

**Table 4 from INDC(NDS)-0616 “Basic data and sources of the cross sections in the new library IRDFF release 1.0”  
updated for new IRDFF releases (after version 1.0), new references and noted corrections.**

No. in IRDFF 1.0	Reaction Code	Reaction	Mat	IRDFF		Source of XS data in IRDFF 1.0	Status and origin of XS data	Changes in	Changes in
				MF	MT			release 1.03 (March 2014)	release 1.05 (October 2014)
1.	Li6T	${}^6\text{Li}(n,t){}^4\text{He}$	325	3	105	[3,4,10]	R		
2.	B10A	${}^{10}\text{B}(n,\alpha){}^7\text{Li}$	525	3	107	[3,4,10]	R		
3.	F192	${}^{19}\text{F}(n,2n){}^{18}\text{F}$	925	3	16	[18]	IRDFF-2002		
4.	Na232	${}^{23}\text{Na}(n,2n){}^{22}\text{Na}$	1125	3	16	[18]	IRDFF-2002		
5.	Na23G	${}^{23}\text{Na}(n,\gamma){}^{24}\text{Na}$	1125	3	102	[18]	IRDFF-2002		
6.	Mg24P	${}^{24}\text{Mg}(n,p){}^{24}\text{Na}$	1225	3	103	[7]	R		
7.	Al27P	${}^{27}\text{Al}(n,p){}^{27}\text{Mg}$	1325	3	103	[5]	R		
8.	Al27A	${}^{27}\text{Al}(n,\alpha){}^{24}\text{Na}$	1325	3	107	[6]	R		
New	Si28P	${}^{28}\text{Si}(n,p){}^{28}\text{Al}$	1425	3	103				New Eval. [28]
New	Si29D	${}^{29}\text{Si}(n,np+d){}^{28}\text{Al}$	1428	3	28				New Eval. [28]
9.	P31P	${}^{31}\text{P}(n,p){}^{31}\text{Si}$	1525	3	103	[18]	IRDFF-2002		Updated [28]
10.	S32P	${}^{32}\text{S}(n,p){}^{32}\text{P}$	1625	3	103	[7]	R		
11.	Sc45G	${}^{45}\text{Sc}(n,\gamma){}^{46}\text{Sc}$	2125	3	102	[18]	IRDFF-2002 NB: Mat 2126		
12.	Ti462	${}^{46}\text{Ti}(n,2n){}^{45}\text{Ti}$	2225	3	16	[18]	IRDFF-2002		
13.	Ti46P	${}^{46}\text{Ti}(n,p){}^{46}\text{Sc}$	2225	3	103	[18]	IRDFF-2002		
14.	Ti47NP	${}^{47}\text{Ti}(n,x){}^{46}\text{Sc}$	2228	10	5	[18]	IRDFF-2002		
15.	Ti47P	${}^{47}\text{Ti}(n,p){}^{47}\text{Sc}$	2228	3	103	[8]	R		
16.	Ti48NP	${}^{48}\text{Ti}(n,x){}^{47}\text{Sc}$	2231	10	5	[18]	IRDFF-2002		
17.	Ti48P	${}^{48}\text{Ti}(n,p){}^{48}\text{Sc}$	2231	3	103	[18]	IRDFF-2002		
18.	Ti49NP	${}^{49}\text{Ti}(n,x){}^{48}\text{Sc}$	2234	10	5	[18]	IRDFF-2002		
19.	V51A	${}^{51}\text{V}(n,\alpha){}^{48}\text{Sc}$	2328	3	107	[18]	IRDFF-2002		
20.	Cr522	${}^{52}\text{Cr}(n,2n){}^{51}\text{Cr}$	2431	3	16	[18]	IRDFF-2002		
21.	Mn55G	${}^{55}\text{Mn}(n,\gamma){}^{56}\text{Mn}$	2525	3	102	[3,9]	R		
22.	Mn552	${}^{55}\text{Mn}(n,2n){}^{54}\text{Mn}$	2525	3	16	[6]	N		
23.	Fe542	${}^{54}\text{Fe}(n,2n){}^{53}\text{Fe}$	2625	3	16	[18]	IRDFF-2002		
24.	Fe54P	${}^{54}\text{Fe}(n,p){}^{54}\text{Mn}$	2625	3	103	[18]	IRDFF-2002	Update [25,26]	
25.	Fe54A	${}^{54}\text{Fe}(n,\alpha){}^{51}\text{Cr}$	2625	3	107	[18]	IRDFF-2002		

