

Nuclear Reaction Data Center (JCPRG)

EXFOR : Recent Compilation (Added in November 2007)

EXFOR is a world-wide database for experimental neutron induced, charged-particle induced and photonuclear reaction compiled by Nuclear Reaction Data Centres Network coordinated by IAEA Nuclear Data Section. This list gives newly compiled data to EXFOR. *This list consists of tables titled by target nuclide.*

Retrieval service is available at:

<http://www.jcprg.org/exfor/>

Quantity code

ALF	Alpha	FY	Fission product yield
AMP	Length or amplitude	INT	Cross section integral over incident energy
CHG	Fragment charge	KE	Kinetic energy
CS	Cross section	KER	Kerma factor
CSN	Differential with respect to number of particles	MLT	Multiplicity
CSP	Partial cross section	NQ	Nuclear quantity
CST	Temperature dependent cross section	NU	Nu
D3A	Triple differential $d\Omega_1/d\Omega_2/dE'$	NUD	Nu delayed
D3E	Triple differential $d\Omega/dE'_1/dE'_2$	NUF	Fragment neutrons
D4A	Quadruple diff. $d\Omega_1/d\Omega_2/dE'_1/dE'_2$	POL	Polarization
DA	Differential $d/d\Omega$	POD	Differential polarization
DAA	Double differential $d\Omega_1/d\Omega_2$	PY	Product yield (other than fission)
DAE	Double differential $d\Omega/dE'$	RI	Resonance integral
DAP	Partial differential $d/d\Omega$	RP	Resonance parameter
DAT	Temperature-dependent Legendre coefficient	RR	Reaction rate
DE	Differential d/dE'	SIF	Self indication
DEP	Energy spectrum for specific group	SPC	Gamma spectrum
DP	Diff. by linear momentum of outgoing part.	TSL	Thermal scattering
DT	Diff. by 4-momentum transfer squared	TT	Thick target yield
ETA	Eta	TTD	Differential thick target yield, $d/d\Omega$
EVL	Evaluation	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)

2 Helium 4

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>p,el</i>	⁴ He	DA	2SWTPSI	7.2+07	7.2+07	Jour	PR/C,39,56	89	S.Burzynski+	O1605
<i>p,el</i>	⁴ He	POD	2SWTPSI	7.2+07	7.2+07	Jour	PR/C,39,56	89	S.Burzynski+	O1605

4 Beryllium 9

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,el</i>	⁹ Be	CS	2GERPTB	7.1+06	1.0+07	Rept	PTB-N-55	07	D.Schmidt+	22973
<i>n,el</i>	⁹ Be	DA	2GERPTB	7.1+06	1.0+07	Rept	PTB-N-55	07	D.Schmidt+	22973
<i>n,inel</i>	⁹ Be	CSP	2GERPTB	7.1+06	1.0+07	Rept	PTB-N-55	07	D.Schmidt+	22973
<i>n,inel</i>	⁹ Be	DAP	2GERPTB	7.1+06	1.0+07	Rept	PTB-N-55	07	D.Schmidt+	22973
<i>n,x+n</i>	inclusive	DA	2GERPTB	7.1+06	1.0+07	Rept	PTB-N-55	07	D.Schmidt+	22973
<i>n,x+n</i>	inclusive	DAE	2GERPTB	7.1+06	1.0+07	Rept	PTB-N-55	07	D.Schmidt+	22973
<i>n,x+n</i>	inclusive	DE	2GERPTB	7.1+06	1.0+07	Rept	PTB-N-55	07	D.Schmidt+	22973

5 Boron 10

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
⁷ Li, ⁷ Be	¹⁰ B	DAP	3ARGCNE	3.9+07	3.9+07	Jour	PR/C,38,2124	88	A.Etchegoyen+	O1604
⁷ Li, <i>el</i>	¹⁰ B	DA	3ARGCNE	3.9+07	3.9+07	Jour	PR/C,38,2124	88	A.Etchegoyen+	O1604
¹⁴ N, <i>el</i>	¹⁰ B	DA	3BZLUSP	3.8+07	5.0+07	Jour	PR/C,38,741	88	H.Tokai+	O1603

