EXFOR News (October 2024)

New experimental data available from Nuclear Reaction Data Centres

EXFOR [1] is a world-wide data library for experimental neutron, charged-particle and photon induced reaction data compiled by the International Network of the Nuclear Reaction Data Centres (NRDC)[a] co-ordinated by the IAEA Nuclear Data Section. Regularly updated web retrieval databases are available at IAEA-NDS as well as NNDC, NEADB, JCPRG and CDFE.

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

[1] N. Otuka, E. Dupont, V. Semkova, B. Pritychenko et al., Nucl.Data.Sheets **120**(2014)272.

Quantity codes

ALF	α-value ($\sigma_{\rm capt}/\sigma_{\rm fis}$)	KE	Kinetic energy
AMP	Scattering length	INT	Cross section integral over incident energy
CHG	Fragment charge	KER	Kerma factor
CS	Cross section	MAS	Fragment mass
CSP	Partial cross section	MFQ	Differential fission neutron multiplicity
CST	Temperature dependent cross section	MLT	Multiplicity
D3A	Triple differential $d\Omega_1/d\Omega_2/dE'$	NQ	Nuclear quantity
D3E	Triple differential $d\Omega/dE'_1/dE'_2$	NU	Fission neutron multiplicity $\bar{\nu}$
D4A	Quadruple diff. $d\Omega_1/d\Omega_2/dE'_1/dE'_2$	NUD	Delayed fission neutron multiplicity $\bar{\nu}_d$
DA	Differential d/dΩ	POL	Polarization
DAA	Double differential $d\Omega_1/d\Omega_2$	POD	Differential polarization
DAE	Double differential $d\Omega/dE'$	PY	Product yield (other than fission)
DAP	Partial differential d/dΩ	RI	Resonance integral
DAT	Temperature-dependent Legendre coefficient	RP	Resonance parameter
DE	Differential d/dE'	RR	Reaction rate
DEP	Energy spectrum for specific group	SIF	Self indication
DP	Diff. by linear momentum of outgoing part.	SPC	Gamma spectrum
DT	Diff. by 4-momentum transfer squared	TSL	Thermal scattering
ETA	η-value = $\bar{\nu}\sigma_{\rm fis}/(\sigma_{\rm capt}+\sigma_{\rm fis})$	TT	Thick target yield
EVL	Evaluation	TTD	Differential thick target yield, d/dΩ
FY	Fission product yield	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)

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

0 Neutron 1

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,ths	n	AMP	4RUSKUR	1.4+07	1.4+07	Jour	JET,20,1084	65	V.K.Voitovetskii+	40220

1 Hydrogen 1

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,d	^{3}He	DA	2FR SAT			Jour	NP/A,285,461	77	G.Bizard+	D8071
α,x+^{3}He	inclusive	CS	2FR SAT			Jour	NP/A,285,461	77	G.Bizard+	D8071
α,x+^{3}He	inclusive	DA	2FR SAT			Jour	NP/A,285,461	77	G.Bizard+	D8071
α,x+^{3}He	inclusive	DAE	2FR SAT			Jour	NP/A,285,461	77	G.Bizard+	D8071
^{84}Kr,x+α	inclusive	CS	2GERGSI	8.4+10	8.4+10	Jour	IJP,84,1257	10	M.K.Singh+	D8094
^{208}Pb,tcc		CS	2ZZZCER	3.3+13	3.3+13	Jour	NIM/A,580,58	07	V.Togo+	D8092

1 Hydrogen

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
^{84}Kr,x+α	inclusive	CS	2GERGSI	8.4+10	8.4+10	Jour	IJP,84,1257	10	M.K.Singh+	D8094
^{208}Pb,tcc		CS	2ZZZCER	3.3+13	3.3+13	Jour	NIM/A,580,58	07	V.Togo+	D8092
^{28}Si,tcc		CS	1USABNL	2.8+10	2.8+10	Jour	NIM/A,580,58	07	V.Togo+	D8092
^{46}Ti,tcc		CS	2GERGSI	3.4+10	3.4+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{47}Ti,tcc		CS	2GERGSI	3.4+10	3.4+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{48}V,tcc		CS	2GERGSI	2.8+10	3.5+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{49}V,tcc		CS	2GERGSI	2.8+10	3.5+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{50}V,tcc		CS	2GERGSI	2.7+10	2.7+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{51}V,tcc		CS	2GERGSI	2.7+10	2.7+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{49}Cr,tcc		CS	2GERGSI	3.1+10	3.1+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{50}Cr,tcc		CS	2GERGSI	2.9+10	3.7+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{51}Cr,tcc		CS	2GERGSI	2.9+10	3.6+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{52}Cr,tcc		CS	2GERGSI	2.8+10	2.8+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{53}Cr,tcc		CS	2GERGSI	2.8+10	2.8+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{50}Mn,tcc		CS	2GERGSI	3.3+10	3.3+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{51}Mn,tcc		CS	2GERGSI	3.3+10	3.3+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{52}Mn,tcc		CS	2GERGSI	3.0+10	3.7+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{53}Mn,tcc		CS	2GERGSI	3.0+10	3.7+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{54}Mn,tcc		CS	2GERGSI	2.9+10	3.7+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{55}Mn,tcc		CS	2GERGSI	2.9+10	2.9+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{56}Mn,tcc		CS	2GERGSI	2.8+10	2.8+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{51}Fe,tcc		CS	2GERGSI	3.5+10	3.5+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{52}Fe,tcc		CS	2GERGSI	3.4+10	3.4+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{53}Fe,tcc		CS	2GERGSI	3.4+10	3.4+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{54}Fe,tcc		CS	2GERGSI	3.1+10	3.9+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{55}Fe,tcc		CS	2GERGSI	3.1+10	3.8+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
^{56}Fe,tcc		CS	2JPNIRS	2.3+10	2.3+10	Jour	NIM/A,580,58	07	V.Togo+	D8092
^{56}Fe,tcc		CS	2GERGSI	3.0+10	3.8+10	Jour	NP/A,585,565	95	T.Brohm+	D8085

