EXFOR News (October 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/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)

1 Hydrogen 1

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,tot		CS	1USALAS	1.4+07	1.4+07	Rept	LA-1483	52	J.H.Coon+	14745

1 Hydrogen 2

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
γ,n	^{1}H	DA	1USACOR	1.8+08	2.6+08	Jour	PR,87,195(H2)	52	R.Littauer+	L0278

1 Hydrogen 3

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,tot		CS	1USALAS	2.9+05	2.0+07	Rept	LA-1483	52	J.H.Coon+	14745

1 Hydrogen

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,tot		CS	1USALAS	1.4+07	1.4+07	Rept	LA-1279	51	D.I.Meyer+	12641
n,tot		CS	1USALAS	1.4+07	1.4+07	Rept	LA-1279	51	D.I.Meyer+	12641
n,tot		CS	1USALAS	1.4+07	1.4+07	Rept	LA-1279	51	D.I.Meyer+	12641
n,tot		CS	1USALAS	1.4+07	1.4+07	Rept	LA-1279	51	D.I.Meyer+	12641

2 Helium 4

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,2n	^{3}He	CS	1USABRK	9.0+07	9.0+07	Jour	PR,89,508	53	P.E.Tannenwald	14749
n,2n+p	^{2}H	CS	1USABRK	9.0+07	9.0+07	Jour	PR,89,508	53	P.E.Tannenwald	14749
n,3n+p	^{1}H	CS	1USABRK	9.0+07	9.0+07	Jour	PR,89,508	53	P.E.Tannenwald	14749
n,d	^{3}H	CS	1USABRK	9.0+07	9.0+07	Jour	PR,89,508	53	P.E.Tannenwald	14749
n,el	^{4}He	CS	1USABRK	9.0+07	9.0+07	Jour	PR,89,508	53	P.E.Tannenwald	14749
n,n+d	^{2}H	CS	1USABRK	9.0+07	9.0+07	Jour	PR,89,508	53	P.E.Tannenwald	14749
n,n+p	^{3}H	CS	1USABRK	9.0+07	9.0+07	Jour	PR,89,508	53	P.E.Tannenwald	14749
n,non		CS	1USABRK	9.0+07	9.0+07	Jour	PR,89,508	53	P.E.Tannenwald	14749
n,tot		CS	1USALAS	9.4+05	1.4+07	Rept	LA-1483	52	J.H.Coon+	14745

3 Lithium 7

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,el	^{7}Li	CS	1USALAS	1.4+07	1.4+07	Rept	LA-1697	54	R.G.Thomas	12679

4 Berylium 9

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,2n	^{8}Be	?	1USALAS		1.2+07	Rept	LA-1371	52	H.M.Agnew	14744
	n,el	^{9}Be	CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743
	n,inel	^{9}Be	CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743
	n,tot		CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743
	^{3}He,^{6}Li	^{6}Li	CSP	1USANRL	7.0+06	9.0+06	Jour	NP/A,184,563	72	F.C.Young+	F0399

4 Berylium

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,sct	BE oxide	CSP	1USALAS	2.8+06	2.8+06	Rept	LAMS-26	43	H.M.Agnew+	14740

5 Boron

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,inel	^{nat}B	CSP	1USALAS	1.4+07	1.4+07	Jour	PR,88,600	52	D.D.Phillips+	11210
	n,sct	^{nat}B	CS	1USALAS	1.0-02	1.0+03	Jour	PR,71,272(1)	47	R.B.Sutton+	11262
	n,tot		CS	1USALAS	1.3-02	1.4+03	Jour	PR,71,272(1)	47	R.B.Sutton+	11262

