EXFOR News (September 2022)

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 $d/d\Omega$	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 $d/d\Omega$	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, $d/d\Omega$
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)

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,el	^{1}H	DA	2UK HAR	5.5+07	1.6+08	Jour	PPS,71,305	58	T.C.Griffith+	21815
*	d,n+p	^{1}H	D3A	2NEDKVI	1.6+08	1.6+08	Jour	PR/C,102,054002	20	W.Parol+	O2537
*	^{17}B,2n+p	^{15}B	?	2JPNIPC	4.7+09	4.7+09	Jour	PRL,126,082501	21	Z.H.Yang+	E2689
*	^{25}Al,el	^{1}H	?	2JPNTOK	1.4+06	5.5+06	Jour	PRL,127,172701	21	J.Hu+	E2724
*	^{25}Al,inel	^{1}H	?	2JPNTOK	1.7+06	5.3+06	Jour	PRL,127,172701	21	J.Hu+	E2724
*	^{52}K,2p	^{51}Ar	?	2JPNIPC	1.4+10	1.4+10	Jour	PL/B,814,136108	21	M.M.Juhasz+	E2698
*	^{55}Sc,2p	^{54}Ca	?	2JPNIPC	1.2+10	1.2+10	Jour	PRL,126,252501	21	F.Browne+	E2713
*	^{63}V,inel	^{1}H	?	2JPNIPC	1.6+10	1.6+10	Jour	PR/C,103,064308	21	M.M.Juhasz+	E2704
*	^{64}Cr,2p	^{63}V	?	2JPNIPC	1.6+10	1.6+10	Jour	PR/C,103,064308	21	M.M.Juhasz+	E2704
*	^{68}Co,2p	^{67}Fe	?	2JPNIPC	2.0+10	2.0+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{68}Co,3p	^{66}Mn	?	2JPNIPC	2.0+10	2.0+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{69}Co,2p	^{68}Fe	?	2JPNIPC	2.0+10	2.0+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{69}Co,3p	^{67}Mn	?	2JPNIPC	2.0+10	2.0+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{70}Co,2p	^{69}Fe	?	2JPNIPC	2.0+10	2.0+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{70}Co,3p	^{68}Mn	?	2JPNIPC	2.0+10	2.0+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{70}Ni,2p	^{69}Co	?	2JPNIPC	2.1+10	2.1+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{70}Ni,3p	^{68}Fe	?	2JPNIPC	2.1+10	2.1+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{74}Ni,2p	^{73}Co	?	2JPNIPC	2.0+10	2.0+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{74}Ni,3p	^{72}Fe	?	2JPNIPC	2.0+10	2.0+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{74}Cu,2p	^{73}Ni	?	2JPNIPC	2.1+10	2.1+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{74}Cu,3p	^{72}Co	?	2JPNIPC	2.1+10	2.1+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{75}Cu,2p	^{74}Ni	?	2JPNIPC	2.1+10	2.1+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{75}Cu,3p	^{73}Co	?	2JPNIPC	2.1+10	2.1+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{75}Zn,2p	^{74}Cu	?	2JPNIPC	2.2+10	2.2+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{75}Zn,3p	^{73}Ni	?	2JPNIPC	2.2+10	2.2+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{76}Zn,2p	^{75}Cu	?	2JPNIPC	2.2+10	2.2+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{76}Zn,3p	^{74}Ni	?	2JPNIPC	2.2+10	2.2+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{80}Ga,2p	^{79}Zn	?	2JPNIPC	2.3+10	2.3+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{80}Ga,3p	^{78}Cu	?	2JPNIPC	2.3+10	2.3+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{81}Ga,2p	^{80}Zn	?	2JPNIPC	2.3+10	2.3+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{81}Ga,3p	^{79}Cu	?	2JPNIPC	2.3+10	2.3+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{82}Ga,2p	^{81}Zn	?	2JPNIPC	2.2+10	2.2+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{82}Ga,3p	^{80}Cu	?	2JPNIPC	2.2+10	2.2+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{89}Se,2p	^{88}As	?	2JPNIPC	2.6+10	2.6+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{89}Se,3p	^{87}Ge	?	2JPNIPC	2.6+10	2.6+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{90}Se,2p	^{89}As	?	2JPNIPC	2.5+10	2.5+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{90}Se,3p	^{88}Ge	?	2JPNIPC	2.5+10	2.5+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{97}Rb,2p	^{96}Kr	?	2JPNIPC	2.7+10	2.7+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{97}Rb,3p	^{95}Br	?	2JPNIPC	2.7+10	2.7+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{100}Sr,2p	^{99}Rb	?	2JPNIPC	2.8+10	2.8+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{100}Sr,3p	^{98}Kr	?	2JPNIPC	2.8+10	2.8+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{101}Sr,2p	^{100}Rb	?	2JPNIPC	2.8+10	2.8+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{101}Sr,3p	^{99}Kr	?	2JPNIPC	2.8+10	2.8+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{102}Sr,2p	^{101}Rb	?	2JPNIPC	2.8+10	2.8+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{102}Sr,3p	^{100}Kr	?	2JPNIPC	2.8+10	2.8+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{102}Y,2p	^{101}Sr	?	2JPNIPC	2.9+10	2.9+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{102}Y,3p	^{100}Rb	?	2JPNIPC	2.9+10	2.9+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{103}Y,2p	^{102}Sr	?	2JPNIPC	2.9+10	2.9+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{103}Y,3p	^{101}Rb	?	2JPNIPC	2.9+10	2.9+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659
*	^{112}Mo,2p	^{111}Nb	?	2JPNIPC	3.0+10	3.0+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659

*	^{112}Mo,3p	^{110}Zr	?	2JPNIPC	3.0+10	3.0+10	Jour	PRL,125,012501	20	A.Frotscher+	E2659

1 Hydrogen 2

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
*	γ,2π^0	^{2}H	CS	2JPNTOH	5.8+08	8.7+08	Jour	PL/B,772,398	17	T.Ishikawa+	K2544
*	d,el	^{2}H	DA	2NEDKVI	1.3+08	1.3+08	Jour	EPJ/A,57,119	21	R.Ramazani-Sharifabadi+	O2538
*	d,el	^{2}H	POD	2NEDKVI	1.3+08	1.3+08	Jour	EPJ/A,57,119	21	R.Ramazani-Sharifabadi+	O2538
	t,n	^{4}He	CS	1USAPUR	3.2+05	9.0+05	Rept	LAMS-11	43	C.P.Baker+	C2719

2 Helium

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
*	n,ths	^{nat}He	TSL	2JPNKEK			Jour	PR/C,100,064002	19	C.C.Haddock+	23747
*	n,tot		CS	2GERZFK			Jour	EPJ/CS,239,01006	20	A.Junghans+	23755