	^{56}Fe,tcc	CS	1USABNL	5.6+10	5.6+10	Jour	NIM/A,580,58	07	V.Togo+	D8092
	^{57}Fe,tcc	CS	2GERGSI	3.0+10	3.0+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{58}Fe,tcc	CS	2GERGSI	2.9+10	2.9+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{54}Co,tcc	CS	2GERGSI	3.5+10	3.5+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{55}Co,tcc	CS	2GERGSI	3.5+10	3.5+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{57}Co,tcc	CS	2GERGSI	3.2+10	3.9+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{58}Co,tcc	CS	2GERGSI	3.1+10	3.9+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{59}Co,tcc	CS	2GERGSI	3.1+10	3.1+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{60}Co,tcc	CS	2GERGSI	3.0+10	4.3+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{56}Ni,tcc	CS	2GERGSI	3.6+10	3.6+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{59}Ni,tcc	CS	2GERGSI	3.3+10	4.1+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{60}Ni,tcc	CS	2GERGSI	3.2+10	4.0+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{61}Ni,tcc	CS	2GERGSI	3.1+10	3.1+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{62}Ni,tcc	CS	2GERGSI	3.1+10	4.5+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{63}Ni,tcc	CS	2GERGSI	4.5+10	4.5+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{61}Cu,tcc	CS	2GERGSI	4.2+10	4.2+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{62}Cu,tcc	CS	2GERGSI	4.1+10	4.1+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{65}Cu,tcc	CS	2GERGSI	4.6+10	4.6+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{63}Zn,tcc	CS	2GERGSI	4.3+10	4.3+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{64}Zn,tcc	CS	2GERGSI	4.2+10	4.2+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{67}Zn,tcc	CS	2GERGSI	4.7+10	4.7+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{68}Zn,tcc	CS	2GERGSI	4.7+10	4.7+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{69}Ga,tcc	CS	2GERGSI	4.8+10	4.8+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{70}Ga,tcc	CS	2GERGSI	4.8+10	4.8+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{72}Ge,tcc	CS	2GERGSI	4.9+10	4.9+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{73}Ge,tcc	CS	2GERGSI	4.9+10	4.9+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{74}As,tcc	CS	2GERGSI	5.0+10	5.0+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{75}As,tcc	CS	2GERGSI	5.0+10	5.0+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{76}Se,tcc	CS	2GERGSI	5.1+10	5.1+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{77}Se,tcc	CS	2GERGSI	5.1+10	5.1+10	Jour	NP/A,585,565	95	T.Brohm+	D8085
	^{208}Pb,tcc	CS	2ZZZCER	3.3+13	3.3+13	Jour	NIM/A,580,58	07	V.Togo+	D8092

3 Lithium 6

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,t	^{4}He	CS	4RUSFEI	4.2+06	7.4+06	Jour	EPJ/A,60,12	24	P.S.Prusachenko+	41772

4 Berylium 9

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	π^-,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
	π^+,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
	p,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
*	^{3}He,^{5}He	^{7}Be	DAP	3CZRUJF	3.0+07	3.0+07	Jour	CPH/C,48,014001	24	B.A.Urazbekov+	D8099
*	^{3}He,^{6}He	^{6}Be	DAP	3CZRUJF	3.0+07	3.0+07	Jour	CPH/C,48,014001	24	B.A.Urazbekov+	D8099
*	^{3}He,^{6}Li	^{6}Li	DAP	3CZRUJF	3.0+07	3.0+07	Jour	CPH/C,48,014001	24	B.A.Urazbekov+	D8099
*	^{3}He,el	^{9}Be	DA	3CZRUJF	3.0+07	3.0+07	Jour	CPH/C,48,014001	24	B.A.Urazbekov+	D8099
*	^{3}He,inel	^{9}Be	DAP	3CZRUJF	3.0+07	3.0+07	Jour	CPH/C,48,014001	24	B.A.Urazbekov+	D8099
	^{80}Kr,x	Many	CS	2GERGSI	8.4+10	8.4+10	Jour	PR/C,74,044608	06	T.Yamaguchi+	D8091