6 Carbon

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,x+d</i>	inclusive	DAE	2JPNJAE	6.4+07	6.4+07	Rept	JAERI-C-98,270	Mar 99	Yasushinauchi+	22761
<i>n,x+p</i>	inclusive	DAE	2JPNJAE	6.4+07	6.4+07	Rept	JAERI-C-98,270	Mar 99	Yasushinauchi+	22761

6 Carbon 12

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
α,x	³ He	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	⁶ He	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	⁶ Li	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	⁷ Li	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	⁷ Be	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	⁹ Be	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	¹⁰ Be	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539

α,x	^{10}B	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{11}B	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{12}B	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{10}C	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{11}C	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{12}C	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{13}C	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{14}C	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{12}N	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{13}N	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{14}N	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
$\alpha,x+d$	inclusive	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
$\alpha,x+t$	inclusive	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
$^6\text{Li},d$	^{16}O	DAP	2FR SAC	2.0+07	3.4+07	Jour	PR/C,18,856	78	A.Cunsolo+	O1561
$^6\text{Li},d$	^{16}O	DAP	2FR PAR	4.8+07	4.8+07	Jour	NP/A,793,178	07	A.Belhout+	O1548
$^{11}\text{B},el$	^{12}C	DA	2SWTETH	5.4+06	7.6+06	Jour	PR/C,31,12	85	L.Jarczyk+	O1550

7

Nitrogen

14

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max					
α,x	^3He	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^6He	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^6Li	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^7Li	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^7Be	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^9Be	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{10}Be	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{10}B	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{11}B	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{12}B	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{10}C	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{11}C	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{12}C	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{13}C	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{14}C	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{12}N	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{13}N	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{14}N	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{15}N	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
α,x	^{16}O	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
$\alpha,x+d$	inclusive	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539
$\alpha,x+t$	inclusive	CS	2GERKFK	7.0+07	7.0+07	Jour	PR/C,2,1194	70	C.Baixeras-Aiguabella+	O1539

8

Oxygen

16

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max					
$^7\text{Li},^7\text{Be}$	^{16}N	DAP	3AULCBR	5.0+07	5.0+07	Jour	PR/C,30,1538	84	J.Cook+	O1521
$^7\text{Li},el$	^{16}O	DA	3AULCBR	5.0+07	5.0+07	Jour	PR/C,30,1538	84	J.Cook+	O1521

9 Fluorine 19											
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation		Date	Author	Data #
				Min	Max		Ref	Vol			
							Page				
<i>n,γ</i>	²⁰ F	CS	2GERKFK	Maxwl		Jour	PR/C,75,035801		07	E.Uberseder+	22968
10 Neon 20											
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation		Date	Author	Data #
<i>p,t</i>	¹⁸ Ne	DAP	2UK NIN	5.0+07	5.0+07	Jour	PR/C,2,116		70	J.L'Ecuyer+	O1554
10 Neon 21											
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation		Date	Author	Data #
<i>t,p</i>	²³ Ne	DAP	2FR STR	3.2+06	3.2+06	Jour	PR/C,12,1711		75	P.Desgroland+	O1558
13 Aluminium 27											
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation		Date	Author	Data #
<i>n,x+d</i>	inclusive	DAE	2JPNJAE	7.5+07	7.5+07	Rept	JAERI-C-98,270		Mar 99	Yasushinauchi+	22761
<i>n,x+p</i>	inclusive	DAE	2JPNJAE	7.5+07	7.5+07	Rept	JAERI-C-98,270		Mar 99	Yasushinauchi+	22761
14 Silicon 29											
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation		Date	Author	Data #
<i>p,d</i>	²⁸ Si	DAP	2ITYMIL	2.7+07	2.7+07	Jour	PR/C,2,1440		70	F.Pellegrini+	O1553
14 Silicon 30											
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation		Date	Author	Data #
<i>p,d</i>	²⁹ Si	DAP	2ITYMIL	2.7+07	2.7+07	Jour	PR/C,2,1440		70	F.Pellegrini+	O1553
16 Sulphur 34											
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation		Date	Author	Data #
<i>p,α</i>	³¹ P	CSP	2ITYMIL	3.6+07	3.6+07	Jour	PR/C,15,573		77	F.Pellegrini+	O1549
<i>p,α</i>	³¹ P	DAP	2ITYMIL	3.6+07	3.6+07	Jour	PR/C,15,573		77	F.Pellegrini+	O1549
<i>p,t</i>	³² S	DAP	2ITYMIL	3.6+07	3.6+07	Jour	PR/C,15,573		77	F.Pellegrini+	O1549

