EXFOR News (May 2020)

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	Length or amplitude	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 $\mathrm{d}\Omega_1/\mathrm{d}\Omega_2/\mathrm{d}E'$	NQ	Nuclear quantity
D3E	Triple differential $\mathrm{d}\Omega/\mathrm{d}E'_1/\mathrm{d}E'_2$	NU	Fission neutron multiplicity $\bar{\nu}$
D4A	Quadruple diff. $\mathrm{d}\Omega_1/\mathrm{d}\Omega_2/\mathrm{d}E'_1/\mathrm{d}E'_2$	NUD	Delayed fission neutron multiplicity $\bar{\nu_d}$
DA	Differential $\mathrm{d}/\mathrm{d}\Omega$	POL	Polarization
DAA	Double differential $\mathrm{d}\Omega_1/\mathrm{d}\Omega_2$	POD	Differential polarization
DAE	Double differential $\mathrm{d}\Omega/\mathrm{d}E'$	PY	Product yield (other than fission)
DAP	Partial differential $\mathrm{d}/\mathrm{d}\Omega$	RI	Resonance integral
DAT	Temperature-dependent Legendre coefficient	RP	Resonance parameter
DE	Differential $\mathrm{d}/\mathrm{d}E'$	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, $\mathrm{d}/\mathrm{d}\Omega$
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)

1 Hydrogen 1

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	d,el	^{1}H	DA	4KASKAZ	1.9+07	1.9+07	Jour	IZK,,(4),34	69	V.Yu.Gonchar+	D8014
	d,p	^{2}H	DA	4KASKAZ	1.9+07	1.9+07	Jour	IZK,,(4),34	69	V.Yu.Gonchar+	D8014
	α,el	^{1}H	DA	4KASKAZ	3.8+07	3.8+07	Rept	IYFK-P-104	70	V.Yu.Gonchar+	D8016
*	α,non		CS	2GERHEI	2.8+08	8.5+08	Jour	PR/C,99,014603	19	F.Horst+	O2441
*	α,tcc		CS	2GERHEI	2.8+08	8.5+08	Jour	PR/C,99,014603	19	F.Horst+	O2441
*	^{13}O,2p	^{12}N	?	2GERGSI	5.2+09	5.2+09	Jour	PRL,120,052501	18	L.Atar+	O2442
*	^{14}O,2p	^{13}N	?	2GERGSI	4.9+09	4.9+09	Jour	PRL,120,052501	18	L.Atar+	O2442
*	^{15}O,2p	^{14}N	?	2GERGSI	4.6+09	4.6+09	Jour	PRL,120,052501	18	L.Atar+	O2442
*	^{16}O,2p	^{15}N	?	2GERGSI	7.2+09	7.2+09	Jour	PRL,120,052501	18	L.Atar+	O2442
*	^{17}O,2p	^{16}N	?	2GERGSI	6.9+09	6.9+09	Jour	PRL,120,052501	18	L.Atar+	O2442
*	^{18}O,2p	^{17}N	?	2GERGSI	6.6+09	6.6+09	Jour	PRL,120,052501	18	L.Atar+	O2442
*	^{21}O,2p	^{20}N	?	2GERGSI	9.4+09	9.4+09	Jour	PRL,120,052501	18	L.Atar+	O2442
*	^{22}O,2p	^{21}N	?	2GERGSI	9.1+09	9.1+09	Jour	PRL,120,052501	18	L.Atar+	O2442
*	^{23}O,2p	^{22}N	?	2GERGSI	1.0+10	1.0+10	Jour	PRL,120,052501	18	L.Atar+	O2442
*	^{124}Xe,γ	^{125}Cs	?	2GERGSI	5.5+06	7.9+06	Jour	PRL,122,092701	19	J.Glorius+	O2443

1 Hydrogen

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	α,tcc		CS	2GERHEI	8.5+08	8.5+08	Jour	PR/C,99,014603	19	F.Horst+	O2441

2 Helium 4

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	^{15}O,el		?	2ITYPAD			Jour	PR/C,96,044317	17	D.Torresi+	O2437
*	^{15}O,el	^{4}He	?	2ITYPAD	1.4+06	5.4+06	Jour	PR/C,96,044317	17	D.Torresi+	O2437

5 Boron 10

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,x+γ	inclusive	CSP	4RUSKUR	1.4+07	1.4+07	Rept	INDC(CCP)-68,77	75	V.M.Besotosnyy+	40340