6 Carbon

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	^{84}Kr,x+α	inclusive	CS	2GERGSI	8.4+10	8.4+10	Jour	IJP,84,1257	10	M.K.Singh+	D8094

6 Carbon 12

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	π^-,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
	π^+,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
	p,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
	^{208}Pb,tcc		CS	2ZZZCER	3.3+13	3.3+13	Jour	NIM/A,580,58	07	V.Togo+	D8092

12 Magnesium 24

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	α,p	^{27}Al	DAP	1USAPTN	4.8+07	4.8+07	Jour	PR/C,35,875	87	Z.-J.Cao+	C2952

12 Magnesium 26

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	^{3}He,t	^{26}Al	DAP	1USAPTN	3.0+07	3.0+07	Jour	PR/C,35,875	87	Z.-J.Cao+	C2952

13 Aluminium 27

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,x	^{22}Na	CS	4UKRKFT		9.5+07	Jour	CPH/C,46,064002	22	O.S.Deiev+	G4106
	π^-,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
	π^+,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
	p,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
	^{3}He,t	^{27}Si	DAP	1USAPTN	3.0+07	3.0+07	Jour	PR/C,35,875	87	Z.-J.Cao+	C2952
*	^{10}B,^{9}Be	^{28}Si	DAP	3POLWWA	4.1+07	4.1+07	Jour	APP/BS,16,2-A4	23	O.R.Tojiboev+	D8100
*	^{10}B,el	^{27}Al	DA	3POLWWA	4.1+07	4.1+07	Jour	APP/BS,16,2-A4	23	O.R.Tojiboev+	D8100
	^{136}Xe,x	Many	CS	2GERGSI	1.0+11	1.0+11	Jour	NP/A,553,753	93	J.Friese+	D8083
	^{208}Pb,tcc		CS	2ZZZCER	3.3+13	3.3+13	Jour	NIM/A,580,58	07	V.Togo+	D8092

16 Sulphur 32

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

γ,n	^{31}S	?	4RUSMOS	1.5+07	2.9+07	Jour	SNP,7,698	68	B.I.Goryachev+	M0397

24 Chromium 52

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,n+X	^{1}H	CSP	1USAPUR	1.8+07	1.8+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,n+X	^{1}H	DAP	1USAPUR	1.8+07	1.8+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+α	inclusive	CSP	1USAPUR	1.8+07	1.8+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+α	inclusive	DAE	1USAPUR	1.8+07	1.8+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+α	inclusive	DAP	1USAPUR	1.8+07	1.8+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+p	inclusive	CSP	1USAPUR	1.8+07	1.8+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+p	inclusive	DAE	1USAPUR	1.8+07	1.8+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+p	inclusive	DAP	1USAPUR	1.8+07	1.8+07	Jour	NP/A,212,1	73	J.Wiley+	C2956

25 Manganese 55

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
p,n+X	^{1}H	CSP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
p,n+X	^{1}H	DAP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
p,x+α	inclusive	CSP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
p,x+α	inclusive	DAE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
p,x+α	inclusive	DAP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
p,x+p	inclusive	CSP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
p,x+p	inclusive	DAE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
p,x+p	inclusive	DAP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956

26 Iron

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,x	^{48}V	CS	3KORKAE	4.3+07	5.3+07	Jour	NET,56,1796	24	S.C.Yang+	D7044
*	p,x	^{51}Cr	CS	3KORKAE	3.3+07	5.3+07	Jour	NET,56,1796	24	S.C.Yang+	D7044
*	p,x	^{52}Mn	CS	3KORKAE	2.1+07	5.3+07	Jour	NET,56,1796	24	S.C.Yang+	D7044
*	p,x	^{54}Mn	CS	3KORKAE	2.1+07	5.3+07	Jour	NET,56,1796	24	S.C.Yang+	D7044
*	p,x	^{52}Fe	CS	3KORKAE	3.0+07	5.3+07	Jour	NET,56,1796	24	S.C.Yang+	D7044
*	p,x	^{55}Co	CS	3KORKAE	1.6+07	5.3+07	Jour	NET,56,1796	24	S.C.Yang+	D7044
*	p,x	^{56}Co	CS	3KORKAE	1.0+07	5.3+07	Jour	NET,56,1796	24	S.C.Yang+	D7044
*	p,x	^{57}Co	CS	3KORKAE	1.0+07	5.3+07	Jour	NET,56,1796	24	S.C.Yang+	D7044

