

**Table B-3: Thermal neutron capture cross sections  
and resonance integrals - Fission product nuclear data**

Nuclide	Thermal neutron cross section			Resonance Integral			Ref.
		(b)			(b)		
36-Kr- 82	$\sigma$	30.0	$\pm$ 10.0	C	190.0	$\pm$ 20.0	[1]
36-Kr- 83	$\sigma$	180.0	$\pm$ 30.0	C	183.0	$\pm$ 25.0	[2]
36-Kr- 84	$\sigma(m)$	0.090	$\pm$ 0.013		2.4		[1]
36-Kr- 84	$\sigma(g)$	0.042	$\pm$ 0.004		0.8		[1]
36-Kr- 84	$\sigma(m+g)$	0.110	$\pm$ 0.015		3.2	$\pm$ 0.5	[1]
36-Kr- 85	$\sigma$	1.66	$\pm$ 0.2		1.8	$\pm$ 1.0	[1,2]
36-Kr- 86	$\sigma$	0.003	$\pm$ 0.002		0.1	$\pm$ 0.04	[1]
40-Zr- 90	$\sigma$	0.011	$\pm$ 0.005	C	0.14		[2]
40-Zr- 91	$\sigma$	1.24	$\pm$ 0.25		6.8	$\pm$ 1.3	[1]
40-Zr- 92	$\sigma$	0.22	$\pm$ 0.06		0.63	$\pm$ 0.11	[1]
40-Zr- 93	$\sigma$	2.6	$\pm$ 1.4		20.0	$\pm$ 10.0	[1]
40-Zr- 94	$\sigma$	0.0499	$\pm$ 0.0024		0.30	$\pm$ 0.07	[1]
40-Zr- 95	$\sigma_0$	0.49			6.5	$\pm$ 1.4	[1]
40-Zr- 96	$\sigma$	0.0229	$\pm$ 0.0010		5.3	$\pm$ 0.3	[5]
42-Mo- 95	$\sigma$	14.0	$\pm$ 0.5	C	109.0	$\pm$ 5.0	[2]
42-Mo- 96	$\sigma$	0.5	$\pm$ 0.2		24.0	$\pm$ 4.0	[1]
42-Mo- 97	$\sigma$	2.1	$\pm$ 0.5	C	14.0	$\pm$ 3.0	[2]
42-Mo- 98	$\sigma_0$	0.130	$\pm$ 0.006		6.9	$\pm$ 0.3	[5]
42-Mo-100	$\sigma$	0.199	$\pm$ 0.003		3.75	$\pm$ 0.15	[2]
44-Ru-100	$\sigma_0$	5.0	$\pm$ 0.6		11.0	$\pm$ 0.7	[1]
44-Ru-101	$\sigma_0$	3.4	$\pm$ 0.9		88.0	$\pm$ 17.0	[1]
44-Ru-102	$\sigma_0$	1.21	$\pm$ 0.07		4.2	$\pm$ 0.1	[2]
44-Ru-103	$\sigma$	7.71			60.0	$\pm$ 20.0	[1]
44-Ru-104	$\sigma_0$	0.32	$\pm$ 0.02		4.3	$\pm$ 0.1	[2]
44-Ru-106	$\sigma$	0.146	$\pm$ 0.045		1.8	$\pm$ 0.4	[1]
54-Xe-130	$\sigma_0(m)$	0.45	$\pm$ 0.10	C	1.17		[1]
54-Xe-130	$\sigma_0(g)$	6.0	$\pm$ 1.0	C	13.72		[1]
54-Xe-130	$\sigma_0(m+g)$	6.45	$\pm$ 1.0	C	14.89		[1]
54-Xe-131	$\sigma_0$	85.0	$\pm$ 10.0		900.0	$\pm$ 100.0	[2]
54-Xe-132	$\sigma_0(m)$	0.050	$\pm$ 0.010		0.9	$\pm$ 0.2	[1,2]
54-Xe-132	$\sigma_0(m+g)$	0.450	$\pm$ 0.060		4.6	$\pm$ 0.6	[1,2]
54-Xe-133g	$\sigma_r$	190.0	$\pm$ 90.0		134		
54-Xe-133g	$\sigma_0(m)$	0.003	$\pm$ 0.0003		0.1		[1]
54-Xe-133g	$\sigma_0(m+g)$	0.265	$\pm$ 0.020		0.3		[1]
54-Xe-135g	$\sigma_0$	(2.65 $\pm$ 0.11) E+06		C	7600.0	$\pm$ 500.	[2]
54-Xe-136	$\sigma_0$	0.26	$\pm$ 0.02		0.74	$\pm$ 0.21	[1,2]
55-Cs-133	$\sigma_0(m)$	2.5	$\pm$ 0.2		30.0	$\pm$ 6.0	[1]
55-Cs-133	$\sigma_0(m+g)$	29.0	$\pm$ 1.5		422.0	$\pm$ 23.0	[1]
55-Cs-134g	$\sigma_r$	140.0	$\pm$ 12.0		106.0		[6]
55-Cs-135	$\sigma$	8.7	$\pm$ 0.5		66.0	$\pm$ 8.0	[1]
55-Cs-137g	$\sigma_r(g)$	0.110	$\pm$ 0.033		0.35	$\pm$ 0.07	[6]