4 Berylium 9

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
	α,n	^{12}C	DE	1CANOTC	5.8+06	5.8+06	Jour	CJP,42,1097	64	K.W.Geiger+	C2720
	α,n	^{12}C	?	1CANOTC	5.8+06	5.8+06	Jour	CJP,42,1097	64	K.W.Geiger+	C2720
*	^{34}Mg,x	^{33}Mg	CS	2JPNIPC	8.2+09	8.2+09	Jour	PR/C,103,064318	21	D.Bazin+	E2705
*	^{34}Mg,x	^{33}Mg	CSP	2JPNIPC	8.2+09	8.2+09	Jour	PR/C,103,064318	21	D.Bazin+	E2705
*	^{34}Al,x	^{33}Mg	CS	2JPNIPC	7.8+09	7.8+09	Jour	PR/C,103,064318	21	D.Bazin+	E2705
*	^{48}Ca,x	Many	CS	2JPNIPC	1.7+10	1.7+10	Jour	NIM/B,317,756	13	H.Suzuki+	E2712
*	^{48}Ca,x	^{23}Ne	CS	2JPNIPC	1.7+10	1.7+10	Jour	NIM/B,317,756	13	H.Suzuki+	E2712
*	^{48}Ca,x	^{40}Si	CS	2JPNIPC	1.7+10	1.7+10	Jour	NIM/B,317,756	13	H.Suzuki+	E2712
*	^{71}Br,x	^{70}Se	CS	2JPNIPC	9.9+09	9.9+09	Jour	PL/B,785,441	18	K.Wimmer+	E2620
*	^{71}Br,x	^{70}Se	CSP	2JPNIPC	9.9+09	9.9+09	Jour	PL/B,785,441	18	K.Wimmer+	E2620
*	^{70}Kr,x	^{70}Kr	CSP	2JPNIPC	9.8+09	9.8+09	Jour	PL/B,785,441	18	K.Wimmer+	E2620
*	^{71}Kr,x	^{70}Kr	CS	2JPNIPC	9.9+09	9.9+09	Jour	PL/B,785,441	18	K.Wimmer+	E2620
*	^{71}Kr,x	^{70}Kr	CSP	2JPNIPC	9.9+09	9.9+09	Jour	PL/B,785,441	18	K.Wimmer+	E2620
*	^{72}Kr,x	^{70}Kr	CS	2JPNIPC	1.0+10	1.0+10	Jour	PL/B,785,441	18	K.Wimmer+	E2620
*	^{72}Kr,x	^{70}Kr	CSP	2JPNIPC	1.0+10	1.0+10	Jour	PL/B,785,441	18	K.Wimmer+	E2620
*	^{132}Sn,x	Many	?	2JPNIPC	3.7+10	3.7+10	Jour	PR/C,102,064615	20	H.Suzuki+	E2685

5 Boron 11

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
	α,2α	^{7}Li	?	2JPNKTO	2.8+07	2.8+07	Jour	JPJ,27,1380	69	N.Fujiwara	E2566

6 Carbon

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,tot		CS	2GERZFK			Jour	EPJ/CS,239,01006	20	A.Junghans+	23755
*	π^+,abs		CS	1CANTMF			Jour	PR/C,92,035205	15	K.Ieki+	J2509
*	d,x+n	inclusive	TTD	2JPNJAE	1.2+07	3.0+07	Jour	NST,58,252	21	M.K.A.Patwary+	E2706
*	p,x+n	inclusive	DAE	2JPNIRS	1.4+08	1.8+08	Jour	NIM/B,487,38	21	T.Kajimoto+	E2695
*	p,x+n	inclusive	DAP	2JPNIRS	1.4+08	1.8+08	Jour	NIM/B,487,38	21	T.Kajimoto+	E2695

6 Carbon 12

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,n	^{11}C	CS	2JPNTOH		6.0+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	γ,x	^{7}Be	CS	2JPNTOH		6.0+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
*	p̄,abs		CS	2ZZZCER	5.3+06	5.3+06	Jour	NP/A,970,366	18	H.Aghai-Khozani+	J2663
*	p,el	^{12}C	DT	2GERGSI	7.1+08	7.1+08	Jour	NP/A,1008,122154	21	A.V.Dobrovolsky+	O2535
*	^{12}C,el	^{12}C	DA	2JPNOSA	1.2+09	1.2+09	Jour	PR/C,95,044616	17	W.W.Qu+	E2546
*	^{12}C,inel	^{12}C	DAP	2JPNOSA	1.2+09	1.2+09	Jour	PR/C,95,044616	17	W.W.Qu+	E2546

6 Carbon 13

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	p,α	^{10}B	CS	1USAWAU	5.8+06	1.8+07	Jour	PR/C,11,410	75	D.L.Oberg+	C2711
	p,α	^{10}B	DAP	1USAWAU	5.5+06	1.8+07	Jour	PR/C,11,410	75	D.L.Oberg+	C2711
	p,x	^{6}Li	CS	1USAWAU	1.1+07	1.8+07	Jour	PR/C,11,410	75	D.L.Oberg+	C2711
	p,x	^{9}Be	CS	1USAWAU	1.4+07	1.8+07	Jour	PR/C,11,410	75	D.L.Oberg+	C2711
*	α,n	^{16}O	CS	2ITYLGS	2.3+05	3.1+05	Jour	PRL,127,152701	21	G.F.Ciani+	O2548

6 Carbon 14

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,el	^{14}C	DT	2GERGSI	7.0+08	7.0+08	Jour	NP/A,1008,122154	21	A.V.Dobrovolsky+	O2535

6 Carbon 15

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,el	^{15}C	DT	2GERGSI	7.0+08	7.0+08	Jour	NP/A,1008,122154	21	A.V.Dobrovolsky+	O2535

6 Carbon 16

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,el	^{16}C	DT	2GERGSI	7.0+08	7.0+08	Jour	NP/A,1008,122154	21	A.V.Dobrovolsky+	O2535

6 Carbon 17

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,el	^{17}C	DT	2GERGSI	7.0+08	7.0+08	Jour	NP/A,1008,122154	21	A.V.Dobrovolsky+	O2535

7 Nitrogen 14

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	d,α	^{12}C	DAP	2GRCATH	9.0+05	2.0+06	Jour	NIM/B,450,31	19	M.Kokkoris+	O2533
*	d,p	^{15}N	DAP	2GRCATH	9.0+05	2.0+06	Jour	NIM/B,450,31	19	M.Kokkoris+	O2533