No. in IRDFF 1.0	Reaction Code	Reaction	Mat	IRDFF		Source of XS data in IRDFF 1.0	Status and origin of XS data	Changes in release 1.03 (March 2014)	Changes in release 1.05 (October 2014)
				MF	MT				
26.	Fe56P	$^{56}\text{Fe}(n,p)^{56}\text{Mn}$	2631	3	103	[18]	IRDF-2002		
27.	Fe58G	$^{58}\text{Fe}(n,\gamma)^{59}\text{Fe}$	2637	3	102	[12]	R		
28.	Co592	$^{59}\text{Co}(n,2n)^{58}\text{Co}$	2725	3	16	[6]	R		
29.	Co593	$^{59}\text{Co}(n,3n)^{57}\text{Co}$	2725	3	17	[16]	N		
30.	Co59G	$^{59}\text{Co}(n,\gamma)^{60}\text{Co}$	2725	3	102	[18]	IRDF-2002		
31.	Co59P	$^{59}\text{Co}(n,p)^{59}\text{Fe}$	2725	3	103	[6]	N		
32.	Co59A	$^{59}\text{Co}(n,\alpha)^{56}\text{Mn}$	2725	3	107	[18]	IRDF-2002		
33.	Ni582	$^{58}\text{Ni}(n,2n)^{57}\text{Ni}$	2825	3	16	[18]	IRDF-2002	updated [25,26]	
34.	Ni58P	$^{58}\text{Ni}(n,p)^{58}\text{Co}$	2825	3	103	[18]	IRDF-2002		
35.	Ni60P	$^{60}\text{Ni}(n,p)^{60}\text{Co}$	2831	3	103	[7]	R		
36.	Cu632	$^{63}\text{Cu}(n,2n)^{62}\text{Cu}$	2925	3	16	[7]	R		
37.	Cu63G	$^{63}\text{Cu}(n,\gamma)^{64}\text{Cu}$	2925	3	102	[18]	IRDF-2002		
38.	Cu63A	$^{63}\text{Cu}(n,\alpha)^{60}\text{Co}$	2925	3	107	[18]	IRDF-2002		
39.	Cu652	$^{65}\text{Cu}(n,2n)^{64}\text{Cu}$	2931	3	16	[7]	R		
40.	Zn64P	$^{64}\text{Zn}(n,p)^{64}\text{Cu}$	3025	3	103	[7]	R		
41.	Zn67P	$^{67}\text{Zn}(n,p)^{67}\text{Cu}$	3034	3	103	[15]	N	updated [25,26]	
42.	As752	$^{75}\text{As}(n,2n)^{74}\text{As}$	3325	3	16	[18]	IRDF-2002		
43.	Y892	$^{89}\text{Y}(n,2n)^{88}\text{Y}$	3925	3	16	[16]	R		
44.	Zr902	$^{90}\text{Zr}(n,2n)^{89}\text{Zr}$	4025	3	16	[6]	R		
45.	Mo92P	$^{92}\text{Mo}(n,p)^{92m}\text{Nb}$	4225	10	103	[15]	N	updated [25,26]	
46.	Nb932	$^{93}\text{Nb}(n,2n)^{92m}\text{Nb}$	4125	10	16	[16]	R		
47.	Nb93N	$^{93}\text{Nb}(n,n')^{93m}\text{Nb}$	4125	10	4	[18]	IRDF-2002		
48.	Nb93G	$^{93}\text{Nb}(n,\gamma)^{94}\text{Nb}$	4125	3	102	[18]	IRDF-2002	updated [25,26]	
49.	Rh103N	$^{103}\text{Rh}(n,n')^{103m}\text{Rh}$	4525	10	4	[18]	IRDF-2002		
50.	Ag109G	$^{109}\text{Ag}(n,\gamma)^{110m}\text{Ag}$	4731	10	102	[18]	IRDF-2002		
	In113G	$^{113}\text{In}(n,\gamma)^{114}\text{In}$	4925	3	102				New Eval. [28]
	In113GG	$^{113}\text{In}(n,\gamma)^{114g}\text{In}$	4925	10	102				New Eval. [28]
New	In113GM	$^{113}\text{In}(n,\gamma)^{114m}\text{In}$	4925	10	102				New Eval. [28]
51.	In113N	$^{113}\text{In}(n,n')^{113m}\text{In}$	4925	10	4	[15]	N	updated [25,26]	

