2.6+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>82</sup> Rb	CS	4RUSITE	2.6+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>83</sup> Rb	CS	4RUSITE	4.0+08	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>84</sup> Rb	CS	4RUSITE	2.5+08	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>83</sup> Sr	CS	4RUSITE	2.6+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>85</sup> Sr	CS	4RUSITE	6.0+08	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>86</sup> Y	CS	4RUSITE	1.6+09	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>87</sup> Y	CS	4RUSITE	4.0+08	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>







<i>p,x</i>	<sup>175</sup> Ta	CS	4RUSITE	6.8+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>176</sup> Ta	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>177</sup> Ta	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>178</sup> Ta	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>182</sup> Ta	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>183</sup> Ta	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>184</sup> Ta	CS	4RUSITE	6.8+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>174</sup> W	CS	4RUSITE	6.8+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>176</sup> W	CS	4RUSITE	6.8+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>177</sup> W	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>178</sup> W	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>181</sup> W	CS	4RUSITE	4.6+07	9.9+07	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>176</sup> Re	CS	4RUSITE	6.8+07	2.5+08	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>177</sup> Re	CS	4RUSITE	6.8+07	2.5+08	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>178</sup> Re	CS	4RUSITE	4.6+07	6.0+08	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>179</sup> Re	CS	4RUSITE	4.6+07	2.5+08	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>181</sup> Re	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>182</sup> Re	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>183</sup> Re	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>184</sup> Re	CS	4RUSITE	4.6+07	2.6+09	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>
<i>p,x</i>	<sup>186</sup> Re	CS	4RUSITE	4.6+07	9.9+07	Jour	YF,74,574	11	Yu.E.Titarenko+	<a href="#">A0904</a>

## 74

## Tungsten

184

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<sup>16</sup> O,el	<sup>184</sup> W	DA	3CPRAEP	3.7+07	6.3+07	Jour	<a href="#">PRC,79,064603</a>	09	C.J.Lin+	<a href="#">C1709</a>

## 75

## Rhenium

185

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,γ</i>	<sup>186</sup> Re	CS	3VN DAL	2.4+04	1.5+05	Jour	<a href="#">KPS,59,1757</a>	11	V.H.Tan+	<a href="#">31713</a>

## 75

## Rhenium

187

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,γ</i>	<sup>188</sup> Re	CS	3VN DAL	2.4+04	1.5+05	Jour	<a href="#">KPS,59,1757</a>	11	V.H.Tan+	<a href="#">31713</a>

## 78

## Platinum

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,x</i>	<sup>195</sup> Pt	CS	3CHPLNZ	1.4+07	1.5+07	Jour	IPC,79,(10),1018	Oct 10	Junhualuo+	<a href="#">32674</a>

**78 Platinum 196**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<sup>16</sup> O,el	<sup>196</sup> Pt	DA	3CPRAEP	4.1+07	6.6+07	Jour	<a href="#">PR/C,79,064603</a>	09	C.J.Lin+	<a href="#">C1709</a>

**79 Gold 197**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,non		CS	1CANUBC	1.6+07	1.6+07	Jour	<a href="#">NIM,66,13</a>	68	C.Hojvat+	<a href="#">C1864</a>

**82 Lead**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p</i> ,non		CS	1USAHRV	7.7+07	1.3+08	Jour	<a href="#">NP,29,474</a>	62	R.Goloskie+	<a href="#">C1865</a>

**82 Lead 208**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<sup>21</sup> N,incl	<sup>208</sup> Pb	CSP	2JPNIPC	1.0+09	1.0+09	Jour	<a href="#">PR/C,82,(2),027305</a>	Aug 10	Z.Elekes+	<a href="#">E2345</a>
<sup>16</sup> O,el	<sup>208</sup> Pb	DA	3CPRAEP	3.7+07	6.9+07	Jour	<a href="#">PR/C,79,064603</a>	09	C.J.Lin+	<a href="#">C1709</a>

**90 Thorium 230**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n</i> ,abs		CS	4RUSITE	2.5-02	2.5-02	Jour	AE,42,(6),505	Jun 77	R.N.Ivanov+	<a href="#">40377</a>
<i>n</i> ,el	<sup>230</sup> Th	POT	4RUSITE	2.5-02	2.5-02	Jour	AE,42,(6),505	Jun 77	R.N.Ivanov+	<a href="#">40377</a>
<i>n</i> ,tot		CS	4RUSITE	2.5-02	2.5-02	Jour	AE,42,(6),505	Jun 77	R.N.Ivanov+	<a href="#">40377</a>

**90 Thorium 232**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<sup>12</sup> C,x	<sup>24</sup> Na	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	<a href="#">A0903</a>
<sup>12</sup> C,x	<sup>28</sup> Mg	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	<a href="#">A0903</a>
<sup>12</sup> C,x	<sup>44</sup> Sc	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	<a href="#">A0903</a>
<sup>12</sup> C,x	<sup>46</sup> Sc	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	<a href="#">A0903</a>
<sup>12</sup> C,x	<sup>48</sup> Sc	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	<a href="#">A0903</a>
<sup>12</sup> C,x	<sup>48</sup> V	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	<a href="#">A0903</a>
<sup>12</sup> C,x	<sup>52</sup> Mn	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	<a href="#">A0903</a>
<sup>12</sup> C,x	<sup>56</sup> Mn	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	<a href="#">A0903</a>
<sup>12</sup> C,x	<sup>59</sup> Fe	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	<a href="#">A0903</a>



<sup>12</sup> C,x	<sup>173</sup> Hf	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>175</sup> Hf	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>184</sup> Ir	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>189</sup> Ir	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>192</sup> Au	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>201</sup> Pb	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>203</sup> Pb	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>203</sup> Bi	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>204</sup> Bi	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>205</sup> Bi	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>206</sup> Po	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>237</sup> U	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903

