JAERI-M
8062

JAPANESE LIST OF REQUESTS FOR NUCLEAR DATA

January 1979

Compiled by

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核データに対する日本の要求リスト

シグマ研究委員会 WRENDA グループ*)
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（ 1978年12月27日受理 ）

核分裂炉，核融合炉，燃料計量を対象とした核データに対する要求をまとめた。これらはシグマ研究委員会のWRENDAグループで検討，選択されたもので，WRENDA 79／80+) に提出される。この報告には244の要求が載っていて，そのうち81件が核分裂炉用，94件が核融合炉用，69件が燃料計量用の核データである。新規の要求は核分裂炉用が18件，核融合炉用が3件，燃料計量用が1件である。

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+) WRNEDA は World Request List for Nuclear Data のことである。参考文献1を参照。

Japanese List of Requests for Nuclear Data

Sin-iti IGARASI

and

WRENDA Group of Japanese Nuclear Data Committee*)

(Received December 27, 1978)

Requests for nuclear data for fission reactors, fusion reactors and safeguards are presented. They are those screened by a WRENDA Group of the Japanese Nuclear Data Committee, and are contributed to WRENDA 79/80+). This report contains 244 requests : 81 for fission reactors, 94 for fusion reactors and 69 for safeguards. New requests are 18 for fission reactors, 3 for fusion reactors and 1 for safeguards.

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Keywords : Nuclear Data, Data Requests, Fission Reactors, Fusion Reactors, Safeguards, WRENDA

+) WRENDA: World Request List for Nuclear Data, see Ref. 1.

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1. Introduction

Formerly the Japanese requests for nuclear data were submitted to WRENDA from three Working Groups which screened the requests for nuclear data for fission reactors, fusion reactors and safeguards, respectively. In WRENDA 76/77[1], there were 325 Japanese requests among which some duplications were found. This might be due to the three independent screening works for the requests. To improve this defect, the works for the present compilation were unified by a request-screening Group, named WRENDA Group in the Japanese Nuclear Data Committee (JNDC).

The new Group was convened four times in 1978 to screen new requests, to examine the old Japanese requests and to recompile Japanese List of Requests for Nuclear Data. The new 72 requests including 7 pending requests left previously[2] were offered to the Working Group. They were examined whether or not they were needed from the viewpoint of the present status of the experimental and evaluated nuclear data. The Working Group adopted finally 22 requests, which consist of 18 requests for fission reactors, 3 for fusion reactors and 1 for safeguards.

The old requests[1,2] were returned to the requestors in order to re-examine their needs, reasons and other items. Those requested before 1970 were especially demanded re-examination. Those for higher plutonium nuclides were re-investigated whether they were needed for the fuel cycle problems. The requestors withdrew most of the oldest requests made before 1970, and those for transcurium nuclides. These re-examinations reduced the old 325 requests to 222 requests, i.e. from 163 requests to 63 for fission reactors, 93 to 91 for fusion reactors, and 69 to 68 for safeguards. The requests for the latter two categories should be carefully checked next time, because very few replies from the original requestors had been received by the WRENDA Group.

Through the above work, the Working Group decided finally to register 244 requests in WRENDA. These requests are presented in the next section of this report, and will be compiled in WRENDA 79/80.

2. List of Requests

Japanese requests submitted to the WRENDA 79/80 are compiled in this section. Numbers in parentheses are the registration number given to each request in the WRENDA. Comments of each request are almost the same as those of the WRENDA. Category for application is also attached to each request.

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
1. (762168)	^{6}Li	ELASTIC	7.5+6	1.5+7	10.0	2	JAE	Y. Seki
		Fusion. Neutron transport calculations.						
2. (762051)	^{6}Li	DIFF ELASTIC	7.5+6	1.5+7	10.0	2	JAE	Y. Seki
		Fusion. Neutron transport calculations.						
3. (762054)	^{6}Li	PHOTON PRODUCT	1.0+6	1.5+7	15.0	2	MAP JAE	M. Kasai Y. Seki
		Fusion. Total photon production cross section required. Gamma-ray heating calculations.						
4. (762052)	^{6}Li	N,ND		1.5+7	10.0	2	JAE	Y. Seki
		Fusion. Neutronics calculations and energy deposition.						
5. (762053)	^{6}Li	N,TRITON	3.0+6	1.5+7	5.0	1	JAE	Y. Seki
		Fusion. Tritium breeding and energy deposition calculation.						
6. (762230)	^{7}Li	ELASTIC	7.5+6	1.5+7	5.0	2	JAE	Y. Seki
		Fusion. Neutron transport calculations.						
7. (762055)	^{7}Li	DIFF ELASTIC	7.5+6	1.5+7	10.0	2	JAE	Y. Seki
		Fusion. Neutron transport calculations.						
8. (762231)	^{7}Li	INELASTIC		1.5+7	15.0	2	JAE	Y. Seki
		Fusion. Neutron transport calculations.						
9. (762056)	^{7}Li	DIFF INELAST		1.5+7	15.0	2	JAE	Y. Seki
		Fusion. Neutron transport calculations. Energy differential inelastic scattering cross sections required.						

REF	NUCLIDE	QUANTITY	ENERGY(EV) MIN	ENERGY(EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
10. (762059)	^{7}Li	PHOTO PRODUCT	THR	1.5+7	15.0	2	JAE	Y. Seki
		Fusion. Total photon production cross sections wanted. Gamma-ray spectra also required. Gamma-ray heating calculations.						
11. (762232)	^{7}Li	N,2N		1.5+7	15.0	2	JAE	Y. Seki
		Fusion. Angular distributions wanted. Blanket neutronics calculations.						
12. (762057)	^{7}Li	N,2N SPECTRA		1.5+7	15.0	2	JAE	Y. Seki
		Fusion. Blanket neutronics calculations.						
13. (762058)	^{7}Li	N,NT		1.5+7	5.0	1	JAE	Y. Seki
		Fusion. Neutron spectra with accuracy 15% also required. Tritium breeding and energy deposition calculation.						
14. (762060)	^{9}Be	INELASTIC		1.5+7	15.0	3	JAE	Y. Seki
		Fusion. Blanket neutronics calculations.						
15. (762061)	^{9}Be	N,2N		1.5+7	15.0	3	JAE MAP	Y. Seki M. Kasai
		Fusion. Neutron multiplication calculations.						
16. (762233)	^{9}Be	N,2N ANG DIST		1.5+7	15.0	2	JAE	Y. Seki
		Fusion. Neutron transport calculations.						
17. (762062)	^{9}Be	N,2N SPECTRA		1.5+7	15.0	2	JAE	Y. Seki
		Fusion. Neutron transport calculations.						
18. (762063)	^{9}Be	N,ALPHA	8.0+6	1.5+7	15.0	2	JAE	Y. Seki
		Fusion. Helium accumulation calculations.						