5 Boron 10

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,el	^{10}B	DA	1USALAS	6.0+06	1.0+07	Jour	NSE,195,1131	21	P.W.Lisowski+	14719
*	n,inel	^{10}B	DA	1USALAS	6.0+06	1.0+07	Jour	NSE,195,1131	21	P.W.Lisowski+	14719
*	n,inel	^{10}B	DAP	1USALAS	6.0+06	1.0+07	Jour	NSE,195,1131	21	P.W.Lisowski+	14719
*	n,x+n	inclusive	DAE	1USALAS	6.0+06	1.0+07	Jour	NSE,195,1131	21	P.W.Lisowski+	14719
	d,^{3}He	^{9}Be	POD	1USATNL	1.5+07	1.5+07	Jour	NP/A,230,271	74	E.J.Ludwig+	F0394
	d,n	^{11}C	DAP	2NEDUTR	5.8+05	5.8+05	Jour	PHY,20,585	54	C.H.Paris+	F0370
	d,t	^{9}B	POD	1USATNL	1.5+07	1.5+07	Jour	NP/A,230,271	74	E.J.Ludwig+	F0394

5 Boron 11

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

*	n,el	^{11}B	DA	1USALAS	6.0+06	1.0+07	Jour	NSE,195,1131	21	P.W.Lisowski+	14719
*	n,inel	^{11}B	DA	1USALAS	6.0+06	1.0+07	Jour	NSE,195,1131	21	P.W.Lisowski+	14719
*	n,inel	^{11}B	DAE	1USALAS	6.0+06	1.0+07	Jour	NSE,195,1131	21	P.W.Lisowski+	14719
*	n,inel	^{11}B	DAP	1USALAS	6.0+06	1.0+07	Jour	NSE,195,1131	21	P.W.Lisowski+	14719
	d,n	^{12}C	POD	2GERBER	5.5+06	5.5+06	Jour	NP/A,152,354	70	W.Busse+	F0390
	^{3}He,el	^{11}B	DA	1USAGEO	4.0+06	6.0+06	Jour	NP/A,199,23	73	R.R.Wu+	F0468

6 Carbon

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
	γ,x+n	inclusive	?	1USAUI		3.2+08	Jour	PR,87,197(H10)	52	D.W.Kerst+	L0277
	n,el	^{nat}C	CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743
	n,inel	^{nat}C	CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743
	n,inel	^{nat}C	CSP	1USALAS	1.4+07	1.4+07	Jour	PR,88,600	52	D.D.Phillips+	11210
	n,inel	^{nat}C	?	1USABRK	9.5+07	9.5+07	Jour	PR,77,606	50	J.Dejuren+	11174
	n,sct	^{nat}C	CSP	1USALAS	2.8+06	2.8+06	Rept	LAMS-26	43	H.M.Agnew+	14740
	n,tot		CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743

6 Carbon 12

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
	γ,n	^{11}C	INT	1USABRK		3.2+08	Jour	PR,81,973	51	K.Strauch	L0279
*	n,inel	^{12}C	DAP	1USALAS	6.4+06	1.7+07	Jour	PR/C,104,064614	21	K.J.Kelly+	14726
*	n,inel	^{12}C	?	1USALAS	6.5+06	1.7+07	Jour	PR/C,104,064614	21	K.J.Kelly+	14726
	d,inel	^{12}C	DAP	3AULCBR	8.4+06	1.0+07	Jour	NP/A,127,95	69	H.Cords+	F1065

6 Carbon 13

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
	d,t	^{12}C	POD	1USATNL	1.5+07	1.5+07	Jour	NP/A,230,271	74	E.J.Ludwig+	F0394

7 Nitrogen

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
	n,inel	^{nat}N	CSP	1USALAS	1.4+07	1.4+07	Jour	PR,88,600	52	D.D.Phillips+	11210
	n,tot		CS	1USALAS	2.8+06	1.3+07	Jour	PR,94,1678	54	N.Nereson+	11308

7 Nitrogen 14

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
	d,^{3}He	^{13}C	POD	1USATNL	1.5+07	1.5+07	Jour	NP/A,230,271	74	E.J.Ludwig+	F0394

d,n	^{15}O	POD	2GERBER	4.2+06	6.1+06	Jour	NP/A,152,354	70	W.Busse+	F0390
d,t	^{13}N	POD	1USATNL	1.5+07	1.5+07	Jour	NP/A,230,271	74	E.J.Ludwig+	F0394