26 Iron 56

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,n+X	^{1}H	CSP	1USAPUR	1.8+07	1.8+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,n+X	^{1}H	DAP	1USAPUR	1.8+07	1.8+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+α	inclusive	CSP	1USAPUR	1.7+07	1.7+07	Jour	NP/A,164,225	71	C.C.Lu+	C2962

α,x+α	inclusive	DAE	1USAPUR	1.7+07	1.7+07	Jour	NP/A,164,225	71	C.C.Lu+	C2962
α,x+α	inclusive	DAP	1USAPUR	1.8+07	1.8+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+p	inclusive	CSP	1USAPUR	1.7+07	1.7+07	Jour	NP/A,164,225	71	C.C.Lu+	C2962
α,x+p	inclusive	DAE	1USAPUR	1.6+07	1.6+07	Jour	PR/C,5,500	72	A.J.Kennedy+	C2955
α,x+p	inclusive	DAE	1USAPUR	1.7+07	1.7+07	Jour	NP/A,164,225	71	C.C.Lu+	C2962
α,x+p	inclusive	DAP	1USAPUR	1.8+07	1.8+07	Jour	NP/A,212,1	73	J.Wiley+	C2956

27 Cobalt 59

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	p,n+X	^{1}H	CSP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,n+X	^{1}H	DAP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,x+α	inclusive	CSP	1USAPUR	1.3+07	1.3+07	Jour	NP/A,164,225	71	C.C.Lu+	C2962
	p,x+α	inclusive	DAE	1USAPUR	1.3+07	1.3+07	Jour	NP/A,164,225	71	C.C.Lu+	C2962
	p,x+α	inclusive	DAP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,x+p	inclusive	CSP	1USAPUR	1.3+07	1.3+07	Jour	NP/A,164,225	71	C.C.Lu+	C2962
	p,x+p	inclusive	DAE	1USAPUR	1.3+07	1.3+07	Jour	NP/A,164,225	71	C.C.Lu+	C2962
	p,x+p	inclusive	DAE	1USAPUR	1.4+07	1.4+07	Jour	PR/C,5,500	72	A.J.Kennedy+	C2955
	p,x+p	inclusive	DAP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	α,n+X	^{1}H	CSP	1USAPUR	1.5+07	1.5+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	α,n+X	^{1}H	DAP	1USAPUR	1.5+07	1.5+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	α,x+α	inclusive	CSP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,164,225	71	C.C.Lu+	C2962
	α,x+α	inclusive	CSP	1USAPUR	1.5+07	1.5+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	α,x+α	inclusive	DAE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,164,225	71	C.C.Lu+	C2962
	α,x+α	inclusive	DAE	1USAPUR	1.6+07	1.6+07	Jour	PR/C,5,500	72	A.J.Kennedy+	C2955
	α,x+α	inclusive	DAP	1USAPUR	1.5+07	1.5+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	α,x+α	inclusive	DE	1USAPUR	1.5+07	1.5+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	α,x+p	inclusive	CSP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,164,225	71	C.C.Lu+	C2962
	α,x+p	inclusive	CSP	1USAPUR	1.5+07	1.5+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	α,x+p	inclusive	DAE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,164,225	71	C.C.Lu+	C2962
	α,x+p	inclusive	DAP	1USAPUR	1.5+07	1.5+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	α,x+p	inclusive	DE	1USAPUR	1.5+07	1.5+07	Jour	NP/A,212,1	73	J.Wiley+	C2956

28 Nickel

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,x	^{56}Ni	CS	4UKRKFT		9.4+07	Jour	NP/A,1028,122542	22	O.S.Deiev+	G4103
*	γ,x	^{57}Ni	CS	4UKRKFT		9.4+07	Jour	NP/A,1028,122542	22	O.S.Deiev+	G4103

28 Nickel 60

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	α,n+X	^{1}H	CSP	1USAPUR	1.9+07	1.9+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	α,n+X	^{1}H	DAP	1USAPUR	1.9+07	1.9+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	α,x+α	inclusive	CSP	1USAPUR	1.5+07	2.1+07	Jour	NP/A,248,441	75	C.R.Lux+	C2958
	α,x+α	inclusive	CSP	1USAPUR	1.9+07	1.9+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	α,x+α	inclusive	DAE	1USAPUR	1.8+07	1.8+07	Jour	NP/A,248,441	75	C.R.Lux+	C2958