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
19. (762064)	^{12}C	INELASTIC	8.0+6	1.5+7	10.0	2	JAE	Y. Seki
		Fusion. Inelastically scattered neutron spectra required with incident energy steps 0.5 MeV. Neutron transport calculations.						
20. (762065)	^{12}C	N,N3 ALPHA		1.5+7	15.0	2	JAE	Y. Seki
		Fusion. Total alpha production cross section and secondary neutron energy spectrum required. Neutron transport and Helium accumulation calculations.						
21. (New)	^{13}C	ALPHA,N			20.0	2	SAE	N. Yamano
		Fission. Experimental data wanted. Angular distribution also required. Required neutron energies are 100 keV to 10 MeV. For neutron shielding and evaluation of neutron source. For evaluation of neutron energy spectrum in fuel recycle process.						
22. (762066)	^{16}O	N,ALPHA	7.5+6	1.5+7	15.0	2	JAE	Y. Seki
		Fusion. Total alpha production cross section. Helium accumulation calculation in Li-oxide blankets.						
23. (762067)	^{16}O	N,N ALPHA		1.5+7	15.0	2	JAE	Y. Seki
		Fusion. Secondary neutron energy spectra required. Calculation of neutron transport and Helium accumulation in Li-oxide blankets.						
24. (New)	^{16}O	TRITON,N		1.2+7	10.0	2	JAE JAE	K. Tanaka H. Kudo
		Fusion. For precise estimation of Li_2O burn-up in CTR blanket. For evaluation of number of ^{18}O atoms from β^+-decay of ^{18}F produced through $^{16}O(t,n)^{18}F$. Experimental data wanted. 5% energy resolution desirable.						

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
25. (New)	^{17}O	ALPHA,N			20.0	2	SAE	N. Yamano

Fission.
For neutron shielding and evaluation of neutron source. For evaluation of neutron energy spectrum in fuel recycle process. Experimental data wanted. Angular distribution also required. Required neutron energies are 100 keV to 10 MeV.

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
26. (New)	^{17}O	N,ALPHA	THR	1.5+7	30.0	2	MAP	T. Kawakita

Fission.
Evaluation for quantity of ^{14}C from oxide fuel in fast reactor. Evaluated data wanted. Both evaluation and measurement are scarce.

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
27. (762041)	^{18}O	ALPHA,N	5.1+6	5.5+6	5.0	2	MAP	K. Onishi

Safeguards.
Absolute total neutron yield required. Detection of Pu by neutron coincidence method.

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
28. (New)	^{18}O	ALPHA,N			20.0	2	SAE	N. Yamano

Fission.
For neutron shielding and evaluation of neutron source. For evaluation of neutron energy spectrum in fule recycle process. Experimental data wanted. Angular distribution also required. Required neutron evergies are 100 keV to 10 MeV.

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
29. (762068)	^{19}F	INELASTIC	1.0+6	1.5+7	10.0	3	JAE	Y. Seki

Fusion.
Potential constituent in coolant, flibe. Tritium breeding calculations.

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
30. (762069)	^{19}F	ABSORPTION	THR	1.5+7	10.0	3	JAE	Y. Seki

Fusion.
Potential constituent in coolant, flibe. Tritium breeding calculations.

REF	NUCLIDE	QUANTITY	ENERGY(EV) MIN	MAX	ACCURACY (%)	P	LAB	REQUESTORS
31. (762074)	^{27}Al	N,GAMMA	THR	1.5+7	15.0	3	MAP	M. Kasai
		Fusion. Gamma-ray heating calculations.						
32. (762075)	^{27}Al	PHOTON PRODUCT	THR	1.5+7	15.0	3	MAP	M. Kasai
		Fusion. Total photon production cross section required. Gamma-ray heating calculations.						
33. (762070)	^{27}Al	N,2N		1.5+7	15.0	3	MAP	M. Kasai
		Fusion. Potential constituent for structural material. Neutron multiplication calculations.						
34. (762071)	^{27}Al	N,PROTON		1.5+7	15.0	3	MAP	M. Kasai
		Fusion. Hydrogen accumulation calculations.						
35. (762072)	^{27}Al	N,DEUTERON		1.5+7	15.0	3	MAP	M. Kasai
		Fusion. Hydrogen accumulation calculations.						
36. (762073)	^{27}Al	N,TRITON		1.5+7	15.0	3	MAP	M. Kasai
		Fusion. Hydrogen accumulation calculations.						
37. (New)	^{30}Si	N,GAMMA	1.0-4	1.0+5	10.0	3	JAE	N. Aoyagi
		Fission. For doping ^{31}P into single crystal of Si by neutron irradiation to make semiconductor. Experimental data wanted. Only a few old data are available.						
38. (762177)	^{36}Ar	N,PROTON	THR	1.5+7	30.0	2	MAP	T. Nishimura
		Fission. For FBR safety analysis.						

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
39. (712006)	^{40}Ar	N,GAMMA		<1.0+7	<20.0	2	NIG	M. Kawai
		Fission. For reactor hazard calculation.						
40. (New)	^{39}K	N,PROTON	THR	1.5+7	30.0	2	MAP	T.Kawakita
		Fission. For reactor hazard calculation. Evaluated data wanted. There are many experimental data in MeV region.						
41. (762234)	Ca	ELASTIC	1.0+6	1.5+7	15.0	3	JAE	Y. Seki
		Fusion. Included in concrete. Shielding design.						
42. (762076)	Ca	DIFF ELASTIC	1.0+6	1.5+7	15.0	3	JAE	Y. Seki
		Fusion. Included in concrete. Shielding design.						
43. (762077)	Ca	N,GAMMA	THR	1.5+7	15.0	3	JAE	Y. Seki
		Fusion. Gamma-ray spectra also required. Included in concrete. Shielding design and gamma-ray heating calculation.						
44. (762078)	Ca	PHOTON PRODUCT	5.0+5	1.5+7	15.0	3	JAE	Y. Seki
		Fusion. Total photon production cross section wanted. Gamma-ray spectra also required. Included in concrete. Gamma-ray heating calculations.						
45. (762079)	Ti	INELASTIC		≤1.5+7	15.0	3	MAP	M. Kasai
		Fusion. Potential constituent of structural material. Neutron transport calculations.						
46. (762083)	Ti	PHOTON PRODUCT	THR	1.5+7	15.0	3	MAP	M. Kasai
		Fusion. Total photon production cross section wanted. Potential constituent of structural material. Gamma-ray heating calculations.						

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	MAX	ACCURACY (%)	P	LAB	REQUESTORS
47. (762080)	Ti	N,2N		≤1.5+7	15.0	3	MAP	M. Kasai
		Fusion. Potential constituent of structural material. Neutron multiplication calculations.						
48. (762081)	Ti	N,PROTON		≤1.5+7	15.0	3	MAP	M. Kasai
		Fusion. Potential constituent of structural material. Hydrogen accumulation calculations.						
49. (762082)	Ti	N,ALPHA		≤1.5+7	15.0	3	MAP	M. Kasai
		Fusion. Potential constituent of structural material. Helium accumulation calculations.						
50. (762084)	V	INELASTIC		1.5+7	10.0	2	MAP	M. Kasai
		Fusion. Potential constituent of structural material. Neutron transport calculations.						
51. (762088)	V	N,GAMMA	THR	1.5+7	10.0	2	MAP	K. Ioki
		Fusion. Potential constituent of structural material. Gamma-ray heating calculations.						
52. (762089)	V	PHOTON PRODUCT	THR	1.5+7	10.0	2	MAP	M. Kasai
		Fusion. Total photon production cross section wanted. Potential constituent of structural material. Gamma-ray heating calculations.						
53. (762085)	V	N,2N		≤1.5+7	10.0	2	MAP	M. Kasai
		Fusion. Potential constituent of structural material. Neutron multiplication calculations.						