7 Nitrogen 15

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
d,n	^{16}O	DAP	2GERBER	4.4+06	5.5+06	Jour	NP/A,152,354	70	W.Busse+	F0390
d,n	^{16}O	POD	2GERBER	4.4+06	5.5+06	Jour	NP/A,152,354	70	W.Busse+	F0390

8 Oxygen

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
n,tot		CS	1USALAS	2.9+06	1.3+07	Jour	PR,89,775	53	N.Nereson+	11060

11 Sodium 23

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
n,el	^{23}Na	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

13 Aluminium 27

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
n,el	^{27}Al	CS	1USAPTN	2.5+06	2.5+06	Jour	PR,59,917(18)	41	H.H.Barschall+	14742
n,el	^{27}Al	CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743
n,inel	^{27}Al	CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743
n,inel	^{27}Al	CSP	1USALAS	1.4+07	1.4+07	Jour	PR,88,600	52	D.D.Phillips+	11210
n,inel	^{27}Al	?	1USABRK	9.5+07	9.5+07	Jour	PR,77,606	50	J.Dejuren+	11174
n,sct	^{27}Al	CSP	1USALAS	2.8+06	2.8+06	Rept	LAMS-26	43	H.M.Agnew+	14740
n,tot		CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743
p,inel	^{27}Al	CS	4RUSMOS	6.6+06	6.6+06	Jour	JET,13,678	61	S.S.Vasil'Ev+	F1373

14 Silicon

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
n,sct	SI compound	CSP	1USALAS	2.8+06	2.8+06	Rept	LAMS-26	43	H.M.Agnew+	14740

15 Phosphorus 31

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{31}P	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

17 Chlorine

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{nat}Cl	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

22 Titanium

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{nat}Ti	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

24 Chromium

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{nat}Cr	CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743
n,el	^{nat}Cr	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706
n,inel	^{nat}Cr	CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743
n,tot		CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743

25 Manganese 55

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{55}Mn	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

26 Iron

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{nat}Fe	CS	1USAPTN	2.5+06	2.5+06	Jour	PR,59,917(18)	41	H.H.Barschall+	14742
n,el	^{nat}Fe	CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743
n,el	^{nat}Fe	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706
n,inel	^{nat}Fe	CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743
n,inel	^{nat}Fe	CSP	1USALAS	1.4+07	1.4+07	Jour	PR,88,600	52	D.D.Phillips+	11210
n,sct	^{nat}Fe	CSP	1USALAS	2.8+06	2.8+06	Rept	LAMS-26	43	H.M.Agnew+	14740
n,tot		CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743

26 Iron 56

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,inel	^{56}Fe	DAP	4ZZZDUB	1.4+07	1.4+07	Jour	EPJ/A,57,194	21	N.A.Fedorov+	41750
*	n,x+γ	inclusive	?	4ZZZDUB	1.4+07	1.4+07	Jour	EPJ/A,57,194	21	N.A.Fedorov+	41750

28 Nickel

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{nat}Ni	CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743
n,el	^{nat}Ni	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706
n,inel	^{nat}Ni	CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743
n,tot		CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743

29 Copper

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{nat}Cu	CS	1USAPTN	2.5+06	2.5+06	Jour	PR,59,917(18)	41	H.H.Barschall+	14742
n,el	^{nat}Cu	CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743
n,el	^{nat}Cu	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706
n,inel	^{nat}Cu	CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743
n,inel	^{nat}Cu	CSP	1USALAS	1.4+07	1.4+07	Jour	PR,88,600	52	D.D.Phillips+	11210
n,inel	^{nat}Cu	?	1USABRK	9.5+07	9.5+07	Jour	PR,77,606	50	J.Dejuren+	11174
n,tot		CS	1USALAS	Fast		Rept	LA-1339	51	G.P.Arnold+	14743

29 Copper 63

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
γ,n	^{62}Cu	INT	1USABRK		3.2+08	Jour	PR,81,973	51	K.Strauch	L0279

30 Zinc

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
γ,tot		INT	1USABRK		3.2+08	Jour	PR,81,973	51	K.Strauch	L0279
n,el	^{nat}Zn	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