52.	In1152M	$^{115}\text{In}(n,2n)^{114\text{m}}\text{In}$	4931	10	16	[17]	R		
53.	In115N	$^{115}\text{In}(n,n')^{115\text{m}}\text{In}$	4931	10	4	[17]	R		
54.	In115G	$^{115}\text{In}(n,\gamma)^{116\text{m}}\text{In}$	4931	10	102	[3]	R	updated [25,26] LFS=2(m1+m2)	
55.	I1272	$^{127}\text{I}(n,2n)^{126}\text{I}$	5325	3	16	[17]	R		
56.	La139G	$^{139}\text{La}(n,\gamma)^{140}\text{La}$	5728	3	102	[18]	IRDF-2002		
57.	Pr1412	$^{141}\text{Pr}(n,2n)^{140}\text{Pr}$	5925	3	16	[18]	IRDF-2002		
58.	Tm1692	$^{169}\text{Tm}(n,2n)^{168}\text{Tm}$	6925	3	16	[16]	R		
59.	Tm1693	$^{169}\text{Tm}(n,3n)^{167}\text{Tm}$	6925	3	17	[15]	N		
60.	Ta181G	$^{181}\text{Ta}(n,\gamma)^{182}\text{Ta}$	7328	3	102	[18]	IRDF-2002		
61.	W186G	$^{186}\text{W}(n,\gamma)^{187}\text{W}$	7443	3	102	[3,9]	R		
62.	Au1972	$^{197}\text{Au}(n,2n)^{196}\text{Au}$	7925	3	16	[7]	R		
63.	Au197G	$^{197}\text{Au}(n,\gamma)^{198}\text{Au}$	7925	3	102	[4,10,19]	R		
64.	Hg199N	$^{199}\text{Hg}(n,n')^{199\text{m}}\text{Hg}$	8034	10	4	[7]	R		
65.	Pb204N	$^{204}\text{Pb}(n,n')^{204\text{m}}\text{Pb}$	8225	10	4	[18]	IRDF-2002		
66.	Bi2093	$^{209}\text{Bi}(n,3n)^{207}\text{Bi}$	8325	3	17	[16]	N		
67.	Th232F	$^{232}\text{Th}(n,f)\text{FP}$	9040	3	18	[9,20,21]	R		
68.	Th232G	$^{232}\text{Th}(n,\gamma)^{233}\text{Th}$	9040	3	102	[9,20]	R		
69.	U235F	$^{235}\text{U}(n,f)\text{FP}$	9228	3	18	[4,10,19,21]	R		
70.	U235G	$^{235}\text{U}(n,\gamma)^{236}\text{U}$	9228	3	102	[20]	N		
New	U2382	$^{238}\text{U}(n,2n)^{237}\text{U}$	9237	3	16	[27]		new Eval. [27]	
71.	U238F	$^{238}\text{U}(n,f)\text{FP}$	9237	3	18	[4,10,19,21]	R		
72.	U238G	$^{238}\text{U}(n,\gamma)^{239}\text{U}$	9237	3	102	[4,10,19,21]	R		
73.	Np237F	$^{237}\text{Np}(n,f)\text{FP}$	9346	3	18	[22]	R		
74.	Pu39F	$^{239}\text{Pu}(n,f)\text{FP}$	9437	3	18	[4,10,19,21]	R		
75.	Am241F	$^{241}\text{Am}(n,f)\text{FP}$	9543	3	18	[18]	IRDF-2002		
Total Number of Reactions							75	76	79

Cover materials without uncertainties								
1	---	<b>B-COVER</b>	500	3	001	[3]	<b>R</b>	
2	---	<b>CD-COVER</b>	4800	3	001	[20,23]	<b>R</b>	
3	---	<b>GD-COVER</b>	6400	3	001	[3]	<b>R</b>	

**Explanations to Table 4**

**R** =replacement of IRDF-2002 data by new evaluations.

**N** = new evaluation, not present in IRDF-2002.

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