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
54. (762086)	V	N,PROTON		≤1.5+7	10.0	2	MAP MAP	M. Kasai K. Ioki
		Fusion. Potential constituent of structural material. Hydrogen accumulation calculation.						
55. (762087)	V	N,ALPHA		≤1.5+7	10.0	2	MAP MAP	M. Kasai K. Ioki
		Fusion. Potential constituent of structural material. Helium accumulation and neutron transport calculations.						
56. (762091)	^{50}V	N,2N		≤1.5+7	10.0	3	MAP	M. Kasai
		Fusion Transmutation calculations.						
57. (762092)	^{50}V	N,ALPHA		≤1.5+7	10.0	3	MAP MAP	K. Ioki M. Kasai
		Fusion. Transmutation calculations.						
58. (762093)	Cr	INELASTIC		≤1.5+7	15.0	2	JAE	Y. Seki
		Fusion. Inelastic gamma-ray spectra also required. Neutron transport and gamma-ray heating calculations.						
59. (762094)	Cr	N,GAMMA		≤1.5+7	15.0	2	JAE	Y. Seki
		Fusion. Gamma-ray spectra also required. Gamma-ray heating calculations.						
60. (762095)	Cr	N,2N		≤1.5+7	15.0	2	JAE	Y. Seki
		Fusion. Neutron balance calculations.						
61. (762096)	Cr	N,PROTON		≤1.5+7	20.0	2	JAE	Y. Seki
		Fusion. Hydrogen accumulation calculations.						

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
62. (762097)	Cr	N,ALPHA		≤1.5+7	20.0	2	JAE	Y. Seki
	Fusion. Helium accumulation calculations.							
63. (762098)	^{52}Cr	N,2N		≤1.5+7	15.0	3	MAP	M. Kasai
	Fusion. Transmutation calculations.							
64. (762099)	Fe	INELASTIC		≤1.5+7	15.0	2	JAE	Y. Seki
	Fusion. Inelastic gamma-ray spectra also required. Neutron transport and gamma-ray heating calculations.							
65. (762100)	Fe	N,GAMMA	THR	≤1.5+7	15.0	2	JAE	Y. Seki
	Fusion. Gamma-ray spectra also required. Neutron transport and gamma-ray heating calculations.							
66. (762104)	Fe	PHOTON PRODUCT	THR	≤1.5+7	10.0	2	MAP	M. Kasai
	Fusion. Total photon production cross section wanted. Gamma-ray heating calculations.							
67. (762101)	Fe	N,2N		≤1.5+7	10.0	2	JAE	Y. Seki
	Fusion. Neutron multiplication calculations.							
68. (762102)	Fe	N,PROTON		≤1.5+7	20.0	2	JAE	Y. Seki
	Fusion. Hydrogen accumulation calculations.							
69. (762103)	Fe	N,ALPHA		≤1.5+7	20.0	2	JAE	Y. Seki
	Fusion. Helium accumulation calculations.							

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
70. (762179)	^{58}Fe	N,GAMMA	THR	1.5+7	20.0	2	NIG	M. Kawai
		Fission. Fission reactor calculations.						
71. (712028)	^{59}Co	ACTIVATION		≤1.0+7	20.0	2	NIG	M. Kawai
		Fission. For fuel cask design and control rod design.						
72. (762105)	Ni	INELASTIC		≤1.5+7	15.0	2	JAE MAP	Y. Seki M. Kasai
		Fusion. Inelastic gamma-ray spectra also required. Neutron transport and gamma-ray heating calculations.						
73. (762110)	Ni	N,GAMMA	THR	1.5+7	15.0	2	JAE	Y. Seki
		Fusion. Gamma-ray spectra also required. Gamma-ray heating calculations.						
74. (762111)	Ni	PHOTON PRODUCT	THR	1.5+7	10.0	2	MAP	M. Kasai
		Fusion. Total photon production cross section wanted. Gamma-ray heating calculations.						
75. (762106)	Ni	N,2N		≤1.5+7	15.0	2	JAE MAP	Y. Seki M. Kasai
		Fusion. Neutron balance calculations.						
76. (762107)	Ni	N,PROTON		≤1.5+7	20.0	2	JAE MAP	Y. Seki M. Kasai
		Fusion. Hydrogen accumulation calculations.						
77. (762109)	Ni	N,TRITON		≤1.5+7	15.0	3	MAP	M. Kasai
		Fusion. Transmutation calculations.						
78. (762108)	Ni	N,ALPHA		≤1.5+7	20.0	2	JAE	Y. Seki
		Fusion. Helium accumulation calculations.						

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
79. (762114)	Cu	N,GAMMA	THR	1.5+7	15.0	2	JAE	Y. Seki
	Fusion. Gamma-ray spectra also required. Gamma-ray heating in magnets.							
80. (762112)	Cu	PHOTON PRODUCT		≤1.5+7	15.0	2	JAE	Y. Seki
	Fusion. Photon production cross section in inelastic scattering. Gamma-ray spectra also required. Gamma-ray heating in magnets.							
81. (762113)	Cu	PHOTON PRODUCT	THR	1.5+7	15.0	2	JAE	Y. Seki
	Fusion. Total photon production cross section wanted. Gamma-ray spectra also required. Gamma-ray heating in magnets.							
82. (New)	^{64}Zn	N,GAMMA	THR	1.5+7	20.0	2	MAP	T. Kawakita
	Fission. For estimation of radioactivity of spent structural materials in fast reactors. Experimental data wanted. Both experimental and evaluated data are scarce.							
83. (762001)	^{87}Br	GAMMA RAY YIELD			10.0	3	TOS	H. Shimojima
	Safeguards. Yield per disintegration of 1419 keV gamma-ray required. (Following beta-decay event). Detection of failed fuel.							
84. (762002)	^{88}Br	GAMMA RAY YIELD			10.0	3	TOS	H. Shimojima
	Safeguards. Yield per disintegration of 767 keV gamma-ray required. (Following beta-decay event). Detection of failed fuel.							
85. (762003)	^{90}Kr	GAMMA RAY YIELD			10.0	3	TOS	H. Shimojima
	Safeguards. Yield per disintegration of major gamma-rays required. (Following beta-decay event). Detection of failed fuel.							