30 Zinc 64

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

γ,x	^{62}Cu	?	1USAMIT		3.3+08	Jour	PR,87,196(H5)	52	R.J.Debs+	L0276

32 Germanium 70

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
γ,x	^{68}Ga	?	1USAMIT		3.3+08	Jour	PR,87,196(H5)	52	R.J.Debs+	L0276

33 Arsenic 75

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
γ,x	^{61}Cu	?	1USAMIT		3.3+08	Jour	PR,87,196(H5)	52	R.J.Debs+	L0276
γ,x	^{64}Cu	?	1USAMIT		3.3+08	Jour	PR,87,196(H5)	52	R.J.Debs+	L0276
γ,x	^{67}Cu	?	1USAMIT		3.3+08	Jour	PR,87,196(H5)	52	R.J.Debs+	L0276

35 Bromine

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
n,el	^{nat}Br	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

38 Strontium

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
n,el	^{nat}Sr	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

40 Zirconium

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
n,el	^{nat}Zr	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

41 Niobium 93

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
n,el	^{93}Nb	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

42 Molybdenum

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{nat}Mo	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

47 Silver

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{nat}Ag	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

48 Cadmium

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{nat}Cd	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706
n,inel	^{nat}Cd	CSP	1USALAS	1.4+07	1.4+07	Jour	PR,88,600	52	D.D.Phillips+	11210

51 Antimony

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{nat}Sb	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

53 Iodine 127

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{127}I	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

56 Barium

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{nat}Ba	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

73 Tantalum 181

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{181}Ta	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

74 Tungsten

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{nat}W	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706
n,sct	^{nat}W	CSP	1USALAS	2.8+06	2.8+06	Rept	LAMS-26	43	H.M.Agnew+	14740
n,sct	W compound	CSP	1USALAS	2.8+06	2.8+06	Rept	LAMS-26	43	H.M.Agnew+	14740

78 Platinum

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,sct	^{nat}Pt	CSP	1USALAS	2.8+06	2.8+06	Rept	LAMS-26	43	H.M.Agnew+	14740

79 Gold 197

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,inel	^{197}Au	CSP	1USALAS	1.4+07	1.4+07	Jour	PR,88,600	52	D.D.Phillips+	11210
n,sct	^{197}Au	CSP	1USALAS	2.8+06	2.8+06	Rept	LAMS-26	43	H.M.Agnew+	14740

80 Mercury

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{nat}Hg	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

82 Lead

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{nat}Pb	CS	1USAPTN	2.5+06	2.5+06	Jour	PR,59,917(18)	41	H.H.Barschall+	14742
n,inel	^{nat}Pb	CSP	1USALAS	1.4+07	1.4+07	Jour	PR,88,600	52	D.D.Phillips+	11210
n,inel	^{nat}Pb	?	1USABRK	9.5+07	9.5+07	Jour	PR,77,606	50	J.Dejuren+	11174
n,sct	^{nat}Pb	CSP	1USALAS	2.8+06	2.8+06	Rept	LAMS-26	43	H.M.Agnew+	14740

83 Bismuth 209

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{209}Bi	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706
n,inel	^{209}Bi	CSP	1USALAS	1.4+07	1.4+07	Jour	PR,88,600	52	D.D.Phillips+	11210

90 Thorium 232

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,el	^{232}Th	DA	4RUSFEI	2.0+06	2.0+06	Rept	EANDC-50-S,(2),(200)	65	L.Ya.Kazakova+	40706

92 Uranium

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,sct	^{nat}U	CSP	1USALAS	2.8+06	2.8+06	Rept	LAMS-26	43	H.M.Agnew+	14740
	n,tot		CS	1USAWIS	1.3+05	1.4+06	Rept	LA-1060	50	H.H.Barschall+	12370
	n,tot		CS	1USALAS	4.0+04	2.0+07	Rept	LA-1493	52	R.L.Henkel+	12396

92 Uranium 233

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,0		RP	1USALAS			Rept	LA-190	44	B.D.Mcdaniel+	14737
	n,fis		?	1USALAS	2.5-02	2.5-02	Rept	LA-185	44	W.M.Woodward+	14736