5 Boron 11

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,x+γ	inclusive	CSP	4RUSKUR	1.4+07	1.4+07	Rept	INDC(CCP)-68,77	75	V.M.Besotosnyy+	40340

6 Carbon

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	α,non		CS	2GERHEI	2.8+08	8.6+08	Jour	PR/C,99,014603	19	F.Horst+	O2441
*	α,tcc		CS	2GERHEI	2.8+08	8.6+08	Jour	PR/C,99,014603	19	F.Horst+	O2441

6 Carbon 12

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,inel	^{12}C	CSP	4RUSFEI	1.4+07	1.4+07	Rept	INDC(CCP)-106,10	76	O.A.Sal'Nikov+	40359
	d,p	^{13}C	DAP	4KASKAZ	1.9+07	1.9+07	Jour	IZK,,(4),34	69	V.Yu.Gonchar+	D8014
*	α,abs		CS	2GERHEI	3.3+08	8.6+08	Jour	PR/C,96,024624	17	F.Horst+	O2435
	α,el	^{12}C	DA	4KASKAZ	3.8+07	3.8+07	Rept	IYFK-P-104	70	V.Yu.Gonchar+	D8016
	α,el	^{12}C	DA	4KASKAZ	3.9+07	3.9+07	Priv	PAVLOVA	90	N.N.Pavlova+	D8017
	α,inel	^{12}C	DAP	4KASKAZ	3.9+07	3.9+07	Priv	PAVLOVA	90	N.N.Pavlova+	D8017
*	α,non		CS	2GERHEI	3.0+08	3.0+08	Jour	PR/C,99,014603	19	F.Horst+	O2441
*	α,tcc		CS	2GERHEI	3.0+08	3.0+08	Jour	PR/C,99,014603	19	F.Horst+	O2441
*	α,tcc		CS	2GERHEI	3.3+08	8.6+08	Jour	PR/C,96,024624	17	F.Horst+	O2435
*	α,x+^{3}He	inclusive	CS	2GERHEI	3.3+08	8.6+08	Jour	PR/C,96,024624	17	F.Horst+	O2435

7 Nitrogen 14

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,x+γ	inclusive	CSP	4RUSKUR	1.4+07	1.4+07	Rept	INDC(CCP)-68,77	75	V.M.Besotosnyy+	40340
*	p,γ	^{15}O	CSP	2GERZFK	4.8+05	1.3+06	Jour	PR/C,97,015801	18	L.Wagner+	O2439

8 Oxygen 16

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,x+γ	inclusive	CSP	4RUSKUR	1.4+07	1.4+07	Rept	INDC(CCP)-68,77	75	V.M.Besotosnyy+	40340
	α,el	^{16}O	DA	4KASKAZ	4.0+07	4.0+07	Priv	PAVLOVA	90	N.N.Pavlova+	D8017
	α,inel	^{16}O	DAP	4KASKAZ	4.0+07	4.0+07	Priv	PAVLOVA	90	N.N.Pavlova+	D8017
*	α,non		CS	2GERHEI	2.8+08	8.5+08	Jour	PR/C,99,014603	19	F.Horst+	O2441
*	α,tcc		CS	2GERHEI	2.8+08	8.5+08	Jour	PR/C,99,014603	19	F.Horst+	O2441

9 Fluorine 19

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,α	^{16}O	RR	2ITYLNS			Jour	AJ,845,19	17	I.Indelicato+	O2434

12 Magnesium 24

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	α,el	^{24}Mg	DA	4KASKAZ	3.8+07	3.8+07	Rept	IYFK-P-104	70	V.Yu.Gonchar+	D8016

13 Aluminium 27

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,x+γ	inclusive	CS	4RUSKUR	1.4+07	1.4+07	Rept	INDC(CCP)-68,77	75	V.M.Besotosnyy+	40340
	^{3}He,x+α	inclusive	DAE	4KASKAZ	6.0+07	6.0+07	Jour	SNP,48,409	88	N.T.Burtebaev+	D8012
	^{3}He,x+^{3}He	inclusive	DAE	4KASKAZ	6.0+07	6.0+07	Jour	SNP,48,409	88	N.T.Burtebaev+	D8012

14 Silicon

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	α,non		CS	2GERHEI	2.8+08	8.5+08	Jour	PR/C,99,014603	19	F.Horst+	O2441
*	α,tcc		CS	2GERHEI	2.8+08	8.5+08	Jour	PR/C,99,014603	19	F.Horst+	O2441