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
86. (752004)	^{93}Zr	N,GAMMA	1.0+2	5.0+5	20.0	2	NIG SAE	S. Iijima H. Matsunobu
	Fission. For fast reactor burn-up calculations. Resonance parameters also required. Only one resonance levels at 110 eV. No experimental data in keV region. More resonance data are required.							
87. (762115)	^{92}Nb	N,ALPHA		≤1.5+7	30.0	3	MAP	K. Ioki
	Fusion. Transmutation calculations.							
88. (762117)	^{93}Nb	INELASTIC		≤1.5+7	20.0	2	MAP	M. Kasai
	Fusion. ^{93m}Nb production cross section by inelastic scattering. Transmutation and neutron transport calculations. 15% accuracy required for neutron transport calculation.							
89. (762122)	^{93}Nb	N,GAMMA	THR	1.5+7	15.0	2	JAE	Y. Seki
	Fusion. Gamma-ray spectra also required. Gamma-ray heating calculations.							
90. (762123)	^{93}Nb	N,GAMMA	THR	1.5+7	20.0	3	MAP	M. Kasai
	Fusion. Capture cross section to ^{94m}Nb is requested. Transmutation calculations.							
91. (762124)	^{93}Nb	PHOTON PRODUCT	THR	1.5+7	15.0	2	JAE	Y. Seki
	Fusion. Total photon production cross section wanted. Gamma-ray spectra also requested. Gamma-ray heating calculations.							
92. (762118)	^{93}Nb	N,2N		≤1.5+7	10.0	2	MAP	M. Kasai
	Fusion. Neutron multiplication calculations.							
93. (762119)	^{93}Nb	N,PROTON		≤1.5+7	20.0	2	MAP MAP	M. Kasai K. Ioki
	Fusion. Hydrogen accumulation calculations.							

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
94. (762120)	^{93}Nb	N,ALPHA		≤1.5+7	15.0	2	MAP MAP	M. Kasai K. Ioki
	Fusion. Helium accumulation calculations.							
95. (762121)	^{93}Nb	ALPHA PRODUCT		≤1.5+7	15.0	2	MAP	K. Ioki
	Fusion. Total alpha production cross section wanted. Helium accumulation calculations.							
96. (762125)	^{94}Nb	N,GAMMA	THR	1.5+7	10.0	3	MAP	M. Kasai
	Fusion. Transmutation calculations.							
97. (762235)	Mo	ELASTIC	1.0+6	1.5+7	10.0	2	JAE	Y. Seki
	Fusion. Cross section for each isotope are requested. Neutron transport calculations.							
98. (762126)	Mo	DIFF ELASTIC	1.0+6	1.5+7	10.0	2	JAE	Y. Seki
	Fusion. Cross section for each isotope are also requested. Neutron transport calculations.							
99. (762236)	Mo	INELASTIC		≤1.5+7	15.0	2	JAE	Y. Seki
	Fusion. Cross sections for each isotope are requested. Gamma-ray spectra also required. Neutron transport calculations.							
100. (762127)	Mo	DIFF INELASTIC		≤1.5+7	15.0	2	JAE	Y. Seki
	Fusion. Energy differential inelastic cross section wanted. Cross sections for each isotope are also requested. Gamma-ray spectra also required. Neutron transport calculations.							
101. (762131)	Mo	N,GAMMA	1.0+6	1.5+7	15.0	2	JAE MAP	Y. Seki K. Ioki
	Fusion. Cross sections for each isotope are also requested. Gamma-ray spectra also required. Neutron balance and gamma-ray heating calculation.							

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
102. (762128)	Mo	N,2N		≤1.5+7	10.0	2	JAE	Y. Seki
		Fusion. Cross sections for each isotope are also requested. Neutron transport calculatins.						
103. (762129)	Mo	N,PROTON		≤1.5+7	10.0	2	JAE MAP JAE	Y. Seki K. Ioki H. Iida
		Fusion. Cross sections for each isotope are also requested. Especially, data of $^{95,96}Mo$ are required for estimation of dose rates around the molybdenum structure. Hydrogen accumulation calculation and for calculation of induced activities.						
104. (762130)	Mo	N,ALPHA		≤1.5+7	20.0	2	JAE MAP	Y. Seki K. Ioki
		Fusion. Cross sections for each isotope are also requested. Helium accumulation calculations.						
105. (762181)	^{92}Mo	N,GAMMA	THR	1.0+5	20.0	2	MAP	T. Hojuyama
		Fission. For fast reactor calculations.						
106. (762132)	^{92}Mo	N,GAMMA	THR	1.5+7	10.0	2	MAP	K. Ioki
		Fusion. Neutron balance and transmutation calculations.						
107. (New)	^{92}Mo	N,PN		≤1.5+7	20.0	2	JAE	H. Iida
		Fusion. For calculation of induced activities around molybdenum structures. Experimental data required.						
108. (762183)	^{94}Mo	TOTAL	THR	1.5+6	10.0	2	MAP	T. Hojuyama
		Fission. For fast reactor calculations.						
109. (762184)	^{94}Mo	N,GAMMA	THR	1.0+5	20.0	2	MAP	T. Hojuyama
		Fission. For fast reactor calculations.						

REF	NUCLIDE	QUANTITY	ENERGY(EV) MIN	ENERGY(EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
110. (762186)	^{94}Mo	N,PROTON	TR	1.5+7	30.0	2	MAP	T. Hojuyama
	Fission. For fast reactor calculations.							
111. (762187)	^{94}Mo	N,ALPHA	THR	1.5+7	30.0	2	MAP	T. Hojuyama
	Fission. For fast reactor calculations.							
112. (762133)	^{94}Mo	N,2N		≤1.5+7	10.0	2	MAP	K. Ioki
	Fusion. Neutron balance and transmutation calculations.							
113. (762188)	^{95}Mo	TOTAL	THR	1.5+7	10.0	2	MAP	T. Hojuyama
	Fission. For fast reactor calculations.							
114. (762189)	^{95}Mo	INELASTIC	TR	1.5+7	20.0	2	MAP	T. Hojuyama
	Fission. For fast reactor calculations.							
115. (762191)	^{95}Mo	N,ALPHA	THR	1.5+7	20.0	2	MAP	T. Hojuyama
	Fission. For fast reactor calculations.							
116. (762193)	^{96}Mo	N,GAMMA	THR	1.0+5	20.0	2	MAP	T. Hojuyama
	Fission. For fast reactor calculations.							
117. (762195)	^{96}Mo	N,ALPHA	THR	1.5+7	30.0	2	MAP	T. Hojuyama
	Fission. For fast reactor calculations.							
118. (762196)	^{97}Mo	TOTAL	THR	1.0+5	10.0	2	MAP	T. Hojuyama
	Fission. For fast reactor calculations.							