20 Calcium 40										
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
${}^3\text{He},t$	${}^{40}\text{Sc}$	DAP	2FR SAC	3.0+07	3.0+07	Jour	PR/C,4,1219	71	J-M.Loiseaux+	O1552
24 Chromium 52										
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
n,inel	${}^{52}\text{Cr}$	CSP	4RUSKUR	1.8+06	3.8+06	Jour	AE,23,(6),568	Nov 67	Ju.G.Degtjarev+	40047
26 Iron 56										
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
n,inel	${}^{56}\text{Fe}$	CSP	4RUSKUR	1.4+06	3.8+06	Jour	AE,23,(6),568	Nov 67	Ju.G.Degtjarev+	40047
28 Nickel 58										
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
n,γ	${}^{59}\text{Ni}$	CS	2GERKFK	Maxwl		Jour	NIM/B,259,683	07	G.Rugel+	22971
${}^6\text{Li},d$	${}^{62}\text{Zn}$	DAP	2FR STR	2.8+07	2.8+07	Jour	PR/C,12,1366	75	F.Jundt+	O1559
28 Nickel 60										
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
${}^3\text{He},d$	${}^{61}\text{Cu}$	DAP	2FR SAC	3.0+07	3.0+07	Jour	PR/C,13,1123	76	A.Boudard+	O1562
28 Nickel 61										
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
${}^3\text{He},d$	${}^{62}\text{Cu}$	DAP	2FR SAC	3.0+07	3.0+07	Jour	PR/C,13,1123	76	A.Boudard+	O1562
28 Nickel 62										
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					

$^3\text{He},d$	^{63}Cu	DAP	2FR SAC	3.0+07	3.0+07	Jour	PR/C,13,1123	76	A.Boudard+	O1562
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28

Nickel

64

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$^3\text{He},d$	^{65}Cu	DAP	2FR SAC	3.0+07	3.0+07	Jour	PR/C,13,1123	76	A.Boudard+	O1562
$^{12}\text{C},^{11}\text{B}$	^{65}Cu	DAP	2FR SAC	4.8+07	4.8+07	Jour	PR/C,10,180	74	A.Cunsolo+	O1556
$^{12}\text{C},el$	^{64}Ni	DA	2FR SAC	4.8+07	4.8+07	Jour	PR/C,10,180	74	A.Cunsolo+	O1556
$^{16}\text{O},^{14}\text{C}$	^{66}Zn	DAP	2FR SAC	5.6+07	5.6+07	Jour	PR/C,10,1103	74	M.C.Lemaire+	O1557
$^{16}\text{O},^{15}\text{N}$	^{65}Cu	DAP	2FR SAC	5.6+07	5.6+07	Jour	PR/C,10,180	74	A.Cunsolo+	O1556
$^{16}\text{O},el$	^{64}Ni	DA	2FR SAC	5.6+07	5.6+07	Jour	PR/C,10,180	74	A.Cunsolo+	O1556

29

Copper

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
n,el	^{nat}Cu	CS	2GERPTB	7.0+06	1.4+07	Rept	PTB-N-52	06	D.Schmidt+	22974
n,el	^{nat}Cu	DA	2GERPTB	7.0+06	1.4+07	Rept	PTB-N-52	06	D.Schmidt+	22974
$n,inel$	^{nat}Cu	CSP	2GERPTB	7.0+06	1.4+07	Rept	PTB-N-52	06	D.Schmidt+	22974
$n,inel$	^{nat}Cu	DAP	2GERPTB	7.0+06	1.4+07	Rept	PTB-N-52	06	D.Schmidt+	22974
$n,x+n$	inclusive	DA	2GERPTB	7.0+06	1.2+07	Rept	PTB-N-52	06	D.Schmidt+	22974
$n,x+n$	inclusive	DAE	2GERPTB	7.0+06	1.2+07	Rept	PTB-N-52	06	D.Schmidt+	22974
$n,x+n$	inclusive	DE	2GERPTB	7.0+06	1.2+07	Rept	PTB-N-52	06	D.Schmidt+	22974