14 Silicon 28

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	d,p	^{29}Si	DAP	4KASKAZ	1.9+07	1.9+07	Jour	IZK,,(4),34	69	V.Yu.Gonchar+	D8014
	α,el	^{28}Si	DA	4KASKAZ	3.8+07	3.8+07	Rept	IYFK-P-104	70	V.Yu.Gonchar+	D8016
	α,el	^{28}Si	DA	4KASKAZ	5.0+07	5.0+07	Priv	PAVLOVA	90	N.N.Pavlova+	D8017
	α,inel	^{28}Si	DAP	4KASKAZ	5.0+07	5.0+07	Priv	PAVLOVA	90	N.N.Pavlova+	D8017
*	α,non		CS	2GERHEI	2.8+08	8.5+08	Jour	PR/C,99,014603	19	F.Horst+	O2441
*	α,tcc		CS	2GERHEI	2.8+08	8.5+08	Jour	PR/C,99,014603	19	F.Horst+	O2441

16 Sulphur 34

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	^{3}He,d	^{35}Cl	DAP	2GERMUU	2.0+07	2.0+07	Jour	PR/C,96,025801	17	S.A.Gillespie+	O2436

24 Chromium 52

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	d,p	^{53}Cr	DAP	4KASKAZ	1.9+07	1.9+07	Jour	IZK,,(4),34	69	V.Yu.Gonchar+	D8014
	α,el	^{52}Cr	DA	4KASKAZ	4.0+07	4.0+07	Priv	PAVLOVA	90	N.N.Pavlova+	D8017
	α,inel	^{52}Cr	DAP	4KASKAZ	2.9+07	5.0+07	Priv	PAVLOVA	90	N.N.Pavlova+	D8017

26 Iron

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,x+γ	inclusive	CS	4RUSKUR	1.4+07	1.4+07	Rept	INDC(CCP)-68,77	75	V.M.Besotosnyy+	40340

26 Iron 54

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,el	^{54}Fe	DA	4KASKAZ	2.9+07	2.9+07	Priv	PAVLOVA	90	N.N.Pavlova+	D8017
α,inel	^{54}Fe	DAP	4KASKAZ	2.9+07	2.9+07	Priv	PAVLOVA	90	N.N.Pavlova+	D8017

26 Iron 57

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
^{3}He,x+α	inclusive	DAE	4KASKAZ	2.3+07	3.4+07	Jour	BAS,45,(11),134	81	N.T.Burtebaev+	D8011
^{3}He,x+d	inclusive	DAE	4KASKAZ	2.3+07	3.4+07	Jour	BAS,45,(11),134	81	N.T.Burtebaev+	D8011
^{3}He,x+^{3}He	inclusive	DAE	4KASKAZ	2.3+07	3.4+07	Jour	BAS,45,(11),134	81	N.T.Burtebaev+	D8011
^{3}He,x+p	inclusive	DAE	4KASKAZ	2.3+07	3.4+07	Jour	BAS,45,(11),134	81	N.T.Burtebaev+	D8011

26 Iron 58

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,el	^{58}Fe	DA	4KASKAZ	4.5+07	5.0+07	Priv	PAVLOVA	90	N.N.Pavlova+	D8017
α,inel	^{58}Fe	DAP	4KASKAZ	5.0+07	5.0+07	Priv	PAVLOVA	90	N.N.Pavlova+	D8017

27 Cobalt 59

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
^{3}He,x+α	inclusive	DAE	4KASKAZ	6.0+07	6.0+07	Jour	SNP,48,409	88	N.T.Burtebaev+	D8012
^{3}He,x+^{3}He	inclusive	DAE	4KASKAZ	6.0+07	6.0+07	Jour	SNP,48,409	88	N.T.Burtebaev+	D8012

28 Nickel 58

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,el	^{58}Ni	CS	4UKRIJD	2.9+06	2.9+06	Rept	INDC(CCP)-456,(1),277	72	M.V.Pasechnik+	40065
n,inel	^{58}Ni	CSP	4UKRIJD	2.9+06	2.9+06	Rept	INDC(CCP)-456,(1),277	72	M.V.Pasechnik+	40065
^{3}He,x+α	inclusive	DAE	4KASKAZ	6.0+07	6.0+07	Jour	SNP,48,409	88	N.T.Burtebaev+	D8012