92 Uranium 235

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,abs		ALF	1USALAS			Rept	LA-100	44	M.Deutsch+	14732
	n,fis		CS	1USALAS	2.5-02	2.5-02	Rept	LA-100	44	M.Deutsch+	14732
	n,fis	γ	KE	1USALAS	2.5-02	2.5-02	Rept	LA-170	44	M.Deutsch+	14735
	n,fis		MFQ	4RUSKUR	1.4+07	1.4+07	Jour	JET,11,483	60	Yu.A.Vasil'Ev+	40785
	n,fis		MFQ	1USALAS	3.0+05	6.5+05	Rept	LA-200	45	H.T.Richards+	14738
	n,fis		?	1USALAS	2.5-02	2.5-02	Rept	LA-100	44	M.Deutsch+	14732
	n,fis		?	4RUSFEI	3.4+05	4.7+06	Jour	PNE,41,203	02	V.M.Piksaikin+	41415
	n,fis	n	KE	1USALAS	3.0+05	6.5+05	Rept	LA-200	45	H.T.Richards+	14738
	n,fis	^{4}He	KE	1USALAS		1.0+00	Jour	PR,71,327	47	G.Farwell+	14741
	n,fis	^{4}He	?	1USALAS		1.0+00	Jour	PR,71,327	47	G.Farwell+	14741

92 Uranium 236

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,fis		?	4RUSFEI	1.4+07	1.8+07	Rept	JINR-E3-2020-10,221	20	D.E.Gremyachkin+	41749

92 Uranium 238

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

	n,fis		MFQ	4RUSKUR	1.4+07	1.4+07	Jour	JET,11,483	60	Yu.A.Vasil'Ev+	40785
	n,fis		?	1USALAS			Rept	LA-1511	53	F.L.Ribe+	14746
	n,fis		?	4RUSFEI	1.0+06	4.7+06	Jour	PNE,41,203	02	V.M.Piksaikin+	41415
*	n,fis	Many	?	1USALRL	8.5+06	8.5+06	Jour	ARI,173,109711	21	N.Quartemont+	14720
	n,γ	^{239}U	CS	4RUSFEI	1.0+04	7.2+04	Conf	73KIEV,2,199	73	V.N.Kononov+	40328
	n,tot		CS	4RUSFEI	1.0+04	7.2+04	Conf	73KIEV,2,199	73	V.N.Kononov+	40328

94 Plutonium 239

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
	n,0		RP	1USALAS			Rept	LA-91	44	E.E.Anderson+	14734
	n,abs		CS	1USALAS	2.5-02	2.5-02	Rept	LA-91	44	E.E.Anderson+	14734
	n,abs		?	1USALAS	2.5-02	2.5-02	Rept	LA-103	44	J.W.Dewire+	14733
*	n,fis		?	1USALAS	1.1+05	1.0+08	Jour	NDS,178,1	21	L.Snyder+	14721
	n,fis		?	1USALAS	2.5-02	2.5-02	Rept	LA-103	44	J.W.Dewire+	14733
	n,fis		?	1USALAS	2.5-02	2.5-02	Rept	LA-185	44	W.M.Woodward+	14736
	n,fis		?	1USALAS	2.5-02	2.5-02	Jour	PR,72,567	47	F.Dehoffmann+	14739
	n,fis	^{4}He	KE	1USALAS		1.0+00	Jour	PR,71,327	47	G.Farwell+	14741
	n,tot		CS	1USALAS	3.8-03	5.2+00	Rept	LA-91	44	E.E.Anderson+	14734

95 Americium 241

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
*	n,fis		?	4RUSFEI	1.4+07	1.8+07	Rept	JINR-E3-2018-12,363	18	D.E.Gremyachkin+	41748

96 Curium 248

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
*	0,fis		NU	4ZZZDUB	Spont		Jour	EPJ/A,58,108	22	A.V.Isaev+	41751

100 Fermium 246

	Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
					Min	Max		Ref Vol Page			
*	0,fis		NU	4ZZZDUB	Spont		Jour	EPJ/A,58,108	22	A.V.Isaev+	41751