29

Copper

63

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$n,inel$	^{63}Cu	CSP	2GERPTB	7.0+06	1.4+07	Rept	PTB-N-52	06	D.Schmidt+	22974
$n,inel$	^{63}Cu	DAP	2GERPTB	7.0+06	1.4+07	Rept	PTB-N-52	06	D.Schmidt+	22974

29

Copper

65

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$n,inel$	^{65}Cu	CSP	2GERPTB	7.0+06	1.4+07	Rept	PTB-N-52	06	D.Schmidt+	22974
$n,inel$	^{65}Cu	DAP	2GERPTB	7.0+06	1.4+07	Rept	PTB-N-52	06	D.Schmidt+	22974

30

Zinc

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
p,x	^{62}Zn	CS	3SARSAR	1.8+07	2.7+07	Jour	ARI,65,1101	07	F.S.Al-Saleh+	O1547
p,x	^{65}Zn	CS	3SARSAR	1.1+07	2.7+07	Jour	ARI,65,1101	07	F.S.Al-Saleh+	O1547
p,x	^{66}Ga	CS	3SARSAR	3.7+06	2.7+07	Jour	ARI,65,1101	07	F.S.Al-Saleh+	O1547

<i>p,x</i>	⁶⁷ Ga	CS	3SARSAR	3.7+06	2.7+07	Jour	ARI,65,1101	07	F.S.Al-Saleh+	O1547
<i>p,x</i>	⁶⁸ Ga	CS	3SARSAR	3.7+06	2.7+07	Jour	ARI,65,1101	07	F.S.Al-Saleh+	O1547

32 Germanium 72

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,α</i>	⁶⁹ Zn	CS	2GRCATH	9.6+06	1.1+07	Jour	JRN,272,(2),219	07	R.Vlastou+	22969
<i>n,p</i>	⁷² Ga	CS	2GRCATH	8.8+06	1.1+07	Jour	JRN,272,(2),219	07	R.Vlastou+	22969

32 Germanium 73

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,p</i>	⁷³ Ga	CS	2GRCATH	8.8+06	1.1+07	Jour	JRN,272,(2),219	07	R.Vlastou+	22969

32 Germanium 74

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,α</i>	⁷¹ Zn	CS	2GRCATH	9.6+06	1.1+07	Jour	JRN,272,(2),219	07	R.Vlastou+	22969

32 Germanium 76

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
¹⁶ O, ¹⁴ C	⁷⁸ Se	DAP	2FR SAC	5.6+07	5.6+07	Jour	PR/C,10,1103	74	M.C.Lemaire+	O1557

34 Selenium 78

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n,γ</i>	⁷⁹ Se	CS	2GERKFK	Maxwl		Jour	NIM/B,259,683	07	G.Rugel+	22971

38 Strontium 84

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>d,inel</i>	⁸⁴ Sr	DAP	2NEDUTR	1.2+07	1.2+07	Jour	PR/C,7,210	73	A.C.Rester+	O1551