^{3}He,x+^{3}He	inclusive	DAE	4KASKAZ	6.0+07	6.0+07	Jour	SNP,48,409	88	N.T.Burtebaev+	D8012
α,el	^{58}Ni	DA	4KASKAZ	3.8+07	3.8+07	Jour	IZK,,(6),16	68	V.Yu.Gonchar+	D8015
α,inel	^{58}Ni	DAP	4KASKAZ	3.8+07	3.8+07	Jour	IZK,,(6),16	68	V.Yu.Gonchar+	D8015

28 Nickel 60

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
^{3}He,x+α	inclusive	DAE	4KASKAZ	6.0+07	6.0+07	Jour	SNP,48,409	88	N.T.Burtebaev+	D8012
^{3}He,x+^{3}He	inclusive	DAE	4KASKAZ	6.0+07	6.0+07	Jour	SNP,48,409	88	N.T.Burtebaev+	D8012

28 Nickel 61

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
^{3}He,x+α	inclusive	CSP	4KASKAZ	2.3+07	3.6+07	Jour	BAS,45,(11),134	81	N.T.Burtebaev+	D8011
^{3}He,x+α	inclusive	DAE	4KASKAZ	2.3+07	3.4+07	Jour	BAS,45,(11),134	81	N.T.Burtebaev+	D8011
^{3}He,x+d	inclusive	CSP	4KASKAZ	2.3+07	3.6+07	Jour	BAS,45,(11),134	81	N.T.Burtebaev+	D8011
^{3}He,x+d	inclusive	DAE	4KASKAZ	2.3+07	3.4+07	Jour	BAS,45,(11),134	81	N.T.Burtebaev+	D8011
^{3}He,x+^{3}He	inclusive	DAE	4KASKAZ	2.3+07	3.4+07	Jour	BAS,45,(11),134	81	N.T.Burtebaev+	D8011
^{3}He,x+p	inclusive	CSP	4KASKAZ	2.3+07	3.6+07	Jour	BAS,45,(11),134	81	N.T.Burtebaev+	D8011
^{3}He,x+p	inclusive	DAE	4KASKAZ	2.3+07	3.4+07	Jour	BAS,45,(11),134	81	N.T.Burtebaev+	D8011

28 Nickel 62

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
n,el	^{62}Ni	CS	4UKRIJD	2.9+06	2.9+06	Rept	INDC(CCP)-456,(1),277	72	M.V.Pasechnik+	40065
n,inel	^{62}Ni	CSP	4UKRIJD	2.9+06	2.9+06	Rept	INDC(CCP)-456,(1),277	72	M.V.Pasechnik+	40065
α,el	^{62}Ni	DA	4KASKAZ	5.0+07	5.0+07	Priv	PAVLOVA	90	N.N.Pavlova+	D8017

28 Nickel 64

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
^{3}He,el	^{64}Ni	DA	4KASKAZ	5.0+07	5.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013
^{3}He,inel	^{64}Ni	DAP	4KASKAZ	5.0+07	5.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013
α,el	^{64}Ni	DA	4KASKAZ	3.8+07	3.8+07	Jour	IZK,,(6),16	68	V.Yu.Gonchar+	D8015
α,inel	^{64}Ni	DAP	4KASKAZ	3.8+07	3.8+07	Jour	IZK,,(6),16	68	V.Yu.Gonchar+	D8015

29 Copper

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
n,x+γ	inclusive	CSP	4RUSKUR	1.4+07	1.4+07	Rept	INDC(CCP)-68,77	75	V.M.Besotosnyy+	40340

30 Zinc 64

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	^{3}He,el	^{64}Zn	DA	4KASKAZ	5.0+07	5.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013
	^{3}He,inel	^{64}Zn	DAP	4KASKAZ	5.0+07	5.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013
	α,el	^{64}Zn	DA	4KASKAZ	3.8+07	3.8+07	Jour	IZK,,(6),16	68	V.Yu.Gonchar+	D8015
	α,inel	^{64}Zn	DAP	4KASKAZ	3.8+07	3.8+07	Jour	IZK,,(6),16	68	V.Yu.Gonchar+	D8015

30 Zinc 68

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	α,el	^{68}Zn	DA	4KASKAZ	3.8+07	3.8+07	Jour	IZK,,(6),16	68	V.Yu.Gonchar+	D8015
	α,inel	^{68}Zn	DAP	4KASKAZ	3.8+07	3.8+07	Jour	IZK,,(6),16	68	V.Yu.Gonchar+	D8015