α,x+α	inclusive	DAE	1USAPUR	1.9+07	1.9+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+α	inclusive	DAP	1USAPUR	1.5+07	2.1+07	Jour	NP/A,248,441	75	C.R.Lux+	C2958
α,x+α	inclusive	DAP	1USAPUR	1.9+07	1.9+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+α	inclusive	DE	1USAPUR	1.9+07	1.9+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+α	inclusive	DE	1USAPUR	1.9+07	1.9+07	Jour	NP/A,248,441	75	C.R.Lux+	C2958
α,x+p	inclusive	CSP	1USAPUR	1.5+07	2.1+07	Jour	NP/A,248,441	75	C.R.Lux+	C2958
α,x+p	inclusive	CSP	1USAPUR	1.7+07	1.7+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
α,x+p	inclusive	CSP	1USAPUR	1.9+07	1.9+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+p	inclusive	DAE	1USAPUR	1.7+07	1.7+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
α,x+p	inclusive	DAE	1USAPUR	1.8+07	1.8+07	Jour	NP/A,248,441	75	C.R.Lux+	C2958
α,x+p	inclusive	DAE	1USAPUR	1.9+07	1.9+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+p	inclusive	DAP	1USAPUR	1.5+07	2.1+07	Jour	NP/A,248,441	75	C.R.Lux+	C2958
α,x+p	inclusive	DAP	1USAPUR	1.9+07	1.9+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+p	inclusive	DE	1USAPUR	1.7+07	1.7+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
α,x+p	inclusive	DE	1USAPUR	1.9+07	1.9+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+p	inclusive	DE	1USAPUR	1.9+07	1.9+07	Jour	NP/A,248,441	75	C.R.Lux+	C2958

28 Nickel 62

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
p,n+X	^{1}H	CSP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
p,n+X	^{1}H	DAP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
p,x+α	inclusive	CSP	1USAPUR	1.3+07	1.3+07	Jour	NP/A,164,225	71	C.C.Lu+	C2962
p,x+α	inclusive	CSP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
p,x+α	inclusive	DAE	1USAPUR	1.3+07	1.3+07	Jour	NP/A,164,225	71	C.C.Lu+	C2962
p,x+α	inclusive	DAE	1USAPUR	1.4+07	1.4+07	Jour	PR/C,5,500	72	A.J.Kennedy+	C2955
p,x+α	inclusive	DAP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
p,x+α	inclusive	DE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
p,x+p	inclusive	CSP	1USAPUR	1.3+07	1.3+07	Jour	NP/A,164,225	71	C.C.Lu+	C2962
p,x+p	inclusive	CSP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
p,x+p	inclusive	DAE	1USAPUR	1.3+07	1.3+07	Jour	NP/A,164,225	71	C.C.Lu+	C2962
p,x+p	inclusive	DAP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
p,x+p	inclusive	DE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+α	inclusive	CSP	1USAPUR	1.9+07	1.9+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+α	inclusive	DAE	1USAPUR	1.9+07	1.9+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+α	inclusive	DAP	1USAPUR	1.9+07	1.9+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+p	inclusive	CSP	1USAPUR	1.8+07	2.1+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
α,x+p	inclusive	CSP	1USAPUR	1.9+07	1.9+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+p	inclusive	DAE	1USAPUR	1.8+07	1.8+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
α,x+p	inclusive	DAE	1USAPUR	1.9+07	1.9+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+p	inclusive	DAP	1USAPUR	1.9+07	1.9+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
α,x+p	inclusive	DE	1USAPUR	1.8+07	2.1+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959

29 Copper

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
π^-,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
π^+,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
p,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
^{208}Pb,tcc		CS	2ZZZCER	3.3+13	3.3+13	Jour	NIM/A,580,58	07	V.Togo+	D8092