7 Nitrogen 15

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	p,γ	^{16}O	CSP	1USAWIS			Jour	PR/C,37,2289	88	S.W.Wissink+	C2714
	p,γ	^{16}O	DAP	1USAWIS		1.4+07	Jour	PR/C,37,2289	88	S.W.Wissink+	C2714
	p,γ	^{16}O	POL	1USAWIS			Jour	PR/C,37,2289	88	S.W.Wissink+	C2714
	p,γ	^{16}O	?	1USAWIS	6.1+06	1.4+07	Jour	PR/C,37,2289	88	S.W.Wissink+	C2714

8 Oxygen

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,tot		CS	2GERZFK			Jour	EPJ/CS,239,01006	20	A.Junghans+	23755

8 Oxygen 16

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	p,el	^{16}O	DA	1USAWIS	6.5+06	6.5+06	Jour	PR/C,25,1054	82	S.Sen	C2713
	p,el	^{16}O	POD	1USAWIS	6.5+06	6.5+06	Jour	PR/C,25,1054	82	S.Sen	C2713
*	d,el	^{16}O	DA	2GRCATH	1.5+06	2.5+06	Jour	NIM/B,510,56	22	E.Ntemou+	O2540

8 Oxygen 17

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	p,0		RP	1USATNL			Jour	PRL,74,2642	95	J.C.Blackmon+	C2708

8 Oxygen 18

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,0		RP	2ITYLGS			Jour	PR/C,104,025802	21	F.R.Pantaleo+	O2546
*	p,γ	^{19}F	SPC	2ITYLGS	1.5+05	3.3+05	Jour	PR/C,104,025802	21	F.R.Pantaleo+	O2546

9 Fluorine 19

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	p,γ	^{20}Ne	CSP	1USAWIS	1.6+07	2.4+07	Jour	PR/C,37,2301	88	T.R.Wang+	C2715
	p,γ	^{20}Ne	DAP	1USAWIS	3.5+06	1.3+07	Jour	PR/C,37,2301	88	T.R.Wang+	C2715
	p,γ	^{20}Ne	POL	1USAWIS	3.5+06	1.3+07	Jour	PR/C,37,2301	88	T.R.Wang+	C2715
	p,γ	^{20}Ne	?	1USAWIS	4.1+06	1.3+07	Jour	PR/C,37,2301	88	T.R.Wang+	C2715

10 Neon

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,tot		CS	2GERZFK			Jour	EPJ/CS,239,01006	20	A.Junghans+	23755

11 Sodium 23

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,n	^{22}Na	CS	2JPNTOH		6.0+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

12 Magnesium 24

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,x	^{22}Na	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	n,α	^{21}Ne	DAP	2GERTUE	1.3+07	1.6+07	Jour	ZP/A,285,293	78	M.Brendle+	21672

12 Magnesium 25

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,p	^{24}Na	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	n,α	^{22}Ne	DAP	2GERTUE	1.3+07	1.6+07	Jour	ZP/A,285,293	78	M.Brendle+	21672

12 Magnesium 26

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,α	^{23}Ne	DAP	2GERTUE	1.3+07	1.6+07	Jour	ZP/A,285,293	78	M.Brendle+	21672

13 Aluminium 26

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,α		RP	2ZZZGEL	3.6+04	3.6+04	Jour	PR/C,104,L032803	21	C.Lederer-Woods+	23752
*	n,α		RP	2ZZZCER	5.9+03	1.4+05	Jour	PR/C,104,L032803	21	C.Lederer-Woods+	23752
*	n,α	^{23}Na	CS	2ZZZCER	8.0+04	1.6+05	Jour	PR/C,104,L032803	21	C.Lederer-Woods+	23752
*	n,α	^{23}Na	CS	2UK EDG	Maxwl		Jour	PR/C,104,L032803	21	C.Lederer-Woods+	23752
*	n,p		RP	2ZZZCER	8.6+04	1.4+05	Jour	PR/C,104,L022803	21	C.Lederer-Woods+	23751
*	n,p	^{26}Mg	CSP	2ZZZCER	Maxwl	1.6+05	Jour	PR/C,104,L022803	21	C.Lederer-Woods+	23751

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	2JPNTOH		5.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	γ,x	^{24}Na	CS	2JPNTOH		5.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
*	^{6}Li,x	^{25}Mg	CS	2AUSVIE			Jour	PR/C,103,064605	21	J.Kuehtreiber+	O2544
*	^{6}Li,x	^{28}Al	CS	2AUSVIE			Jour	PR/C,103,064605	21	J.Kuehtreiber+	O2544
*	^{6}Li,x	^{28}Si	CS	2AUSVIE			Jour	PR/C,103,064605	21	J.Kuehtreiber+	O2544
*	^{6}Li,x	^{30}P	CS	2AUSVIE			Jour	PR/C,103,064605	21	J.Kuehtreiber+	O2544
*	^{7}Li,x	^{26}Mg	CS	2AUSVIE			Jour	PR/C,103,064605	21	J.Kuehtreiber+	O2544
*	^{7}Li,x	^{28}Al	CS	2AUSVIE			Jour	PR/C,103,064605	21	J.Kuehtreiber+	O2544
*	^{7}Li,x	^{29}Al	CS	2AUSVIE			Jour	PR/C,103,064605	21	J.Kuehtreiber+	O2544
*	^{7}Li,x	^{29}P	CS	2AUSVIE			Jour	PR/C,103,064605	21	J.Kuehtreiber+	O2544
*	^{7}Li,x	^{30}P	CS	2AUSVIE			Jour	PR/C,103,064605	21	J.Kuehtreiber+	O2544
*	^{7}Li,x	^{32}P	CS	2AUSVIE			Jour	PR/C,103,064605	21	J.Kuehtreiber+	O2544
*	^{7}Li,x	^{33}P	CS	2AUSVIE			Jour	PR/C,103,064605	21	J.Kuehtreiber+	O2544

14 Silicon

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,0		RP	2FR BRC			Rept	CEA-R-4524	73	J.Cabe+	20480

18 Argon

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,ths	^{nat}Ar	TSL	2JPNKEK			Jour	PR/C,100,064002	19	C.C.Haddock+	23747

20 Calcium

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	α,x	^{47}Ca	CS	2JPNIPC	2.9+07	2.9+07	Jour	NIM/B,515,1	22	M.Aikawa+	E2722
*	α,x	^{43}Sc	CS	2JPNIPC	9.3+06	2.9+07	Jour	NIM/B,515,1	22	M.Aikawa+	E2722
*	α,x	^{44}Sc	CS	2JPNIPC	1.8+07	2.9+07	Jour	NIM/B,515,1	22	M.Aikawa+	E2722
*	α,x	^{46}Sc	CS	2JPNIPC	1.8+07	2.9+07	Jour	NIM/B,515,1	22	M.Aikawa+	E2722
*	α,x	^{47}Sc	CS	2JPNIPC	9.3+06	2.9+07	Jour	NIM/B,515,1	22	M.Aikawa+	E2722