REF	NUCLIDE	QUANTITY	ENERGY(EV) MIN	ENERGY(EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
119. (762197)	^{97}Mo	INELASTIC	TR	1.5+7	30.0	2	MAP	T. Hojuyama
		Fission. For fast reactor calculations.						
120. (762198)	^{97}Mo	N,ALPHA	THR	1.5+7	30.0	2	MAP	T. Hojuyama
		Fission. For fast reactor calculations.						
121. (762200)	^{98}Mo	N,ALPHA	THR	1.5+7	30.0	2	MAP	T. Hojuyama
		Fission. For fast reactor calculations.						
122. (762203)	^{100}Mo	N,PROTON	TR	1.5+7	30.0	2	MAP	T. Hojuyama
		Fission. For fast reactor calculations.						
123. (762204)	^{100}Mo	N,ALPHA	THR	1.5+7	30.0	2	MAP	T. Hojuyama
		Fission. For fast reactor calculations.						
124. (752007)	^{99}Tc	N,GAMMA	1.0+2	5.0+5	10.0	1	NIG SAE	S. Iijima H. Matsunobu
		Fission. For fast reactor burn-up calculations. Only one set of data below 50 keV. Experimental data required.						
125. (752008)	^{101}Ru	N,GAMMA	1.0+2	5.0+5	10.0	1	NIG SAE	S. Iijima H. Matsunobu
		Fission. For fast reactor burn-up calculations. Evaluations are very discrepant. Experimental data required.						
126. (New)	^{103}Ru	N,GAMMA	1.0+2	5.0+5	20.0	2	NIG	S. Iijima
		Fission. For fast reactor calculation, 40 days life time. Very large discrepancies between evaluations. No experimental data at all. Experimental data wanted.						

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
127. (722002)	^{103}Ru	GAMMA RAY YIELD			10.0	2	JAE	K. Tasaka
		Safeguards. Yields per disintegration of 497 and 610 keV gamma-ray required. (Following beta-decay event). For burn-up calculation from non-destructive measurement.						
128. (722004)	^{106}Rh	GAMMA RAY YIELD			1.0	2	JAE	K. Tasaka
		Safeguards. Yield per disintegration of 512,616,622 and 1050 keV gamma-rays required. (Following beta-decay event). For burn-up calculation from non-destructive measurement.						
129. (752011)	^{105}Pd	N,GAMMA	1.0+2	5.0+5	10.0	1	NIG SAE	S. Iijima H. Matsunobu
		Fission. For fast reactor burn-up calculation. Data between 160 eV and a few keV are lacking. Experimental and/or evaluated data required.						
130. (752012)	^{107}Pd	N,GAMMA	1.0+2	5.0+5	10.0	1	NIG SAE	S. Iijima H. Matsunobu
		Fission. For fast reactor burn-up calculation. Evaluations are very discrepant. No experimental data in keV region. Experimental data wanted.						
131. (752013)	^{109}Ag	N,GAMMA	1.0+2	5.0+5	10.0∿20.0	2	NIG SAE	S. Iijima H. Matsunobu
		Fission. For fast reactor burn-up calculation. Discrepant series of data in keV region. Experimental data required. Data are also available for ^{107}Ag and natural Ag.						
132. (New)	^{115}In	PHOTON INELA	5.0+5	1.0+7	20.0	3	TKO	Y. Oka
		Fission. Correction of ^{115m}In production through $^{115}In(n,n')^{115m}In$. Experimental data of $^{115}In(\gamma,\gamma')^{115m}In$ cross section wanted. Analysis of shielding experiments. Shielding and neutron dosimetry.						

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
133. (762205)	^{121}Sb	N,GAMMA	THR	1.5+7	15.0	2	MAP	T. Hojuyama
		Fission. For neutron source calculations. For estimation of gamma-ray heating in Sb-Be.						
134. (762206)	^{123}Sb	N,GAMMA	THR	1.5+7	15.0	2	MAP	T. Hojuyama
		Fission. For neutron source calculations.						
135. (New)	^{124}Sb	N,GAMMA	THR		20.0	3	JAE	K. Nishimura
		Fission. For estimation of ^{124}Sb production in Sb-Be neutron source. Very large discrepancy exists among experimental data. Experimental data required.						
136. (722006)	^{125}Sb	GAMMA RAY YIELD			1.0	2	JAE	K. Tasaka
		Safeguards. Yield per disintegration of 176,381,428,464,601,607,636 and 672 keV gamma-ray required. (Following beta-decay event). For burn-up calculation from non-destructive measurement.						
137. (762004)	^{135}I	GAMMA RAY YIELD			10.0	3	TOS	H. Shimojima
		Safeguards. Yield per disintegration of 527,1132,1260 and 1458 keV gamma-rays required. (Following beta-decay event). Detection of failed fuel.						
138. (762005)	^{137}I	GAMMA RAY YIELD			10.0	3	TOS	H. Shimojima
		Safeguards. Yield per disintegration of major gamma-rays required. (Following beta-decay event). Detection of failed fuel.						
139. (762006)	^{138}I	GAMMA RAY YIELD			10.0	3	TOS	H. Shimojima
		Safeguards. Yield per desintegration of 589 keV gamma-ray required. (Following beta-decay event). Detection of failed fuel.						

REF	NUCLIDE	QUANTITY	ENERGY(EV) MIN	MAX	ACCURACY (%)	P	LAB	REQUESTORS
140. (762013)	^{139}I	HALF LIFE			10.0	3	TOS	H. Shimojima
		Safeguards. Detection of failed fuel.						
141. (762007)	^{139}I	GAMMA RAY YIELD			10.0	3	TOS	H. Shimojima
		Safeguards. Yield per disintegration of major gamma-rays required. (Following beta-decay event). Detection of failed fuel.						
142. (752014)	^{131}Xe	N,GAMMA	1.0+2	4.0+5	20.0	1	NIG SAE	S. Iijima H. Matsunobu
		Fission. For fast reactor burn-up calculations. Evaluations are very discrepant. No experimental data in keV region. Experimental and evaluated data wanted. Resonance parameters also required.						
143. (762008)	^{139}Xe	GAMMA RAY YIELD			10.0	3	TOS	H. Shimojima
		Safeguards. Yield per disintegration of 175,219,290,297 and 393 keV gamma-rays required. (Following beta-decay event). Detection of failed fuel.						
144. (752015)	^{133}Cs	N,GAMMA	1.0+2	5.0+5	10.0	1	NIG SAE	S. Iijima H. Matsunobu
		Fission. For fast reactor burn-up calculation. Many resonance data, but systematic discrepancy between data sets in keV region. Experimental and evaluated data wanted.						
145. (722021)	^{133}Cs	N,GAMMA	THR	1.4+7	3.0	1	JAE	H. Okashita
		Safeguards. For burn-up calculation from non-destructive measurement. Resonance integral also wanted.						
146. (722007)	^{134}Cs	GAMMA RAY YIELD			1.0	2	JAE	H. Okashita
		Safeguards. YIELD per disintegration of 563,569,796,802 and 1365 keV gamma-rays required. (Following beta-decay event). For burn-up calculation from non-destructive measurement.						