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,2n	^{61}Cu	CS	4UKRKFT		9.4+07	Jour	CPH/C,46,124001	22	O.S.Deiev+	G4108
*	γ,3n	^{60}Cu	CS	4UKRKFT		9.4+07	Jour	CPH/C,46,124001	22	O.S.Deiev+	G4108
*	γ,n	^{62}Cu	CS	4UKRKFT		9.4+07	Jour	CPH/C,46,124001	22	O.S.Deiev+	G4108
	p,n+X	^{1}H	CSP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,n+X	^{1}H	DAP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,x+α	inclusive	CSP	1USAPUR	1.0+07	1.6+07	Jour	NP/A,248,441	75	C.R.Lux+	C2958
	p,x+α	inclusive	CSP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,x+α	inclusive	DAE	1USAPUR	1.3+07	1.3+07	Jour	NP/A,248,441	75	C.R.Lux+	C2958
	p,x+α	inclusive	DAE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,x+α	inclusive	DAP	1USAPUR	1.0+07	1.6+07	Jour	NP/A,248,441	75	C.R.Lux+	C2958
	p,x+α	inclusive	DAP	1USAPUR	1.2+07	1.2+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
	p,x+α	inclusive	DAP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,x+α	inclusive	DE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,x+α	inclusive	DE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,248,441	75	C.R.Lux+	C2958
	p,x+p	inclusive	CSP	1USAPUR	1.0+07	1.6+07	Jour	NP/A,248,441	75	C.R.Lux+	C2958
	p,x+p	inclusive	CSP	1USAPUR	1.2+07	1.2+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
	p,x+p	inclusive	CSP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,x+p	inclusive	DAE	1USAPUR	1.2+07	1.2+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
	p,x+p	inclusive	DAE	1USAPUR	1.3+07	1.3+07	Jour	NP/A,248,441	75	C.R.Lux+	C2958
	p,x+p	inclusive	DAE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,x+p	inclusive	DAP	1USAPUR	1.0+07	1.6+07	Jour	NP/A,248,441	75	C.R.Lux+	C2958
	p,x+p	inclusive	DAP	1USAPUR	1.2+07	1.2+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
	p,x+p	inclusive	DAP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,x+p	inclusive	DE	1USAPUR	1.2+07	1.2+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
	p,x+p	inclusive	DE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,x+p	inclusive	DE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,248,441	75	C.R.Lux+	C2958
	α,x+α	inclusive	CSP	1USAPUR	1.7+07	1.7+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
	α,x+α	inclusive	DAE	1USAPUR	1.7+07	1.7+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
	α,x+α	inclusive	DAP	1USAPUR	1.7+07	1.7+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
	α,x+α	inclusive	DE	1USAPUR	1.7+07	1.7+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
	α,x+p	inclusive	DAP	1USAPUR	1.7+07	1.7+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,n	^{64}Cu	CS	4UKRKFT		9.4+07	Jour	CPH/C,46,124001	22	O.S.Deiev+	G4108
	p,x+α	inclusive	CSP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,x+α	inclusive	DAE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,x+α	inclusive	DAP	1USAPUR	1.2+07	1.4+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
	p,x+α	inclusive	DAP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,x+p	inclusive	CSP	1USAPUR	1.2+07	1.6+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
	p,x+p	inclusive	CSP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,x+p	inclusive	DAE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,x+p	inclusive	DAE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
	p,x+p	inclusive	DAP	1USAPUR	1.2+07	1.6+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
	p,x+p	inclusive	DAP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,212,1	73	J.Wiley+	C2956
	p,x+p	inclusive	DE	1USAPUR	1.2+07	1.6+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
	α,n+X	^{1}H	CSP	1USAPUR	1.5+07	1.9+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957

α,n+X	^{1}H	DAP	1USAPUR	1.5+07	1.9+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957
α,x+α	inclusive	CSP	1USAPUR	1.4+07	1.9+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957
α,x+α	inclusive	CSP	1USAPUR	1.7+07	2.1+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
α,x+α	inclusive	DAE	1USAPUR	1.5+07	1.5+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957
α,x+α	inclusive	DAE	1USAPUR	1.7+07	1.7+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
α,x+α	inclusive	DAP	1USAPUR	1.4+07	1.9+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957
α,x+α	inclusive	DAP	1USAPUR	1.7+07	2.1+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
α,x+α	inclusive	DE	1USAPUR	1.4+07	1.9+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957
α,x+α	inclusive	DE	1USAPUR	1.7+07	2.1+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
α,x+p	inclusive	CSP	1USAPUR	1.4+07	1.9+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957
α,x+p	inclusive	DAE	1USAPUR	1.5+07	1.5+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957
α,x+p	inclusive	DAP	1USAPUR	1.4+07	1.9+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957
α,x+p	inclusive	DAP	1USAPUR	1.7+07	2.1+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
α,x+p	inclusive	DE	1USAPUR	1.4+07	1.9+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957

30 Zinc 66

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
p,x+α	inclusive	CSP	1USAPUR	1.4+07	1.4+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
p,x+α	inclusive	DAE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
p,x+α	inclusive	DE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959

30 Zinc 68

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
p,n+X	^{1}H	CSP	1USAPUR	1.2+07	1.6+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957
p,n+X	^{1}H	DAP	1USAPUR	1.2+07	1.6+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957
p,x+α	inclusive	CSP	1USAPUR	1.1+07	1.6+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957
p,x+α	inclusive	CSP	1USAPUR	1.4+07	1.6+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
p,x+α	inclusive	DAE	1USAPUR	1.4+07	1.4+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957
p,x+α	inclusive	DAE	1USAPUR	1.4+07	1.4+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
p,x+α	inclusive	DAP	1USAPUR	1.1+07	1.6+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957
p,x+α	inclusive	DE	1USAPUR	1.4+07	1.6+07	Jour	NP/A,226,413	74	J.C.Pacer+	C2959
p,x+p	inclusive	CSP	1USAPUR	1.1+07	1.6+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957
p,x+p	inclusive	DAE	1USAPUR	1.4+07	1.4+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957
p,x+p	inclusive	DAP	1USAPUR	1.1+07	1.6+07	Jour	PR/C,9,2171	74	N.T.Porile+	C2957