20 Calcium 44

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,p	^{43}K	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	^{3}He,el	^{44}Ca	DA	2UK BIR	3.3+07	3.3+07	Jour	NP/A,436,236	85	J.S.Hanspal+	F0813
	^{3}He,el	^{44}Ca	POD	2UK BIR	3.3+07	3.3+07	Jour	NP/A,436,236	85	J.S.Hanspal+	F0813

20 Calcium 48

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,n	^{47}Ca	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
*	p,inel	^{48}Ca	DAE	2JPNOSA	3.0+08	3.0+08	Jour	PRL,118,252501	17	J.Birkhan+	E2558
	^{3}He,el	^{48}Ca	DA	2UK BIR	3.3+07	3.3+07	Jour	NP/A,436,236	85	J.S.Hanspal+	F0813
	^{3}He,el	^{48}Ca	POD	2UK BIR	3.3+07	3.3+07	Jour	NP/A,436,236	85	J.S.Hanspal+	F0813

21 Scandium 45

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	d,2n	^{45}Ti	CS	2JPNIPC	5.8+06	2.3+07	Jour	ARI,168,109448	21	Z.Tsoodol+	E2682
*	d,3n	^{44}Ti	CS	2JPNIPC	2.1+07	2.3+07	Jour	ARI,168,109448	21	Z.Tsoodol+	E2682
*	d,p	^{46}Sc	CS	2JPNIPC	5.8+06	2.3+07	Jour	ARI,168,109448	21	Z.Tsoodol+	E2682
*	d,x	^{44}Sc	CS	2JPNIPC	5.8+06	2.3+07	Jour	ARI,168,109448	21	Z.Tsoodol+	E2682

22 Titanium

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,x+n	inclusive	DAE	2JPNJSR	1.7+07	1.7+07	Jour	NIM/A,989,164965	21	T.K.Tuyet+	K2694

22 Titanium 46

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
γ,n	^{45}Ti	CS	2JPNTOH		6.0+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

22 Titanium 48

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
γ,p	^{47}Sc	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

22 Titanium 49

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
γ,p	^{48}Sc	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

23 Vanadium

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,x	^{42}K	CS	2FR ARN	5.1+07	7.0+07	Jour	PR/C,104,044619	21	F.Barbaro+	O2547
*	p,x	^{43}K	CS	2FR ARN	4.8+07	7.0+07	Jour	PR/C,104,044619	21	F.Barbaro+	O2547
*	p,x	^{43}Sc	CS	2FR ARN	4.8+07	7.0+07	Jour	PR/C,104,044619	21	F.Barbaro+	O2547
*	p,x	^{44}Sc	CS	2FR ARN	4.8+07	7.0+07	Jour	PR/C,104,044619	21	F.Barbaro+	O2547
*	p,x	^{46}Sc	CS	2FR ARN	3.1+07	7.0+07	Jour	PR/C,104,044619	21	F.Barbaro+	O2547
*	p,x	^{47}Sc	CS	2FR ARN	2.6+07	7.0+07	Jour	PR/C,104,044619	21	F.Barbaro+	O2547
*	p,x	^{48}Sc	CS	2FR ARN	4.8+07	7.0+07	Jour	PR/C,104,044619	21	F.Barbaro+	O2547
*	p,x	^{44}Ti	CS	2FR PAR	1.1+08	9.5+08	Jour	PR/C,104,014615	21	M.Veicht+	O2545
*	p,x	^{48}V	CS	2FR ARN	2.6+07	7.0+07	Jour	PR/C,104,044619	21	F.Barbaro+	O2547
*	p,x	^{48}Cr	CS	2FR ARN	4.8+07	7.0+07	Jour	PR/C,104,044619	21	F.Barbaro+	O2547
*	p,x	^{49}Cr	CS	2FR ARN	2.6+07	7.0+07	Jour	PR/C,104,044619	21	F.Barbaro+	O2547
*	p,x	^{51}Cr	CS	2FR ARN	2.6+07	7.0+07	Jour	PR/C,104,044619	21	F.Barbaro+	O2547

23 Vanadium 51

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
γ,x	^{46}Sc	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

γ,x	^{47}Sc	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

24 Chromium

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
p,x	^{46}Sc	CS	2JPNOSA	3.0+08	3.0+08	Jour	KPS,59,1916	11	S.Sekimoto+	E2721
p,x	^{47}Sc	CS	2JPNOSA	3.0+08	3.0+08	Jour	KPS,59,1916	11	S.Sekimoto+	E2721
p,x	^{48}V	CS	2JPNOSA	3.0+08	3.0+08	Jour	KPS,59,1916	11	S.Sekimoto+	E2721
p,x	^{51}Cr	CS	2JPNOSA	3.0+08	3.0+08	Jour	KPS,59,1916	11	S.Sekimoto+	E2721

24 Chromium 50

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
γ,2n	^{48}Cr	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
γ,x	^{48}V	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
p,0		RP	1USATNL			Jour	NP/A,175,556	71	J.D.Moses+	C2706
p,el	^{50}Cr	DA	1USATNL	3.1+06	3.2+06	Jour	NP/A,175,556	71	J.D.Moses+	C2706
p,inel	^{50}Cr	DAP	1USATNL	3.1+09	3.2+09	Jour	NP/A,175,556	71	J.D.Moses+	C2706

24 Chromium 52

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
γ,n	^{51}Cr	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
p,0		RP	1USATNL			Jour	NP/A,175,556	71	J.D.Moses+	C2706

24 Chromium 54

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
p,0		RP	1USATNL			Jour	NP/A,175,556	71	J.D.Moses+	C2706
p,el	^{54}Cr	DA	1USATNL	2.0+09	2.0+09	Jour	NP/A,175,556	71	J.D.Moses+	C2706

25 Manganese 55

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,n	^{54}Mn	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
*	p,x	Many	CS	2JPNJAE	1.3+09	3.0+09	Jour	NIM/B,511,30	22	H.Takeshita+	E2719

26 Iron

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,x+n	inclusive	DAE	2JPNJSR	1.7+07	1.7+07	Jour	NIM/A,989,164965	21	T.K.Tuyet+	K2694

26 Iron 54

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
γ,2n	^{52}Fe	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
γ,x	^{52}Mn	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

26 Iron 56

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
γ,x	^{51}Cr	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
γ,x	^{54}Mn	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