		40		Zirconium				90			
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #	
				Min	Max						
				Ref Vol Page							
n,γ	^{91}Zr	CS	2JPNTIT	1.9+04	5.5+05	Conf	2005NOTRED,,373	05	K.Ohgama+	22960	
n,γ	^{91}Zr	?	2JPNTIT	4.8+04	5.5+05	Conf	2005NOTRED,,373	05	K.Ohgama+	22960	
		40		Zirconium				91			
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #	
				Min	Max						
				Ref Vol Page							
n,γ	^{92}Zr	?	2JPNTIT	4.8+04	5.5+05	Jour	NST,42,333	05	K.Ohgama+	22897	
		40		Zirconium				92			
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #	
				Min	Max						
				Ref Vol Page							
n,γ	^{93}Zr	?	2JPNTIT	4.8+04	5.5+05	Jour	NST,42,333	05	K.Ohgama+	22897	
		40		Zirconium				94			
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #	
				Min	Max						
				Ref Vol Page							
n,γ	^{95}Zr	?	2JPNTIT	4.8+04	5.5+05	Conf	2005NOTRED,,373	05	K.Ohgama+	22960	
		41		Niobium				93			
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #	
				Min	Max						
				Ref Vol Page							
n,inel	^{93}Nb	CSP	2GERPTB	7.1+06	1.4+07	Rept	PTB-N-56	07	D.Schmidt+	22975	
n,inel	^{93}Nb	DAP	2GERPTB	7.1+06	1.4+07	Rept	PTB-N-56	07	D.Schmidt+	22975	
n,sct	^{93}Nb	CSP	2GERPTB	7.1+06	1.4+07	Rept	PTB-N-56	07	D.Schmidt+	22975	
n,sct	^{93}Nb	DAP	2GERPTB	7.1+06	1.4+07	Rept	PTB-N-56	07	D.Schmidt+	22975	
$n,\text{x+n}$	inclusive	DA	2GERPTB	1.2+06	1.1+07	Rept	PTB-N-56	07	D.Schmidt+	22975	
$n,\text{x+n}$	inclusive	DAE	2GERPTB	7.1+06	1.2+07	Rept	PTB-N-56	07	D.Schmidt+	22975	
$n,\text{x+n}$	inclusive	DE	2GERPTB	7.1+06	1.2+07	Rept	PTB-N-56	07	D.Schmidt+	22975	
		46		Palladium							
Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #	
				Min	Max						
				Ref Vol Page							
n,γ		CS	2JPNKTO	1.1-02	8.3+03	Conf	2005NOTRED,,577	05	J.Hori+	22981	

47

Silver

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
p, fis		CS	2ZZZCER	2.4+10	2.4+10	Jour	APP,33,105	68	E.Makowska+	O0636

50

Tin

119

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
n, γ	^{120}Sn	CS	2JPNTIT	2.1+04	5.7+05	Conf	2005NOTRED,,579	05	J.Nishiyama+	22982
n, γ	^{120}Sn	?	2JPNTIT	5.9+05	9.8+06	Conf	2005NOTRED,,579	05	J.Nishiyama+	22982

62

Samarium

144

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$^3\text{He}, \text{inel}$	^{144}Sm	DAP	2FR GRE	8.0+07	8.0+07	Jour	PR/C,11,1247	75	D.J.Horen+	O1560

72

Hafnium

174

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$n, 2n$	^{173}Hf	CS	2GRCATH	9.8+06	1.2+07	Jour	JRN,272,(2),219	07	R.Vlastou+	22969

72

Hafnium

176

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$n, 2n$	^{175}Hf	CS	2GRCATH	8.8+06	1.1+07	Jour	JRN,272,(2),219	07	R.Vlastou+	22969

77

Iridium

191

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$n, 2n$	^{190}Ir	CS	2GRCATH	1.0+07	1.1+07	Jour	PR/C,75,034607	Mar 07	N.Patronis+	22966

82

Lead

206

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
$n, 0$		RP	2ZZZGEL			Jour	PR/C,76,014605	07	A.Borella+	22921
n, γ		SPC	2ZZZGEL	3.4+03	6.7+04	Jour	PR/C,76,014605	07	A.Borella+	22921

83

Bismuth

209

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
n,γ	^{210}Bi	CS	2FR ILL	Maxwl		Jour	NIM/B,289,739	07	C.Stan-Sion+	22972
n,inel	^{209}Bi	CSP	4RUSKUR	1.4+06	3.8+06	Jour	AE,23,(6),568	Nov 67	Ju.G.Degtjarev+	40047

90

Thorium

232

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
n,fis		NUD	2UK HAR	Fiss		Jour	JNE,4,133	57	H.Rose+	21185