34 Selenium

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,x	^{73}As	?	4RUSMOS		2.3+07	Jour	CPH/C,48,024002	24	F.A.Rasulova+	M1049
*	γ,x	^{76}As	?	4RUSMOS		2.3+07	Jour	CPH/C,48,024002	24	F.A.Rasulova+	M1049
*	γ,x	^{77}As	?	4RUSMOS		2.3+07	Jour	CPH/C,48,024002	24	F.A.Rasulova+	M1049
*	γ,x	^{79}As	?	4RUSMOS		2.3+07	Jour	CPH/C,48,024002	24	F.A.Rasulova+	M1049
*	γ,x	^{73}Se	?	4RUSMOS		2.3+07	Jour	CPH/C,48,024002	24	F.A.Rasulova+	M1049
*	γ,x	^{75}Se	?	4RUSMOS		2.3+07	Jour	CPH/C,48,024002	24	F.A.Rasulova+	M1049
*	γ,x	^{81}Se	CS	4RUSMOS		2.3+07	Jour	CPH/C,48,024002	24	F.A.Rasulova+	M1049

34 Selenium 76

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	^{18}O,^{19}F	^{75}As	DAP	2ITYLNS	2.8+08	2.8+08	Jour	PR/C,109,024615	24	I.Ciraldo+	D8101

42 Molybdenum

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,x	^{95}Nb	CS	4UKRKFT		9.3+07	Jour	CPH/C,47,124002	23	I.S.Timchenko+	G4104

47 Silver

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	^{84}Kr,x+α	inclusive	CS	2GERGSI	8.4+10	8.4+10	Jour	IJP,84,1257	10	M.K.Singh+	D8094

47 Silver 107

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,n	^{106}Ag	CS	4ZZZDUB		2.0+07	Jour	CPH/C,48,024104	24	J.H.Khushvaktov+	M1051

48 Cadmium 114

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	α,inel	^{114}Cd	?	1USAPUP	8.0+06	1.3+07	Jour	PR,186,1241	69	J.X.Saladin+	C2953
	^{16}O,inel	^{114}Cd	?	1USAPUP	4.2+07	4.2+07	Jour	PR,186,1241	69	J.X.Saladin+	C2953

48 Cadmium 116

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	^{3}He,d	^{117}In	DAP	1USAROC	2.7+07	2.7+07	Jour	NP/A,183,161	72	S.Harar+	C2965

49 Indium 113

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

*	γ,n	^{112}In	CS	4ZZZDUB		2.0+07	Jour	CPH/C,48,024104	24	J.H.Khushvaktov+	M1051

50 Tin

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
π^-,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
π^+,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
p,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095

62 Samarium 148

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,inel	^{148}Sm	?	1USAROC	1.0+07	1.3+07	Jour	NP/A,151,273	70	H.S.Gertzman+	C2960
^{16}O,inel	^{148}Sm	?	1USAROC	3.4+07	5.0+07	Jour	NP/A,151,273	70	H.S.Gertzman+	C2960

71 Lutetium 176

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,γ	^{177}Lu	CS	4UKRIJD	1.0+00	1.0+00	Conf	87KIEV,2,209	87	E.A.Gritsay	40990

73 Tantalum 181

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,2n	^{179}Ta	CS	4UKRKFT		7.5+07	Jour	PR/C,106,024617	22	O.S.Deiev+	G4107
*	γ,3n	^{178}Ta	CS	4UKRKFT		9.5+07	Jour	PR/C,106,024617	22	O.S.Deiev+	G4107
*	γ,4n	^{177}Ta	CS	4UKRKFT		8.1+07	Jour	PR/C,106,024617	22	O.S.Deiev+	G4107
*	γ,5n	^{176}Ta	CS	4UKRKFT		8.1+07	Jour	PR/C,106,024617	22	O.S.Deiev+	G4107
*	γ,6n	^{175}Ta	CS	4UKRKFT		8.1+07	Jour	PR/C,106,024617	22	O.S.Deiev+	G4107
*	γ,7n	^{174}Ta	CS	4UKRKFT		8.1+07	Jour	PR/C,106,024617	22	O.S.Deiev+	G4107
*	γ,8n	^{173}Ta	CS	4UKRKFT		9.5+07	Jour	PR/C,106,024617	22	O.S.Deiev+	G4107
*	γ,n	^{180}Ta	CS	4ARMJER		2.0+07	Jour	NP/A,1046,122846	24	R.V.Avetisyan+	M1050
*	γ,n	^{180}Ta	CS	4UKRKFT		9.5+07	Jour	PR/C,106,024617	22	O.S.Deiev+	G4107
*	γ,p	^{180}Hf	CS	4UKRKFT		9.5+07	Jour	EPJ/A,59,268	23	I.S.Timchenko+	G4105
	π^-,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
	π^+,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
	p,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095

74 Tungsten 182

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
^{3}He,d	^{183}Re	DAP	1USAROC	2.8+07	2.8+07	Jour	PR/C,3,1243	71	M.T.Lu+	C2964