26 Iron 57

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
γ,p	^{56}Mn	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

27 Cobalt 59

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,2n	^{57}Co	CS	2JPNTOH		6.0+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	γ,n	^{58}Co	CS	2JPNTOH		6.0+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
*	γ,x+n	inclusive	CS	2JPNJSR	1.1+07	4.0+07	Jour	PR/C,102,064309	20	S.Goriely+	K2683
*	p,x	Many	CS	2JPNJAE	1.3+09	3.0+09	Jour	NIM/B,511,30	22	H.Takeshita+	E2719
	α,t	^{60}Ni	DAP	2JPNKTO	2.9+07	2.9+07	Jour	JPJ,25,901	68	M.Matoba	E2565
	α,t	^{60}Ni	DAP	2JPNKTO	2.9+07	2.9+07	Jour	NP/A,176,178	71	M.Matoba+	E2567

28 Nickel 58

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,2n	^{56}Ni	CS	2JPNTOH		6.0+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	γ,n	^{57}Ni	CS	2JPNTOH		6.0+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	γ,x	^{56}Co	CS	2JPNTOH		6.0+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
*	^{17}F,α	^{71}Br	CS	2JPNIPC	4.8+07	6.3+07	Jour	PL/B,813,136045	21	L.Yang+	E2687
*	^{17}F,el	^{58}Ni	DA	2JPNIPC	4.4+07	6.3+07	Jour	PL/B,813,136045	21	L.Yang+	E2687

*	^{17}F,non		CS	2JPNIPC	4.4+07	6.3+07	Jour	PL/B,813,136045	21	L.Yang+	E2687
*	^{17}F,p	^{74}Kr	CS	2JPNIPC	4.4+07	6.3+07	Jour	PL/B,813,136045	21	L.Yang+	E2687
*	^{17}F,p+X	^{16}O	CS	2JPNIPC	4.4+07	6.3+07	Jour	PL/B,813,136045	21	L.Yang+	E2687
*	^{17}F,p+X	^{16}O	DA	2JPNIPC	4.4+07	6.3+07	Jour	PL/B,813,136045	21	L.Yang+	E2687
*	^{17}F,x	^{16}O	CS	2JPNIPC	4.4+07	6.3+07	Jour	PL/B,813,136045	21	L.Yang+	E2687
*	^{17}F,x	^{16}O	DA	2JPNIPC	4.4+07	6.3+07	Jour	PL/B,813,136045	21	L.Yang+	E2687

28 Nickel 60

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,x	^{58}Co	CS	2JPNTOH		6.0+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	α,t	^{61}Cu	DAP	2JPNKTO	2.9+07	2.9+07	Jour	JPJ,25,901	68	M.Matoba	E2565
	α,t	^{61}Cu	DAP	2JPNKTO	2.9+07	2.9+07	Jour	NP/A,176,178	71	M.Matoba+	E2567

29 Copper

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,x+n	inclusive	DAE	2JPNJSR	1.7+07	1.7+07	Jour	NIM/A,989,164965	21	T.K.Tuyet+	K2694
*	^{238}U,x+n	inclusive	TTD	2JPNIPC	8.2+10	8.2+10	Jour	NIM/B,512,102	22	K.Sugihara+	E2723

29 Copper 63

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,2n	^{61}Cu	CS	2JPNTOH		6.0+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	γ,x	^{58}Co	CS	2JPNTOH		6.0+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	α,t	^{64}Zn	DAP	2JPNKTO	2.9+07	2.9+07	Jour	JPJ,25,901	68	M.Matoba	E2565

29 Copper 65

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,n	^{64}Cu	CS	2JPNTOH		6.0+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	α,t	^{66}Zn	DAP	2JPNKTO	2.9+07	2.9+07	Jour	JPJ,25,901	68	M.Matoba	E2565

32 Germanium 72

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,0		RP	2ZZZCER		2.0+04	Jour	PR/C,103,045809	21	M.Dietz+	23757
*	n,γ		RP	2ZZZCER		2.0+04	Jour	PR/C,103,045809	21	M.Dietz+	23757
*	n,γ	^{73}Ge	CS	2ZZZCER		3.1+05	Jour	PR/C,103,045809	21	M.Dietz+	23757
	p,inel	^{72}Ge	DAP	1USARUT	4.9+06	5.2+09	Jour	PRL,29,74	72	M.W.Gibson+	C2710

32 Germanium 76

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,0		RP	2ZZZCER		5.2+04	Jour	PR/C,104,044610	21	A.Gawlik-Ramiega+	23753
*	n,γ		RP	2ZZZCER		5.2+04	Jour	PR/C,104,044610	21	A.Gawlik-Ramiega+	23753
*	n,γ	^{77}Ge	CS	2ZZZCER	1.0+00	3.5+05	Jour	PR/C,104,044610	21	A.Gawlik-Ramiega+	23753

36 Krypton

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,ths	^{nat}Kr	TSL	2JPNKEK			Jour	PR/C,100,064002	19	C.C.Haddock+	23747

38 Strontium 86

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,n	^{86}Y	CS	2GERJUL	6.5+06	1.6+07	Jour	RCA,108,747	20	M.Shuzauddin+	O2534

38 Strontium 87

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,n	^{87}Y	CS	2GERJUL	6.5+06	1.6+07	Jour	RCA,108,747	20	M.Shuzauddin+	O2534

38 Strontium 88

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,n	^{88}Y	CS	2GERJUL	6.5+06	1.6+07	Jour	RCA,108,747	20	M.Shuzauddin+	O2534

39 Yttrium 89

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,n	^{88}Y	CS	2JPNTOH		6.0+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
*	γ,x+n	inclusive	CS	2JPNJSR	1.2+07	3.9+07	Jour	PR/C,102,064309	20	S.Goriely+	K2683

40 Zirconium 90

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,n	^{89}Zr	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	γ,x	^{88}Y	CS	2JPNTOH		5.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

40 Zirconium 91

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	p,d	^{90}Zr	DA	1USAWAU	1.0+07	1.5+07	Jour	PR/C,6,366	72	J.G.Cramer+	C2712
	p,d	^{90}Zr	POD	1USAWAU	1.0+07	1.5+07	Jour	PR/C,6,366	72	J.G.Cramer+	C2712
	p,el	^{91}Zr	DA	1USAWAU	1.0+07	1.4+07	Jour	PR/C,6,366	72	J.G.Cramer+	C2712
	p,el	^{91}Zr	POD	1USAWAU	1.0+07	1.5+07	Jour	PR/C,6,366	72	J.G.Cramer+	C2712
	p,n+p	^{90}Zr	DA	1USAWAU	1.2+07	1.4+07	Jour	PR/C,6,366	72	J.G.Cramer+	C2712
	p,n+p	^{90}Zr	POD	1USAWAU	1.2+07	1.4+07	Jour	PR/C,6,366	72	J.G.Cramer+	C2712