58-Ce-144g	$\sigma$	1.0	$\pm$	0.1	2.6	$\pm$	0.3	[1,2]
59-Pr-141	$\sigma_0(m)$	3.9	$\pm$	0.3				
59-Pr-141	$\sigma_0(m+g)$	11.5	$\pm$	0.3	17.8	$\pm$	3.5	[1]
59-Pr-143	$\sigma$	90.0	$\pm$	10.0	190.0	$\pm$	25.0	[2]
60-Nd-142	$\sigma$	18.7	$\pm$	0.7	8.5	$\pm$	1.0	[1]
60-Nd-143	$\sigma_0$	325.0	$\pm$	10.0	136.0	$\pm$	35.0	[1]
60-Nd-144g	$\sigma$	3.6	$\pm$	0.3	5.0	$\pm$	1.0	[1]
60-Nd-145	$\sigma_0$	42.0	$\pm$	2.0	255.0	$\pm$	40.0	[1]
60-Nd-146	$\sigma_0$	1.4	$\pm$	0.1	2.7	$\pm$	0.4	[1]
60-Nd-147	$\sigma$	440.0	$\pm$	150.0	540.0	$\pm$	150.0	[1]
60-Nd-148	$\sigma_0$	2.5	$\pm$	0.2	14.0	$\pm$	1.5	[1,2]
60-Nd-150	$\sigma_0$	1.2	$\pm$	0.2	14.5	$\pm$	2.0	[1,2]
61-Pm-147	$\sigma(m)$	85.0	$\pm$	5.0	910.0	$\pm$	265.0	[1] <sup>1)</sup>
61-Pm-147	$\sigma(g)$	96.0	$\pm$	2.0	1320.0	$\pm$	85.0	[1]
61-Pm-147	$\sigma(m+g)$	181.0	$\pm$	7.0	2230.0	$\pm$	70.0	[1] <sup>2)</sup>
61-Pm-148m	$\sigma$	22000.0	$\pm$	2500.0	3600.0	$\pm$	2400.0	[1,3]
61-Pm-148g	$\sigma_r$	2000.0	$\pm$	1000.0	2510.0			[6]
61-Pm-149	$\sigma$	1400.0	$\pm$	300.0	825.0	$\pm$	50.0	[1]
61-Pm-151	$\sigma$	173.0			1400.0	$\pm$	400.0	[1]
62-Sm-147	$\sigma$	64.0	$\pm$	5.0	650.0	$\pm$	50.0	[1]
62-Sm-148	$\sigma$	2.7	$\pm$	0.6	27.0	$\pm$	14.0	[1,3]
62-Sm-149	$\sigma$	41000.0	$\pm$	2000.0	3700.0	$\pm$	400.0	[1]
62-Sm-150	$\sigma_0$	102.0	$\pm$	5.0	358.0	$\pm$	50.	[3]
62-Sm-151	$\sigma$	15000.0	$\pm$	1800.0	3100.0	$\pm$	500.0	[1]
62-Sm-152	$\sigma_0$	206.0	$\pm$	6.0	2960.0	$\pm$	150.0	[1]
62-Sm-153	$\sigma_0$	420.0	$\pm$	180.0	3700.0	$\pm$	2000.0	[1] <sup>3)</sup>
62-Sm-154	$\sigma_0$	7.74	$\pm$	0.46	33.3	$\pm$	3.0	[4] <sup>4)</sup>
63-Eu-151	$\sigma(m2)$	4.2	$\pm$	2.0				
63-Eu-151	$\sigma(m1)$	3211.0	$\pm$	82.0	1823.0	$\pm$	146.0	[1]
63-Eu-151	$\sigma(g)$	5935.0	$\pm$	73.0	3552.0	$\pm$	264.0	[1]
63-Eu-151	$\sigma(\text{total})$	9146.0	$\pm$	109.0	5367.0	$\pm$	263.0	[1]
63-Eu-152	$\sigma$	12800.0	$\pm$	600	2170.0			[6]
63-Eu-153	$\sigma_0$	312.0	$\pm$	7.0	1420.0	$\pm$	100.0	[3] <sup>5)</sup>
63-Eu-154g	$\sigma_0$	1500.0	$\pm$	400.0	1500.0	$\pm$	450.0	[1]
63-Eu-155	$\sigma_r$	4040.0	$\pm$	125.0	1680.0	$\pm$	300.0	[1] <sup>6)</sup>
63-Eu-155	$\sigma$	3950.0	$\pm$	125.0	6) c 23200.0	$\pm$	300.0	[3] <sup>6)</sup>

<sup>1)</sup> Original value in [1] =  $1045 \pm 265$  b, adjusted here (within the error limits) to give the correct sum (m+g).

<sup>2)</sup> The higher value of [1] is supported by the data from JENDL-3 (2199 b) and ENDF/B-6 (2197 b), whereas [3] gives  $2064 \pm 100$  b.

<sup>3)</sup> [3] used, as uncertainty is given. Other values: 334.5 b [1],

420.2 b (JENDL-3), 330 b (ENDF/B-6).

- 4) Taken from [4] because of discrepancies between [1] and [3].
- 5) [1] gives 603 and 3414 b respectively, but recent evaluations ([4], ENDF/B-6) support the lower values.
- 6) Both sets of data given for comparison. Other values: ENDF/B-6: same as [3], JENDL-3: 4071 b and 6755 b respectively.