32 Germanium 74

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	α,el	^{74}Ge	DA	4KASKAZ	3.8+07	3.8+07	Rept	IYFK-P-104	70	V.Yu.Gonchar+	D8016
	α,el	^{74}Ge	DA	4KASKAZ	3.9+07	3.9+07	Priv	PAVLOVA	90	N.N.Pavlova+	D8017
	α,inel	^{74}Ge	DAP	4KASKAZ	3.9+07	3.9+07	Priv	PAVLOVA	90	N.N.Pavlova+	D8017

39 Yttrium 89

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	^{6}Li,^{5}Li	^{90}Y	CSP	2ITYPAD	2.2+07	3.4+07	Jour	PR/C,97,014611	18	G.L.Zhang+	O2438

40 Zirconium 90

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	^{3}He,x+α	inclusive	DAE	4KASKAZ	6.0+07	6.0+07	Jour	SNP,48,409	88	N.T.Burtebaev+	D8012
	^{3}He,x+^{3}He	inclusive	DAE	4KASKAZ	6.0+07	6.0+07	Jour	SNP,48,409	88	N.T.Burtebaev+	D8012

42 Molybdenum 92

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,inel	^{92}Mo	?	4RUSKUR			Rept	INDC(CCP)-120	78	M.R.Ahmed+	41683
	α,el	^{92}Mo	DA	4KASKAZ	4.9+07	4.9+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013
	α,inel	^{92}Mo	DAP	4KASKAZ	4.9+07	4.9+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013

42 Molybdenum 94

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,el	^{94}Mo	DA	4KASKAZ	5.0+07	5.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013
α,inel	^{94}Mo	DAP	4KASKAZ	5.0+07	5.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013

42 Molybdenum 96

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,el	^{96}Mo	DA	4KASKAZ	4.5+07	4.5+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013

42 Molybdenum 98

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,el	^{98}Mo	DA	4KASKAZ	4.5+07	4.5+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013
α,inel	^{98}Mo	DAP	4KASKAZ	4.5+07	4.5+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013

48 Cadmium 110

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,inel	^{110}Cd	?	4RUSKUR			Rept	INDC(CCP)-120	78	M.R.Ahmed+	41683

48 Cadmium 112

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,inel	^{112}Cd	?	4RUSKUR			Rept	INDC(CCP)-120	78	M.R.Ahmed+	41683

48 Cadmium 114

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,inel	^{114}Cd	?	4RUSKUR			Rept	INDC(CCP)-120	78	M.R.Ahmed+	41683

48 Cadmium 116

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,inel	^{116}Cd	?	4RUSKUR			Rept	INDC(CCP)-120	78	M.R.Ahmed+	41683

50 Tin 112

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
^{3}He,x+^{3}He	inclusive	DAE	4KASKAZ	6.0+07	6.0+07	Jour	SNP,48,409	88	N.T.Burtebaev+	D8012
α,el	^{112}Sn	DA	4KASKAZ	5.0+07	5.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013
α,inel	^{112}Sn	DAP	4KASKAZ	5.0+07	5.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013

50 Tin 114

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,el	^{114}Sn	DA	4KASKAZ	5.0+07	5.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013
α,inel	^{114}Sn	DAP	4KASKAZ	5.0+07	5.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013

50 Tin 116

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,el	^{116}Sn	DA	4KASKAZ	4.0+07	4.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013
α,inel	^{116}Sn	DAP	4KASKAZ	4.0+07	4.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013

50 Tin 118

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,el	^{118}Sn	DA	4KASKAZ	5.0+07	5.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013
α,inel	^{118}Sn	DAP	4KASKAZ	5.0+07	5.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013

50 Tin 122

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,el	^{122}Sn	DA	4KASKAZ	4.0+07	4.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013
α,inel	^{122}Sn	DAP	4KASKAZ	4.0+07	4.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013

50 Tin 124

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,el	^{124}Sn	DA	4KASKAZ	4.0+07	4.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013
α,inel	^{124}Sn	DAP	4KASKAZ	4.0+07	4.0+07	Priv	KUTERBEKOV	91	K.A.Kuterbekov+	D8013

66 Dysprosium 162

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,inel	^{162}Dy	?	4RUSKUR			Rept	INDC(CCP)-120	78	M.R.Ahmed+	41683

66 Dysprosium 164

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,inel	^{164}Dy	?	4RUSKUR			Rept	INDC(CCP)-120	78	M.R.Ahmed+	41683