40 Zirconium 92

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,0		RP	2ZZZGEL			Jour	PR/C,105,025805	22	G.Tagliente+	23759
*	n,γ	^{93}Zr	CS	2ZZZCER	3.2-02	5.0+04	Jour	PR/C,105,025805	22	G.Tagliente+	23759
*	n,γ	^{93}Zr	CS	2ZZZGEL	Maxwl		Jour	PR/C,105,025805	22	G.Tagliente+	23759

41 Niobium 93

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,n	^{92}Nb	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	γ,x	^{88}Y	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
*	p,γ	^{94}Mo	CSP	2GERKLN	3.0+06	3.5+06	Jour	PR/C,103,025805	21	F.Heim+	O2539

42 Molybdenum 92

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,2n	^{90}Mo	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

42 Molybdenum 94

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,x	^{89}Zr	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	γ,x	^{92}Nb	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

*	p,inel	^{94}Mo	SPC	2GERKLN	1.4+07	1.4+07	Jour	PR/C,103,025805	21	F.Heim+	O2539

42 Molybdenum 96

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,p	^{95}Nb	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
*	p,n	^{96}Tc	CS	2GERKLN	3.8+06	5.3+06	Jour	PR/C,103,054613	21	F.Heim+	O2542

42 Molybdenum 97

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,p	^{96}Nb	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

42 Molybdenum 100

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,n	^{99}Mo	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

45 Rhodium 103

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,x+n	inclusive	CS	2JPNJSR	9.4+06	4.2+07	Jour	PR/C,102,064309	20	S.Goriely+	K2683

47 Silver 109

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,γ	^{110}Cd	CS	2GERKLN	2.4+06	4.9+06	Jour	PR/C,103,055803	21	F.Heim+	O2543

48 Cadmium 112

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,γ	^{113}In	CS	2GRCATH	3.4+06	3.6+06	Jour	NP/A,1015,122298	21	P.Vasileiou+	O2536

48 Cadmium 114

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,γ	^{115}In	CS	2GRCATH	3.0+06	3.6+06	Jour	NP/A,1015,122298	21	P.Vasileiou+	O2536
*	p,n	^{114}In	CS	2GRCATH	3.0+06	3.6+06	Jour	NP/A,1015,122298	21	P.Vasileiou+	O2536

50 Tin

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,x+n	inclusive	DAE	2JPNJSR	1.7+07	1.7+07	Jour	NIM/A,989,164965	21	T.K.Tuyet+	K2694

50 Tin 112

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,d	^{111}Sn	DAP	2GERLMU	2.1+07	2.1+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	d,p	^{113}Sn	DAP	2GERLMU	1.5+07	1.5+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	^{3}He,α	^{111}Sn	DAP	2FR PAR	3.6+07	3.6+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	α,^{3}He	^{113}Sn	DAP	2FR PAR	4.1+07	4.1+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550

50 Tin 114

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,d	^{113}Sn	DAP	2GERLMU	2.1+07	2.1+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	d,p	^{115}Sn	DAP	2GERLMU	1.5+07	1.5+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	^{3}He,α	^{113}Sn	DAP	2FR PAR	3.6+07	3.6+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	α,^{3}He	^{115}Sn	DAP	2FR PAR	4.1+07	4.1+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550

50 Tin 116

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,d	^{115}Sn	DAP	2GERLMU	2.1+07	2.1+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	d,p	^{117}Sn	DAP	2GERLMU	1.5+07	1.5+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	^{3}He,α	^{115}Sn	DAP	2FR PAR	3.6+07	3.6+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	α,^{3}He	^{117}Sn	DAP	2FR PAR	4.1+07	4.1+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550

50 Tin 118

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,d	^{117}Sn	DAP	2GERLMU	2.1+07	2.1+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	d,p	^{119}Sn	DAP	2GERLMU	1.5+07	1.5+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550

*	^{3}He,α	^{117}Sn	DAP	2FR PAR	3.6+07	3.6+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	α,^{3}He	^{119}Sn	DAP	2FR PAR	4.1+07	4.1+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550

50 Tin 120

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,d	^{119}Sn	DAP	2GERLMU	2.1+07	2.1+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	d,p	^{121}Sn	DAP	2GERLMU	1.5+07	1.5+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	^{3}He,α	^{119}Sn	DAP	2FR PAR	3.6+07	3.6+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	α,^{3}He	^{121}Sn	DAP	2FR PAR	4.1+07	4.1+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550

50 Tin 122

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,d	^{121}Sn	DAP	2GERLMU	2.1+07	2.1+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	d,p	^{123}Sn	DAP	2GERLMU	1.5+07	1.5+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	^{3}He,α	^{121}Sn	DAP	2FR PAR	3.6+07	3.6+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	α,^{3}He	^{123}Sn	DAP	2FR PAR	4.1+07	4.1+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550

50 Tin 124

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,d	^{123}Sn	DAP	2GERLMU	2.1+07	2.1+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	d,p	^{125}Sn	DAP	2GERLMU	1.5+07	1.5+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	^{3}He,α	^{123}Sn	DAP	2FR PAR	3.6+07	3.6+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550
*	α,^{3}He	^{125}Sn	DAP	2FR PAR	4.1+07	4.1+07	Jour	PR/C,104,054308	21	S.V.Szwec+	O2550

52 Tellurium 124

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	p,0		RP	1USATEX			Jour	PR,175,1498	68	J.L.Foster+	C2691
	p,el	^{124}Te	DA	1USATEX	7.1+06	1.0+07	Jour	PR,175,1498	68	J.L.Foster+	C2691

52 Tellurium 126

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	p,0		RP	1USATEX			Jour	PR,175,1498	68	J.L.Foster+	C2691
	p,el	^{126}Te	DA	1USATEX	7.6+06	1.1+07	Jour	PR,175,1498	68	J.L.Foster+	C2691

52 Tellurium 128

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	p,0		RP	1USATEX			Jour	PR,175,1498	68	J.L.Foster+	C2691
	p,el	^{128}Te	DA	1USATEX	7.7+06	1.1+07	Jour	PR,175,1498	68	J.L.Foster+	C2691

52 Tellurium 130

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	p,0		RP	1USATEX			Jour	PR,175,1498	68	J.L.Foster+	C2691
	p,el	^{130}Te	DA	1USATEX	7.9+06	1.3+07	Jour	PR,175,1498	68	J.L.Foster+	C2691