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
147. (722022)	^{134}Cs	N,GAMMA	THR		3.0	1	JAE	H. Okashita
		Safeguards. For burn-up calculation from non-destructive measurement. Resonance integral also wanted.						
148. (762024)	^{134}Cs	N,GAMMA	THR	1.0+7	20.0	1	JAE	K. Tasaka
		Safeguards. Cross-section values at higher neutron energies are needed, as well as at thermal energy. 10% accuracy for 25.3 mV, and 20% accuracy for higher energy region. Burn-up determination based on absolute measurement of activity ratio $^{134}Cs/^{137}Cs$. Estimation of the decay power of fission products.						
149. (752016)	^{135}Cs	N,GAMMA	1.0+2	5.0+5	10.0	1	NIG SAE	S. Iijima H. Matsunobu
		Fission. For fast reactor burn-up calculation. Evaluations are very discrepant. No experimental data at all. Experimental data wanted.						
150. (762207)	^{133}Ba	MISCELLA			3.0	3	TIT	K. Hisatake
		Fission. Relative yields of 53.2, 79.6, 81.0, 160.6, 276.4, 302.0 and 356.0 keV gamma-rays. Intensity standards for gamma-ray measurements.						
151. (722009)	^{140}La	GAMMA RAY YIELD			1.0	2	JAE	K. Tasaka
		Safeguards. Yield per disintegration of 328.8, 487.0, 815.8, and 2522.0 keV gamma-rays required. (Following beta-decay event). For burn-up calculation from non-destructive measurement.						
152. (722011)	^{144}Ce	GAMMA RAY YIELD			1.0	2	JAE	H. Okashita
		Safeguards. Yield per disintegration of 133.5 keV gamma-ray required. (Following beta-decay event). For burn-up calculation from non-destructive measurement.						

REF	NUCLIDE	QUANTITY	ENERGY(EV) MIN	ENERGY(EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
153. (722023)	^{141}Pr	N,GAMMA	THR	1.4+7	3.0	1	JAE	H. Okashita
		Safeguards. Resonance integral also wanted. For burn-up calculation from destructive measurement.						
154. (722012)	^{144}Pr	GAMMA RAY YIELD			1.0	1	JAE	H. Okashita
		Safeguards. Yield per disintegration of 696.5, 1498.1 and 2165.7 keV gamma-rays required. (Following beta-decay event). For burn-up calculation from non-destructive measurement.						
155. (752017)	^{143}Nd	N,GAMMA	1.0+2	4.0+5	20.0	1	NIG SAE	S. Iijima H. Matsunobu
		Fission. For fast reactor calculations. Desired with lower priority for wider energy range. No experimental data between 100 eV and 400 keV.						
156. (752018)	^{145}Nd	N,GAMMA	1.0+2	4.0+5	20.0	1	NIG SAE	S. Iijima H. Matsunobu
		Fission. For fast reactor calculations. Desired with lower priority for wider energy range. No experimental data from 100 eV to 400 keV.						
157. (752019)	^{147}Pm	N,GAMMA	1.0+2	5.0+5	10.0	1	NIG SAE	S. Iijima H. Matsunobu
		Fission. For fast reactor calculations. There are many resonances, but no keV data. Experimental data required.						
158. (752020)	^{149}Sm	N,GAMMA	1.0+2	5.0+5	10.0	1	NIG SAE	S. Iijima H. Matsunobu
		Fission. For fast reactor burn-up calculation. Many resonances up to 250 eV. Discrepancy between STEK data and recent differential data. Experimental data wanted.						
159. (752021)	^{151}Sm	N,GAMMA	1.0+2	5.0+5	10.0	2	NIG SAE	S. Iijima H. Matsunobu
		Fission For fast reactor burn-up calculations. Resonance parameters wanted also. Experimental data required.						

REF	NUCLIDE	QUANTITY	ENERGY(EV) MIN	ENERGY(EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
160. (722038)	^{153}Eu	N,GAMMA	THR	1.4+7	5.0	1	JAE	H. Okashita
		Safeguards. Resonance integral also wanted. For burn-up calculation from non-destructive measurement.						
161. (722039)	^{154}Eu	N,GAMMA	THR		5.0	1	JAE	H. Okashita
		Safeguards. Resonance integral also wanted. For burn-up calculation from non-destructive measurement.						
162. (722015)	^{155}Eu	GAMMA RAY YIELD			1.0	2	JAE	K. Tasaka
		Safeguards. Yield per disintegration of 86.5 and 105.3 keV gamma-rays required. (Following beta-decay event). For burn-up calculation from non-destructive measurement.						
163. (New)	^{182}Ta	N,GAMMA	THR		10.0	3	KTO	M. Koyama
		Fission. For estimation of neutron fluence and spectrum. Experimental data required.						
164. (New)	^{198}Au	N,GAMMA	THR		10.0	3	KTO	M. Koyama
		Fission. For estimation of neutron fluence and spectrum. Experimental data required.						
165. (762134)	Pb	PHOTON PRODUCT	THR	1.5+7	15.0	2	JAE	Y. Seki
		Fusion. Total photon production cross section wanted. Gamma-ray spectra also required. An upper limit of the cross section or accuracy 20 % useful. Neutron energy resolution 300 keV above 100 keV and 10 % otherwise. Gamma energy resolution 1 MeV. Shielding design and gamma-ray heating calculation.						
166. (New)	^{206}Pb	N,ALPHA		≤1.5+7	20.0	2	JAE	H. Iida
		Fusion. For fusion reactor shielding calculation, and for calculation of residual activity. No experimental data except for a few at 14 MeV. Experimental data wanted.						

REF	NUCLIDE	QUANTITY	ENERGY(EV) MIN	ENERGY(EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
167. (762208)	^{233}Pa	N,GAMMA	2.0+1	1.5+7	10.0	1	JAE	R. Shindo
		Fission. For burn-up calculation of thorium fueled thermal reactors.						
168. (New)	^{233}U	N,GAMMA	1.0+6	2.0+7	10.0	1	SAE	N. Asano
		Fission. For fission reactor calculations. Experimental data wanted.						
169. (New)	^{233}U	N,2N	TR	2.0+7	10.0	1	SAE	N. Asano
		Fission. For fission reactor calculations. Experimental data wanted.						
170. (682055)	^{235}U	N,GAMMA	1.0+6	1.0+7	5.0∿10.0	1	JAE SAE	S. Katsuragi H. Matsunobu
		Fission. For fast reactors. Alpha-value also desired. For nuclear data evaluation. Resolution 1∿2% desired. No experimental data above 2.6 MeV.						
171. (762034)	^{235}U	FP MASS YIELD	4.0+6	1.4+7	10.0	3	KKU	R. Miki
		Safeguards. Fission product mass yield spectrum required. Total fission yield produced by bremsstrahlung required. Yield may be in the unit of yield Roentgen × Nucleus or relative to ^{238}U or other photo-activation yields. Bremsstrahlung converter (preferably Ta) of sufficient thickness to stop electrons. Non-destructive assay of U.						
172. (762042)	^{235}U	FP MASS YIELD	4.0+6	1.4+7	5.0	3	KKU	R. Miki
		Safeguards. Fission product mass yield spectrum. Cumulative yields of high fission yield isotopes. Bremsstrahlung converter (preferably Ta) of sufficient thickness to stop electrons. Non-destructive assay of nuclear materials.						
173. (762046)	^{235}U	NU-DELAYED	THR	1.0+7	5.0	2	NIG	T. Murata
		Safeguards. The requested quantities are the group half-lives and group yields (normalized to 1 fission) whick can be used to fit the decay curve of delayed neutrons for the time range 0.1∿300 sec within an accuracy of 5 %. Incident energy step less than 2 MeV. Active assay of mixed fresh and irradiated fuel.						