92

Uranium

235

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
n,fis		CS	2FR SAC	7.0+05	1.0+06	Conf	55GENEVA,4,425	Aug 55	D.Szteinszneider+	21515
n,fis		NUD	4RUSFEI	7.7+05	4.9+06	Jour	YF,62,(8),1358	99	V.A.Roshchenko+	41500

92

Uranium

236

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
n,γ	^{237}U	CS	2ZZZGEL	3.0+00	1.8+03	Conf	2006VANCOU,,(B072)	Sep 06	F.Gunsing+	22979

92

Uranium

238

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
n,fis	Many	CHG	4RUSFEI	1.2+06	5.0+06	Jour	YK,2006,(1-2),43	06	V.A.Roshchenko+	41498
n,fis		CS	2ITYCIS	1.4+07	1.5+07	Jour	NP,43,124	May 63	M.Mangialajo+	21127
n,fis	Many	NUD	4RUSFEI	1.0+06	4.7+06	Jour	YK,2006,(1-2),43	06	V.A.Roshchenko+	41498
$n,x+n$	inclusive	DAP	4RUSFEI	1.4+07	1.4+07	Jour	YK,2,12	99	B.V.Devkin+	41497
$n,x+n$	inclusive	DE	4RUSFEI	1.4+07	1.4+07	Jour	YK,2,12	99	B.V.Devkin+	41497

93

Neptunium

237

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
n,fis	Many	CHG	4RUSFEI	5.0+05	5.0+06	Jour	YK,2006,(1-2),43	06	V.A.Roshchenko+	41498
n,fis		DE	4RUSFEI	4.9+06	7.8+06	Jour	YF,55,(2),298	Feb 92	A.M.Trufanov+	41132
n,fis	Many	NUD	4RUSFEI	3.4+05	4.9+06	Jour	YK,2006,(1-2),43	06	V.A.Roshchenko+	41498
n,fis		NUD	4RUSFEI	3.7+05	4.7+06	Jour	YF,62,(8),1358	99	V.A.Roshchenko+	41500

<i>n</i> ,fis		NUD	4ZZZDUB	Maxwl		Jour	YF,70,(6),1011	Jun 07	N.A.Gundorin+	41501
<i>n</i> , γ	²³⁸ Np	CS	2ZZZCER	1.0+01	1.0+03	Conf	2005NOTRED,,318	05	D.Cano-Ott+	22980
<i>n</i> , γ	²³⁸ Np	CS	2ZZZCER	1.1+00	1.2+01	Conf	2006VANCOU,,(C031)	Sep 06	C.Guerrero+	22970

94 Plutonium 239

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n</i> ,fis		CS	4RUSRI	1.9+06	1.9+06	Jour	YK,1986,(4),19	Dec 86	I.D.Alkhazov+	40927
<i>n</i> ,fis	Many	FY	2ZZZGEL	3.0-01	1.0+02	Conf	2004SANTA,1,644	04	F.J.Hambsch+	22746

94 Plutonium 240

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,fis	Many	FY	4RUSMIF	Spont		Jour	AE,102,(3),189	07	A.V.Bushuev+	41499
<i>n</i> ,fis		?	4RUSFEI	9.8+05	3.0+06	Jour	AE,46,(1),35	Jan 79	V.M.Kupriyanov+	40509
<i>n</i> , γ	²⁴¹ Pu	CS	2ZZZCER	1.0+01	1.0+03	Conf	2005NOTRED,,318	05	D.Cano-Ott+	22980
<i>n</i> , γ	²⁴¹ Pu	CS	2ZZZCER	8.3-01	9.1+01	Conf	2006VANCOU,,(C031)	Sep 06	C.Guerrero+	22970

94 Plutonium 242

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
<i>n</i> ,fis		?	4RUSFEI	9.8+05	3.0+06	Jour	AE,46,(1),35	Jan 79	V.M.Kupriyanov+	40509

98 Californium 252

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation Ref Vol Page	Date	Author	Data #
				Min	Max					
0,fis	Many	FY	2ZZZGEL	Spont		Conf	2004SANTA,1,644	04	F.J.Hambsch+	22746