54 Xenon

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,ths	^{nat}Xe	TSL	2JPNKEK			Jour	PR/C,100,064002	19	C.C.Haddock+	23747
*	n,tot		CS	2GERZFK			Jour	EPJ/CS,239,01006	20	A.Junghans+	23755

56 Barium 137

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,n	^{136}Ba	CS	2JPNJSR	7.0+06	1.3+07	Jour	PR/C,100,034605	19	H.Utsunomiya+	K2640

56 Barium 138

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,n	^{137}Ba	CS	2JPNJSR	8.8+06	1.3+07	Jour	PR/C,100,034605	19	H.Utsunomiya+	K2640

57 Lanthanum 139

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,x+n	inclusive	CS	2JPNJSR	8.8+06	4.1+07	Jour	PR/C,102,064309	20	S.Goriely+	K2683

59 Praesodymium 141

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,2n	^{140}Nd	CS	2JPNIPC	9.5+06	3.0+07	Jour	NIM/B,508,29	21	M.Aikawa+	E2715

*	p,3n	^{139}Nd	CS	2JPNIPC	1.5+07	3.0+07	Jour	NIM/B,508,29	21	M.Aikawa+	E2715
*	p,n	^{141}Nd	CS	2JPNIPC	3.4+06	2.3+07	Jour	NIM/B,508,29	21	M.Aikawa+	E2715
*	p,x	^{139}Ce	CS	2JPNIPC	2.2+07	3.0+07	Jour	NIM/B,508,29	21	M.Aikawa+	E2715
*	d,2n	^{141}Nd	CS	2JPNIPC	5.1+06	2.4+07	Jour	NIM/B,498,23	21	M.Aikawa+	E2693
*	d,3n	^{140}Nd	CS	2JPNIPC	1.2+07	2.4+07	Jour	NIM/B,498,23	21	M.Aikawa+	E2693
*	d,p	^{142}Pr	CS	2JPNIPC	5.1+06	2.4+07	Jour	NIM/B,498,23	21	M.Aikawa+	E2693
*	d,x	^{139}Ce	CS	2JPNIPC	5.1+06	2.4+07	Jour	NIM/B,498,23	21	M.Aikawa+	E2693

60 Neodymium

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
*	α,x	^{147}Nd	CS	2JPNIPC	1.4+07	4.9+07	Jour	ARI,176,109826	21	M.Sakaguchi+	E2703
*	α,x	^{149}Nd	CS	2JPNIPC	1.4+07	4.9+07	Jour	ARI,176,109826	21	M.Sakaguchi+	E2703
*	α,x	^{143}Pm	CS	2JPNIPC	2.4+07	4.9+07	Jour	ARI,176,109826	21	M.Sakaguchi+	E2703
*	α,x	^{144}Pm	CS	2JPNIPC	2.4+07	4.9+07	Jour	ARI,176,109826	21	M.Sakaguchi+	E2703
*	α,x	^{148}Pm	CS	2JPNIPC	2.2+07	4.9+07	Jour	ARI,176,109826	21	M.Sakaguchi+	E2703
*	α,x	^{149}Pm	CS	2JPNIPC	1.4+07	4.9+07	Jour	ARI,176,109826	21	M.Sakaguchi+	E2703
*	α,x	^{150}Pm	CS	2JPNIPC	1.4+07	4.9+07	Jour	ARI,176,109826	21	M.Sakaguchi+	E2703
*	α,x	^{151}Pm	CS	2JPNIPC	1.4+07	4.9+07	Jour	ARI,176,109826	21	M.Sakaguchi+	E2703
*	α,x	^{145}Sm	CS	2JPNIPC	1.4+07	4.9+07	Jour	ARI,176,109826	21	M.Sakaguchi+	E2703
*	α,x	^{153}Sm	CS	2JPNIPC	1.4+07	4.9+07	Jour	ARI,176,109826	21	M.Sakaguchi+	E2703

60 Neodymium 143

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
	n,α	^{140}Ce	DE	2FR GRA	2.1+07	2.1+07	Jour	PR/C,38,1649	88	E.Gadioli+	23754

64 Gadolinium

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
*	α,x	^{153}Gd	CS	2JPNIPC	3.3+07	5.0+07	Jour	NIM/B,499,46	21	D.Ichinkhorloo+	E2697
*	α,x	^{153}Tb	CS	2JPNIPC	3.0+07	5.0+07	Jour	NIM/B,499,46	21	D.Ichinkhorloo+	E2697
*	α,x	^{155}Tb	CS	2JPNIPC	1.9+07	5.0+07	Jour	NIM/B,499,46	21	D.Ichinkhorloo+	E2697
*	α,x	^{156}Tb	CS	2JPNIPC	2.7+07	5.0+07	Jour	NIM/B,499,46	21	D.Ichinkhorloo+	E2697
*	α,x	^{160}Tb	CS	2JPNIPC	2.7+07	5.0+07	Jour	NIM/B,499,46	21	D.Ichinkhorloo+	E2697
*	α,x	^{161}Tb	CS	2JPNIPC	1.9+07	5.0+07	Jour	NIM/B,499,46	21	D.Ichinkhorloo+	E2697
*	α,x	^{155}Dy	CS	2JPNIPC	1.5+07	5.0+07	Jour	NIM/B,499,46	21	D.Ichinkhorloo+	E2697
*	α,x	^{159}Dy	CS	2JPNIPC	1.9+07	5.0+07	Jour	NIM/B,499,46	21	D.Ichinkhorloo+	E2697

65 Terbium 159

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
*	γ,x+n	inclusive	CS	2JPNJSR	8.2+06	4.2+07	Jour	PR/C,102,064309	20	S.Goriely+	K2683

67 Holmium 165

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,x+n	inclusive	CS	2JPNJSR	8.3+06	4.3+07	Jour	PR/C,102,064309	20	S.Goriely+	K2683

69 Thulium 169

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,x+n	inclusive	CS	2JPNJSR	8.3+06	3.9+07	Jour	PR/C,102,064309	20	S.Goriely+	K2683

73 Tantalum 181

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,x+n	inclusive	CS	2JPNJSR	1.1+07	4.1+07	Jour	PR/C,102,064309	20	S.Goriely+	K2683

78 Platinum

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,tot		CS	2GERZFK			Jour	EPJ/CS,239,01006	20	A.Junghans+	23755

79 Gold 197

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,x+n	inclusive	CS	2JPNJSR	1.1+07	3.9+07	Jour	PR/C,102,064309	20	S.Goriely+	K2683
*	γ,x+n	inclusive	DAE	2JPNJSR	1.7+07	1.7+07	Jour	NIM/A,989,164965	21	T.K.Tuyet+	K2694