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
174. (722040)	^{236}U	N,GAMMA	THR	1.4+7		2	JAE	Y. Naito
		Safeguards. Accuracy required at thermal is 3 %, 10 % above. For burn-up calculation of a Pu loaded thermal reactor.						
175. (New)	^{237}U	GAMMA RAY YIELD			5.0	2	NIR NIR	Y. Noda H. Okabayashi
		Safeguards. Spontaneous gamma-ray yield. Radiation dose calculation for ^{241}Pu daughter. Yield per disintegration of 59.5 and 208 keV gamma-rays.						
176. (762035)	^{238}U	FP MASS YIELD	4.0+6	1.4+7	10.0	3	KKU	R. Miki
		Safeguards. Fission product mass yield spectrum wanted. Total fission yield produced by bremsstrahlung required. Yield may be in the unit of Yield/Roentgen×Nucleus or relative to other photo-activation yields. Bremsstrahlung converter (preferably Ta) sufficient thickness to stop electrons. Non-destructive assay of U.						
177. (762043)	^{238}U	FP MASS YIELD	4.0+6	1.4+7	5.0	3	KKU	R. Miki
		Safeguards. Fission product mass yield spectrum wanted. Cumulative yields of high fission yield isotopes. Non-destructive assay of nuclear materials.						
178. (762047)	^{238}U	NU-DELAYED	THR	1.0+7	5.0	2	NIG	T. Murata
		Safeguards. The requested quantities are the group half-lives and group yields (normalized to 1 fission) which can be used to fit the decay curve of delayed neutrons for the time range 0.1∿300 sec within an accuracy of 5 %. Incident energy step less than 2 MeV. Active assay of mixed fresh and irradiated fuel.						
179. (762044)	^{238}U	FP MASS YIELD			10.0	3	TOS	H. Shimojima
		Safeguards. Fission product mass yield spectrum wanted. Cumulative yields of ^{87}Br, ^{87}Br, ^{90}Kr, ^{137}I, ^{138}I, ^{139}I, ^{137}Xe, ^{138}Xe for fission neutron and 1∿14 MeV neutron spectra. Detection of failed fuel.						

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	MAX	ACCURACY (%)	P	LAB	REQUESTORS
180. (New)	^{237}Np	N,GAMMA	THR	1.0+3	10.0	1	PNC	I. Otake
		Fission. For burn-up calculation of thermal and fast reactors. Resonance parameters are also required. Experimental data wanted. Evaluation desirable.						
181. (New)	^{237}Np	N,GAMMA	1.0+3	1.5+7	20.0	1	PNC	I. Otake
		Fission. For burn-up calculation of thermal and fast reactors. Experimental data required. Evaluation desirable.						
182. (762135)	^{237}Np	FISSION		1.5+7	1.0	2	JAE	Y. Seki
		Fusion. Ratio to ^{235}U fission useful. Accuracy 3 % useful. Neutron energy resolution 300 keV. For monitor reaction and radiation dosimetry in neutronics experiments on blanket system of fusion reactors.						
183. (712075)	^{239}Np	N,GAMMA	1.0+4	5.0+6	20.0	2	KYU	M. Ohta
		Fission. For burn-up calculation. For normalization of calculated capture cross section.						
184. (762209)	^{239}Np	N,GAMMA	THR	1.5+7	20.0	2	JAE	R. Shindo
		Fission. For burn-up calculation of thermal reactor.						
185. (762025)	^{239}Np	N,GAMMA	THR	1.0+7	10.0	3	NFI	M. Yada
		Safeguards. For high burn-up calculation.						
186. (762032)	^{239}Np	FISSION	THR	1.0+7	25.0	3	NFI	M. Yada
		Safeguards. The values of Nu also wanted. 10 % accuracy is desirable for application. No experimental data. Burn-up analysis of fast breeder reactors.						

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
187. (New)	^{238}Pu	N,GAMMA	THR	5.0+2	20.0	2	PNC	I. Otake
		Fission. Burn-up calculation of thermal and fast reactors. Experimental data desired. Evaluated data also required.						
188. (New)	^{238}Pu	N,GAMMA	5.0+2	1.5+7	10.0	2	PNC	I. Otake
		Fission. Burn-up calculation of thermal and fast reactors. Experimental data desired. Evaluated data also required.						
189. (762014)	^{238}Pu	FISSION HALF LIFE			1.0	2	MAP	K. Onishi
		Safeguards. Detection of Pu by neutron coincidence method.						
190. (762009)	^{238}Pu	GAMMA RAY YIELD			1.0	1	JAE	T. Suzuki
		Safeguards. Yield per disintegration of 43.45, 99.7, 152.7 keV gamma-rays required. (Following alpha-decay event). Though present status of accuracy seemed to meet the requirement, confirmation is required. Assay of Pu-isotopes by gamma-ray spectroscopy.						
191. (762036)	^{238}Pu	FP MASS YIELD	4.0+6	1.4+7	10.0	3	KKU	R. Miki
		Safeguards. Fission product mass yield spectrum wanted. Total fission yield produced by bremsstrahlung. Bremsstrahlung converter (preferably Ta) of sufficient thickness to stop electrons. No experimental data. Non-destructive assay of U.						
192. (762018)	^{238}Pu	MISCELLA			0.5	1	MAP	K. Onishi
		Safeguards. Decay heat (W/G) required. Assay of Pu by calorimetry.						
193. (762210)	^{239}Pu	TOTAL	1.0+4	1.0+5	2.0	1	NIG	M. Kawai
		Fission. For fission reactors.						

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
194. (762211)	^{239}Pu	FISSION	1.0+4	2.0+7	3.0	1	NIG	M. Kawai
		Fission. For fission reactor.						
195. (702037)	^{239}Pu	NU-BAR		≤1.5+7	<0.2	1	NIG	M. Kawai
		Fission. For fast reactor calculations.						
196. (762015)	^{239}Pu	FISSION HALF LIFE			1.0	2	MAP	K. Onishi
		Safeguards. Detection of Pu by neutron coincidence method.						
197. (762010)	^{239}Pu	GAMMA RAY YIELD			1.0	1	JAE	T. Suzuki
		Safeguards. Yield per disintegration of 45.2, 104.2 and 642.3 keV gamma-rays required. (Following alpha-decay event). Though present status of accuracy seemed to meet the requirement, confirmation is required. Assay of Pu-isotopes by gamma-ray spectroscopy.						
198. (762037)	^{239}Pu	FP MASS YIELD	4.0+6	1.4+7	10.0	3	KKU	R. Miki
		Safeguards. Fission product mass yield spectrum required. Total fission yield produced by bremsstrahlung required. Yield may be in the unit of Yield/Roentgen×Nucleus or relative to ^{238}U or other photo-activation yields. Bremsstrahlung converter (preferably Ta) of sufficient thickness to stop electrons. Non-destructive assay of Pu.						
199. (762045)	^{239}Pu	FP MASS YIELD	4.0+6	1.4+7	5.0	3	KKU	R. Miki
		Safeguards. Fission product mass yield spectrum wanted. Cumulative yields of high fission yield isotopes. Bremsstrahlung converter (preferably Ta) of sufficient thickness to stop electrons. Non-destructive assay of Pu.						
200. (722046)	^{239}Pu	ALPHA	THR	1.4+7		2	JAE	Y. Naito
		Safeguards. Capture to fission ratio. Accuracy required at thermal is 1 %, 5 % above. For burn-up calculation of a Pu loaded thermal reactor.						