α,t	^{183}Re	DAP	1USAROC	3.0+07	3.0+07	Jour	PR/C,3,1243	71	M.T.Lu+	C2964

74 Tungsten 184

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
^{3}He,d	^{185}Re	DAP	1USAROC	2.8+07	2.8+07	Jour	PR/C,3,1243	71	M.T.Lu+	C2964
^{3}He,el	^{184}W	DA	1USAROC	2.8+07	2.8+07	Jour	PR/C,3,1243	71	M.T.Lu+	C2964
α,t	^{185}Re	DAP	1USAROC	3.0+07	3.0+07	Jour	PR/C,3,1243	71	M.T.Lu+	C2964

74 Tungsten 186

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
^{3}He,d	^{187}Re	DAP	1USAROC	2.8+07	2.8+07	Jour	PR/C,3,1243	71	M.T.Lu+	C2964
α,t	^{187}Re	DAP	1USAROC	3.0+07	3.0+07	Jour	PR/C,3,1243	71	M.T.Lu+	C2964

76 Osmium 188

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
α,inel	^{188}Os	?	1USAPUP	1.0+07	1.3+07	Jour	PR/C,1,1573	70	R.J.Pryor+	C2954
^{16}O,inel	^{188}Os	?	1USAPUP	4.2+07	4.7+07	Jour	PR/C,1,1573	70	R.J.Pryor+	C2954

76 Osmium 190

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
^{3}He,d	^{191}Ir	DAP	1USAROC	2.8+07	2.8+07	Jour	NP/A,176,338	71	R.H.Price+	C2963
α,inel	^{190}Os	?	1USAPUP	1.2+07	1.2+07	Jour	PR/C,1,1573	70	R.J.Pryor+	C2954
α,t	^{191}Ir	DAP	1USAROC	2.8+07	2.8+07	Jour	NP/A,176,338	71	R.H.Price+	C2963
^{16}O,inel	^{190}Os	?	1USAPUP	4.2+07	5.3+07	Jour	PR/C,1,1573	70	R.J.Pryor+	C2954

76 Osmium 192

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
^{3}He,d	^{193}Ir	DAP	1USAROC	2.8+07	2.8+07	Jour	NP/A,176,338	71	R.H.Price+	C2963
α,inel	^{192}Os	?	1USAPUP	1.2+07	1.2+07	Jour	PR/C,1,1573	70	R.J.Pryor+	C2954
α,t	^{193}Ir	DAP	1USAROC	2.8+07	2.8+07	Jour	NP/A,176,338	71	R.H.Price+	C2963
^{16}O,inel	^{192}Os	?	1USAPUP	4.2+07	5.2+07	Jour	PR/C,1,1573	70	R.J.Pryor+	C2954

79 Gold 197

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	^{84}Kr,x	Many	DA	2FR SAT	1.7+10	1.7+10	Jour	PL/B,262,6	91	C.Stephan+	D8080

82 Lead

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,tot		CS	3CPRIHP	3.3-01	2.0+07	Jour	CNST,35,18	24	Jie-Ming Xue+	32912
	π^-,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
	π^+,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095
	p,x+p	inclusive	DAE	2ZZZCER			Jour	PR/C,82,045208	10	M.Apollonio+	D8095

82 Lead 206

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	α,d	^{208}Bi	CSP	1USAPTN	4.8+07	4.8+07	Jour	PR/C,29,2088	84	M.J.Spisak+	C2951
	α,d	^{208}Bi	DAP	1USAPTN	4.8+07	4.8+07	Jour	PR/C,29,2088	84	M.J.Spisak+	C2951

83 Bismuth 209

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,0		RP	3CPRIHP			Jour	CPH/C,47,124001	23	Jieming Xue+	32911
*	n,4n	^{206}Bi	CS	3KORKRM	2.9+07	4.2+07	Jour	NP/A,1018,122374	22	V.Chavan+	30857
*	n,tot		CS	3CPRIHP	3.3-01	2.0+07	Jour	CPH/C,47,124001	23	Jieming Xue+	32911

92 Uranium

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,abs		ETA	4RUSITE	2.5-02	2.5-02	Conf	55GENEVA,4,305	55	N.A.Burgov	41771

92 Uranium 233

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	0,fis		?	4RUSFEI	Spont		Jour	SJA,39,807	75	B.Nurpeisov+	40429
	n,fis		NUD	4RUSRUS	2.5-02	2.5-02	Conf	55GENEVA,4,171	55	S.V.Girshfeld	41770

92 Uranium 236

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
^{3}He,d	^{237}Np	DAP	1USAROC	3.0+07	3.0+07	Jour	PR/C,1,328	70	Th.W.Elze+	C2961
α,t	^{237}Np	DAP	1USAROC	3.0+07	3.0+07	Jour	PR/C,1,328	70	Th.W.Elze+	C2961

94 Plutonium 239

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
0,fis		?	4RUSFEI	Spont		Jour	SJA,39,807	75	B.Nurpeisov+	40429