**92 Uranium 235**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n</i> ,fis	Many	FY	1CANMCM	Maxwl		Jour	<a href="#">PR/C,3,849</a>	71	G.Kugler+	14200
<i>n</i> ,fis	<sup>nat</sup> G	?	1USAORL	Maxwl		Jour	<a href="#">PR/C,3,373</a>	71	R.W.Peelle+	14201
<i>n</i> ,fis	<sup>3</sup> H	FY	1USAANL	Maxwl	7.7+05	Jour	<a href="#">PR/C,6,2252</a>	72	M.J.Fluss+	14196
<i>n</i> ,fis	<sup>4</sup> He	FY	1USAANL	1.7+05	5.7+05	Jour	<a href="#">PR/C,6,2252</a>	72	M.J.Fluss+	14196

**92 Uranium 238**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n</i> ,fis		NU	4RUSFEI	6.0+06	8.9+06	Conf	80KIEV,3,104	Sep 80	N.V.Kornilov+	40631
<i>n</i> ,fis		?	4RUSFEI	6.0+06	8.9+06	Conf	80KIEV,3,104	Sep 80	N.V.Kornilov+	40631
<i>n</i> , $\gamma$	<sup>239</sup> U	CS	3GHALGN	2.5-02	2.5-02	Jour	<a href="#">ANE,38,1737</a>	11	S.E.Agbemava+	31717
<sup>12</sup> C,x	<sup>24</sup> Na	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>28</sup> Mg	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>44</sup> Sc	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>46</sup> Sc	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>48</sup> Sc	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>48</sup> V	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>52</sup> Mn	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>56</sup> Mn	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>59</sup> Fe	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>62</sup> Zn	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>65</sup> Zn	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>73</sup> Ga	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>71</sup> As	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>74</sup> As	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>76</sup> As	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>75</sup> Se	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>81</sup> Rb	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>83</sup> Rb	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>84</sup> Rb	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>91</sup> Sr	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>87</sup> Y	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>86</sup> Zr	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>88</sup> Zr	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903
<sup>12</sup> C,x	<sup>89</sup> Zr	CS	4ZZZDUB	4.4+10	4.4+10	Rept	JINR-E1-89-482	89	P.Kozma+	A0903



**94                      Plutonium                      239**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n</i> ,fis	<sup>1</sup> n	KE	4RUSRI	2.5-03	2.5-03	Rept	YFI-6,94	68	L.M.Belov+	<a href="#">40137</a>

**94                      Plutonium                      242**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,fis	<sup>1</sup> n	KE	4RUSRI	Spont		Rept	YFI-6,94	68	L.M.Belov+	<a href="#">40137</a>

**95                      Americium                      242**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n</i> ,fis		CS	1USALAS	2.2+00	9.9+01	Conf	2007NICE,1,491	07	W.E.Parker+	<a href="#">14221</a>

**96                      Curium                      244**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,fis	<sup>1</sup> n	KE	4RUSRI	Spont		Rept	YFI-6,94	68	L.M.Belov+	<a href="#">40137</a>

**96                      Curium                      248**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,fis	<sup>nat</sup> G	MLT	4ZZZDUB	Spont		Rept	JINR-D7-89-531,49	89	E.A.Sokol+	<a href="#">41580</a>

**98                      Californium                      252**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,fis	Many	FY	4ZZZDUB	Spont		Jour	PTE,1,51	08	E.M.Kozulin+	<a href="#">41581</a>
0,fis	Many	KE	4ZZZDUB	Spont		Jour	PTE,1,51	08	E.M.Kozulin+	<a href="#">41581</a>
0,fis	<sup>nat</sup> G	KE	4RUSFEI	Spont		Rept	FEI-913	79	Uy.I.Kolevatov+	<a href="#">41582</a>
0,fis	<sup>nat</sup> G	MLT	4ZZZDUB	Spont		Rept	JINR-D7-89-531,49	89	E.A.Sokol+	<a href="#">41580</a>
0,fis	<sup>nat</sup> G	MLT	4RUSFEI	Spont		Rept	FEI-913	79	Uy.I.Kolevatov+	<a href="#">41582</a>
0,fis		NUF	4RUSRI	Spont		Conf	73KIEV,4,138	May 73	M.V.Blinov+	<a href="#">40418</a>
0,fis		NUF	4ZZZDUB	Spont		Jour	<a href="#">NIM/A,293,555</a>	90	A.Lajtai+	<a href="#">41158</a>
0,fis		NUF	4RUSFEI	Spont		Rept	FEI-913	79	Uy.I.Kolevatov+	<a href="#">41582</a>
0,fis	<sup>1</sup> n	KE	4RUSRI	Spont		Conf	73KIEV,4,138	May 73	M.V.Blinov+	<a href="#">40418</a>
0,fis	<sup>1</sup> n	KE	4RUSFEI	Spont		Rept	FEI-913	79	Uy.I.Kolevatov+	<a href="#">41582</a>



**98 Californium 254**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,fis	<sup>nat</sup> G	MLT	4ZZZDUB	Spont		Rept	JINR-D7-89-531,49	89	E.A.Sokol+	<a href="#">41580</a>

**100 Fermium 256**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,fis	<sup>nat</sup> G	MLT	4ZZZDUB	Spont		Rept	JINR-D7-89-531,49	89	E.A.Sokol+	<a href="#">41580</a>

**101 Mendeleevium 259**

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,fis	<sup>nat</sup> G	MLT	4ZZZDUB	Spont		Rept	JINR-D7-89-531,49	89	E.A.Sokol+	<a href="#">41580</a>