80 Mercury 198

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,n	^{197}Hg	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

80 Mercury 199

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,p	^{198}Au	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

80 Mercury 204

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,n	^{203}Hg	CS	2JPNTOH		5.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

81 Thallium 203

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,$2n$	^{201}Tl	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	γ,$3n$	^{200}Tl	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	γ,n	^{202}Tl	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

82 Lead

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,x+n	inclusive	DAE	2JPNJSR	1.7+07	1.7+07	Jour	NIM/A,989,164965	21	T.K.Tuyet+	K2694

82 Lead 204

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,$2n$	^{202}Pb	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	γ,$3n$	^{201}Pb	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630
	γ,n	^{203}Pb	CS	2JPNTOH		6.8+07	Jour	NIM,157,567	78	K.Masumoto+	K2630

82 Lead 207

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,0		RP	2JPNJSR			Jour	PR/C,103,024309	21	T.Shizuma+	K2688
*	γ,el	^{207}Pb	?	2JPNJSR	5.5+09	6.8+09	Jour	PR/C,103,024309	21	T.Shizuma+	K2688
*	γ,sct	^{207}Pb	CSP	2JPNJSR	5.1+06	6.7+06	Jour	PR/C,103,024309	21	T.Shizuma+	K2688
*	d,p	^{208}Pb	CSP	2GERLMU	2.2+07	2.2+07	Jour	PRL,125,102503	20	M.Spieker+	O2549
*	d,p	^{208}Pb	DAP	2GERLMU	2.2+07	2.2+07	Jour	PRL,125,102503	20	M.Spieker+	O2549

82 Lead 208

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,el	^{208}Pb	DA	2GERTHS	7.8+06	7.8+06	Jour	PR/C,39,1774	89	G.Schreder+	22121

	n,el	^{208}Pb	POD	2GERTHS	7.8+06	7.8+06	Jour	PR/C,39,1774	89	G.Schreder+	22121

83 Bismuth 209

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,x+n	inclusive	CS	2JPNJSR	7.7+06	4.2+07	Jour	PR/C,96,044604	17	I.Gheorghe+	K2556
*	^{7}Li,5n	^{211}Rn	CS	2JPNJAE	4.2+07	5.9+07	Jour	JRN,323,921	20	E.Maeda+	E2726
*	^{7}Li,6n	^{210}Rn	CS	2JPNJAE	4.5+07	5.9+07	Jour	JRN,323,921	20	E.Maeda+	E2726
*	^{7}Li,x	^{210}At	CS	2JPNJAE	4.5+07	5.9+07	Jour	JRN,323,921	20	E.Maeda+	E2726

90 Thorium 232

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,fis		?	2GRCATH	2.0+06	1.8+07	Jour	EPJ/A,57,277	21	V.Michalopoulou+	23756

92 Uranium

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,tot		CS	2GERZFK			Jour	EPJ/CS,239,01006	20	A.Junghans+	23755

92 Uranium 233

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,fis	Many	FY	2FR ILL	Maxwl		Conf	85SANTA,1,393	85	P.Geltenbort+	21981
	n,fis	Many	KE	2FR ILL	Maxwl		Conf	85SANTA,1,393	85	P.Geltenbort+	21981
	n,fis		NUD	2ITYMIL	1.5+06	1.5+06	Jour	NSE,80,379	82	G.Benedetti+	21644

92 Uranium 234

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,γ	^{235}U	DE	2ZZZCER	5.2+00	1.5+02	Jour	PR/C,105,024618	22	J.Moreno-Soto+	23758
*	n,γ	^{235}U	PY	2ZZZCER	5.2+00	1.5+02	Jour	PR/C,105,024618	22	J.Moreno-Soto+	23758

92 Uranium 235

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,fis		CS	2ZZZCER	1.8-02	1.8+05	Jour	EPJ/A,55,120	19	S.Amaducci+	23453
*	n,fis		CS	2ZZZCER	3.2+03	2.8+04	Jour	EPJ/CS,111,02003	16	C.Paradela+	23294

	n,fis	Many	FY	2FR ILL	Maxwl		Conf	85SANTA,1,393	85	P.Geltenbort+	21981
	n,fis	Many	KE	2FR ILL	Maxwl		Conf	85SANTA,1,393	85	P.Geltenbort+	21981
	n,fis	^{148}Pm	FY	2JPNJAE	2.5-02	2.5-02	Jour	JIN,35,353	73	H.Umezawa	22069

92 Uranium 236

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
*	n,γ	^{237}U	DE	2ZZZCER	5.5+00	1.2+02	Jour	PR/C,105,024618	22	J.Moreno-Soto+	23758
*	n,γ	^{237}U	PY	2ZZZCER	5.5+00	1.2+02	Jour	PR/C,105,024618	22	J.Moreno-Soto+	23758

92 Uranium 238

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
*	n,γ	^{239}U	DE	2ZZZCER	6.7+00	1.2+02	Jour	PR/C,105,024618	22	J.Moreno-Soto+	23758
*	n,γ	^{239}U	PY	2ZZZCER	6.7+00	1.2+02	Jour	PR/C,105,024618	22	J.Moreno-Soto+	23758
	p,n	^{238}Np	CS	2JPNTOK	2.9+07	4.0+07	Rept	A-INS-1994,19	94	Y.L.Zhao+	E2607

93 Neptunium 237

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
n,fis		NUD	2ITYMIL	1.5+06	1.5+06	Jour	NSE,80,379	82	G.Benedetti+	21644

94 Plutonium 238

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
n,fis		NUD	2ITYMIL	1.5+06	1.5+06	Jour	NSE,80,379	82	G.Benedetti+	21644

94 Plutonium 239

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
n,fis	Many	FY	2FR ILL	Maxwl		Conf	85SANTA,1,393	85	P.Geltenbort+	21981
n,fis	Many	KE	2FR ILL	Maxwl		Conf	85SANTA,1,393	85	P.Geltenbort+	21981

94 Plutonium 240

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
n,fis		NUD	2ITYMIL	1.5+06	1.5+06	Jour	NSE,80,379	82	G.Benedetti+	21644

94 Plutonium 241

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,fis		NUD	2ITYMIL	1.5+06	1.5+06	Jour	NSE,80,379	82	G.Benedetti+	21644

95 Americium 241

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,fis		NUD	2ITYMIL	1.5+06	1.5+06	Jour	NSE,80,379	82	G.Benedetti+	21644

96 Curium 248

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
^{18}O,3n	^{263}Rf	CS	1USABRK	9.2+07	9.2+07	Rept	LBL-31855,54	92	K.R.Czerwinski+	C2725