73 Tantalum 181

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,x+γ	inclusive	CS	4RUSKUR	1.4+07	1.4+07	Rept	INDC(CCP)-68,77	75	V.M.Besotosnyy+	40340

74 Tungsten

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,x+γ	inclusive	CS	4RUSKUR	1.4+07	1.4+07	Rept	INDC(CCP)-68,77	75	V.M.Besotosnyy+	40340

82 Lead

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,x+γ	inclusive	CS	4RUSKUR	1.4+07	1.4+07	Rept	INDC(CCP)-68,77	75	V.M.Besotosnyy+	40340

89 Actinium 228

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,fis		CS	4RUSEPA	Maxwl		Conf	97TRIEST,2,1353	May 97	E.F.Fomushkin+	41341

91 Protactinium 232

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,fis		CS	4RUSEPA	Maxwl		Conf	97TRIEST,2,1353	May 97	E.F.Fomushkin+	41341
n,fis		RI	4RUSEPA		5.0-01	Conf	97TRIEST,2,1353	May 97	E.F.Fomushkin+	41341

92 Uranium 232

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,fis		CS	4RUSEPA	Maxwl		Conf	97TRIEST,2,1353	May 97	E.F.Fomushkin+	41341
n,fis		RI	4RUSEPA		5.0-01	Conf	97TRIEST,2,1353	May 97	E.F.Fomushkin+	41341

92 Uranium 233

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,fis		CS	1CANCRC	2.5-02	2.5-02	Jour	PR,82,527	51	K.W.Allen+	14592
n,fis	^{4}He	FY	1CANCRC	2.5-02	2.5-02	Jour	PR,80,181	50	K.W.Allen+	14591

92 Uranium 235

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,fis		CS	1CANCRC	2.5-02	2.5-02	Jour	PR,82,527	51	K.W.Allen+	14592
n,fis	^{4}He	CS	1USABNL	2.5-02	2.5-02	Jour	PR,137,B519	65	I.G.Schroder+	14590
n,fis	^{4}He	FY	1CANCRC	Maxwl	2.5-02	Jour	PR,80,181	50	K.W.Allen+	14591
n,x+γ	inclusive	CSP	4RUSKUR	1.4+07	1.4+07	Rept	INDC(CCP)-68,77	75	V.M.Besotosnyy+	40340

92 Uranium 236

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,fis	Many	FY	4RUSFEI	1.0+06	1.6+07	Jour	PAN,56,24	93	A.A.Goverdovskii+	41682

92 Uranium 238

Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
n,fis	Many	FY	4RUSFEI	1.0+06	1.6+07	Jour	PAN,56,24	93	A.A.Goverdovskii+	41682
n,x+γ	inclusive	CSP	4RUSKUR	1.4+07	1.4+07	Rept	INDC(CCP)-68,77	75	V.M.Besotosnyy+	40340

93 Neptunium 237

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,fis	Many	FY	4RUSFEI	1.0+06	1.6+07	Jour	PAN,56,24	93	A.A.Goverdovskii+	41682

94 Plutonium 239

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,fis	^{4}He	FY	1CANCRC	2.5-02	2.5-02	Jour	PR,80,181	50	K.W.Allen+	14591
	n,x+γ	inclusive	CSP	4RUSKUR	1.4+07	1.4+07	Rept	INDC(CCP)-68,77	75	V.M.Besotosnyy+	40340

94 Plutonium 242

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,t	^{240}Pu	CSP	2GERMUN	2.4+07	2.4+07	Jour	PR/C,97,064319	18	M.Spieker+	O2440
*	p,t	^{240}Pu	DAP	2GERMUN	2.4+07	2.4+07	Jour	PR/C,97,064319	18	M.Spieker+	O2440

95 Americium 242

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	0,fis	Many	FY	1USALAS	Spont		Jour	PR/C,13,189	76	J.Weber+	14604
	0,fis	Many	KE	1USALAS	Spont		Jour	PR/C,13,189	76	J.Weber+	14604
	0,fis		KE	1USALAS	Spont		Jour	PR/C,13,189	76	J.Weber+	14604
	0,fis		?	1USALAS	Spont		Jour	NP/A,108,689	68	B.H.Erkkila+	14603

95 Americium 243

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,fis	Many	FY	4RUSFEI	1.0+06	1.0+06	Jour	PAN,58,1841	95	A.A.Goverdovsky+	41681

98 Californium 252

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	0,fis		?	1USALAS	Spont		Jour	NP/A,108,689	68	B.H.Erkkila+	14603