EXFOR News (July 2024)

New experimental data available from Nuclear Reaction Data Centres

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

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

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

Quantity codes

ALF	α-value ($\sigma_{\rm capt}/\sigma_{\rm fis}$)	KE	Kinetic energy
AMP	Scattering length	INT	Cross section integral over incident energy
CHG	Fragment charge	KER	Kerma factor
CS	Cross section	MAS	Fragment mass
CSP	Partial cross section	MFQ	Differential fission neutron multiplicity
CST	Temperature dependent cross section	MLT	Multiplicity
D3A	Triple differential $\mathrm{d}\Omega_1/\mathrm{d}\Omega_2/\mathrm{d}E'$	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 2

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,2n	^{1}H	D3A	1USATNL	1.6+07	1.6+07	Jour	PL/B,835,137557	22	R.C.Malone+	14800

1 Hydrogen

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,tot		CS	1USARPI	4.1-04	1.9+01	Jour	ANE,183,109651	23	D.Fritz+	14813
*	n,tot		CS	1USARPI	4.1-04	1.9+01	Jour	ANE,183,109651	23	D.Fritz+	14813
*	^{8}He,2n+X	^{6}He	DA	2JPNIPC	6.6+08	6.6+08	Jour	PRL,131,242501	23	Z.H.Yang+	E2778

3 Lithium 6

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	α,d+α	^{4}He	D3A	2JPNOSA	1.2+08	1.2+08	Jour	NP/A,614,71	97	A.Okihana+	E1678

6 Carbon 12

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	^{12}C,inel	^{12}C	CSP	2JPNJAE	1.7+07	2.5+07	Jour	PL/B,848,138384	24	Y.Fujikawa+	E2775
*	^{12}C,inel	^{12}C	DAP	2JPNJAE	1.9+07	2.3+07	Jour	PL/B,848,138384	24	Y.Fujikawa+	E2775
*	^{12}C,x	^{12}C	CSP	2JPNJAE	1.7+07	2.5+07	Jour	PL/B,848,138384	24	Y.Fujikawa+	E2775

13 Aluminium 27

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	α,x+α	inclusive	DAE	2JPNIRS	9.2+08	9.2+08	Jour	NST,61,230	24	T.Furuta+	E2776
*	α,x+d	inclusive	DAE	2JPNIRS	9.2+08	9.2+08	Jour	NST,61,230	24	T.Furuta+	E2776
*	α,x+^{3}He	inclusive	DAE	2JPNIRS	9.2+08	9.2+08	Jour	NST,61,230	24	T.Furuta+	E2776
*	α,x+p	inclusive	DAE	2JPNIRS	9.2+08	9.2+08	Jour	NST,61,230	24	T.Furuta+	E2776
*	α,x+t	inclusive	DAE	2JPNIRS	9.2+08	9.2+08	Jour	NST,61,230	24	T.Furuta+	E2776

21 Scandium 45

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	α,2p	^{47}Sc	CS	2JPNIPC	2.2+07	5.1+07	Jour	NIM/B,550,165315	24	M.Aikawa+	E2781

*	α,n	^{48}V	CS	2JPNIPC	2.2+07	5.1+07	Jour	NIM/B,550,165315	24	M.Aikawa+	E2781
*	α,x	^{42}K	CS	2JPNIPC	4.8+07	5.1+07	Jour	NIM/B,550,165315	24	M.Aikawa+	E2781
*	α,x	^{43}K	CS	2JPNIPC	4.2+07	5.1+07	Jour	NIM/B,550,165315	24	M.Aikawa+	E2781
*	α,x	^{43}Sc	CS	2JPNIPC	3.5+07	5.1+07	Jour	NIM/B,550,165315	24	M.Aikawa+	E2781
*	α,x	^{44}Sc	CS	2JPNIPC	2.2+07	5.1+07	Jour	NIM/B,550,165315	24	M.Aikawa+	E2781
*	α,x	^{46}Sc	CS	2JPNIPC	2.6+07	5.1+07	Jour	NIM/B,550,165315	24	M.Aikawa+	E2781
*	α,x	^{45}Ti	CS	2JPNIPC	3.8+07	5.1+07	Jour	NIM/B,550,165315	24	M.Aikawa+	E2781

30 Zinc 66

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,sct	^{66}Zn	CS	1USATNL	5.6+06	9.9+06	Jour	PR/C,106,044324	22	D.Savran+	L0287

34 Selenium 76

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,inel	^{76}Se	CSP	1USAKTY	2.7+06	3.5+06	Jour	PR/C,99,014313	19	S.Mukhopadhyay+	14810
*	n,inel	^{76}Se	DAP	1USAKTY	3.0+06	3.0+06	Jour	PR/C,99,014313	19	S.Mukhopadhyay+	14810

39 Yttrium

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,tot		CS	1USARPI	5.3-04	3.1+00	Jour	ANE,181,109475	23	D.Fritz+	14801

90 Thorium 232

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,fis	Many	FY	1USAISU		8.0+06	Jour	NIM/A,1013,165621	21	A.Foley+	L0288

92 Uranium 235

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,fis	Many	FY	1USAISU		8.0+06	Jour	NIM/A,1013,165621	21	A.Foley+	L0288
*	γ,fis		?	1USATNL	9.0+06	1.7+07	Jour	NIM/A,854,40	17	Krishichayan+	L0222
*	γ,fis		?	1USATNL	9.0+06	1.7+07	Jour	PR/C,98,014608	18	Krishichayan+	L0233
	n,fis	γ	FY	1USAIRT	2.5-02	2.5-02	Jour	PR/C,7,1173	73	V.V.Verbinski+	14195

92 Uranium 238

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,fis		?	1USATNL	9.0+06	1.7+07	Jour	PR/C,98,014608	18	Krishichayan+	L0233

93 Neptunium 237

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,γ	^{238}Np	CS	1USAORL	2.5-02	2.5-02	Jour	NT,208,1696	22	C.Romano+	14811

94 Plutonium 239

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,fis	γ	FY	1USAIRT	2.5-02	2.5-02	Jour	PR/C,7,1173	73	V.V.Verbinski+	14195
*	n,fis	γ	FY	1USALAS	3.0+06	4.0+07	Jour	PR/C,107,014612	23	N.P.Giha+	14809

98 Californium 252

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	0,fis	γ	FY	1USAIRT	Spont		Jour	PR/C,7,1173	73	V.V.Verbinski+	14195