REF	NUCLIDE	QUANTITY	ENERGY(EV) MIN	ENERGY(EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
201. (722048)	^{239}Pu	NU-BAR	THR		0.5	2	JAE	Y. Naito
		Safeguards. Data wanted for epi-thermal neutrons also. For burn-up calculation of a Pu loaded thermal reactor.						
202. (762048)	^{239}Pu	NU-DELAYED	THR	1.0+7	5.0	2	NIG	T. Murata
		Safeguards. The requested quantities are the group half-lives and group yields (normalized to 1 fission) which can be used to fit the decay curve of delayed neutrons for the time range 0.1∿300 sec within an accuracy of 5 %. Incident energy step less than 2 MeV. Active assay of mixed fresh and irradiated fuel.						
203. (762019)	^{239}Pu	MISCELLA			0.5	1	MAP	K. Onishi
		Safeguards. Decay heat (W/G) required. Assay of Pu by calorimetry.						
204. (762016)	^{240}Pu	FISSION HALF LIFE			1.0	2	MAP	K. Onishi
		Safeguards. Detection of Pu by neutron coincidence method.						
205. (762011)	^{240}Pu	GAMMA RAY YIELD			1.0	2	JAE	T. Suzuki
		Safeguards. Yield per disintegration of 45.2, 104.2 and 642.3 keV gamma-rays required. (Following alpha-decay event). Though present status of accuracy seemed to meet the requirement, confirmation is required. Assay of Pu-isotopes by gamma-ray spectroscopy.						
206. (762038)	^{240}Pu	FP MASS YIELD	4.0+6	1.4+7	10.0	3	KKU	R. Miki
		Safeguards. Fission product mass yield spectrum required. Total fission yield produced by bremsstrahlung required. Yield may be in the unit of Yield/Roentgen×Nucleus or relative to ^{238}U or other photo-activation yields. Bremsstrahlung converter (preferably Ta) of sufficient thickness to stop electrons. No experimental data. Non-destructive assay of Pu.						

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	MAX	ACCURACY (%)	P	LAB	REQUESTORS
207. (762049)	^{240}Pu	NU-DELAYED	THR	1.0+7	5.0	2	NIG	T. Murata
		Safeguards. The requested quantities are the group half-lives and group yields (normalized to 1 fission) which can be used to fit the decay curve of delayed neutrons for the time range 0.1∿300 sec within an accuracy of 5 %. Incident energy step less than 2 MeV. Active assay of mixed fresh and irradiated fuel.						
208. (762020)	^{240}Pu	MISCELLA			0.5	1	MAP	K. Onishi
		Safeguards. Decay heat (W/G) required. Assay of Pu by calorimetry.						
209. (762214)	^{240}Pu	N,GAMMA	1.0+3	5.0+5	10.0	1	MAP	Y. Seki
		Fission. For evaluation of breeding ratio and burn-up reactivity change in fast reactor calculations.						
210. (762213)	^{240}Pu	FISSION	THR	1.0+6	10.0	1	MAP	M. Sasaki
		Fission. For fast reactor calculations.						
211. (762215)	^{240}Pu	RES PARAM	1.0+1	1.0+4		1	MAP	M. Sasaki
		Fission. For fast reactor calculations.						
212. (762216)	^{241}Pu	TOTAL	1.0+2	1.5+7	10.0	1	MAP	T. Hojuyama
		Fission. For fast reactor calculations.						
213. (762217)	^{241}Pu	N,GAMMA	1.0-1	1.5+7	8.0	1	MAP	T. Hojuyama
		Fission For fast reactor calculations.						
214. (762221)	^{241}Pu	N,2N	TR	1.5+7	20.0	2	MAP	T. Hojuyama
		Fission For fast reactor calculations.						

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
215. (762219)	^{241}Pu	ALPHA	1.0-1	1.5+7	8.0	1	MAP	T. Hojuyama
		Fission. For fast reactor calculations.						
216. (762222)	^{241}Pu	RES PARAM	2.0-1	2.0+2	10.0	1	MAP	T. Hojuyama
		Fission. For fast reactor calculations. 10% in fission width.						
217. (762012)	^{241}Pu	GAMMA RAY YIELD			5.0	1	JAE	T. Suzuki
		Safeguards. Yield per disintegration of 56.4, 77, 103.5, 148.6 and 160 keV gamma-rays required. (Following alpha-decay event). 1 % accuracy for 103.5 and 148.6 keV gamma-rays, 5 % accuracy for 56.4, 77 and 160 keV gamma-rays. Though present status of accuracy seemed to meet the requirement, confirmation is required. Assay of Pu-isotopes by gamma-ray spectroscopy.						
218. (762039)	^{241}Pu	FP MASS YIELD	4.0+6	1.4+7	10.0	3	KKU	R. Miki
		Safeguards. Fission product mass yield spectrum wanted. Total fission yield produced by bremsstrahlung required. Yield may be in the unit of Yield/Roentgen×Nucleus or relative to ^{238}U or other photo-activation yields. Bremsstrahlung converter (preferably Ta) of sufficient thickness to stop electrons. Non-destructive assay of Pu.						
219. (722047)	^{241}Pu	ALPHA	THR	1.4+7		2	JAE	Y. Naito
		Safeguards. Accuracy required at thermal is 1 %, 5 % above. For burn-up calculation of a Pu loaded thermal reactor.						
220. (762051)	^{241}Pu	NU-DELAYED	THR	1.0+7	5.0	2	NIG	T. Murata
		Safeguards. The requested quantities are the group half-lives and group yields (normalized to 1 fission) which can be used to fit the decay curve of delayed neutrons for the time range 0.1 300 sec within an accuracy of 5 %. Active assay of mixed fresh and irradiated fuel. Incident energy step less than 2 MeV.						

REF	NUCLIDE	QUANTITY	ENERGY(EV) MIN	ENERGY(EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
221. (762021)	^{241}Pu	MISCELLA			0.5	1	MAP	K. Onishi
		Safeguards. Decay heat (W/G) required. Assay of Pu by calorimetry.						
222. (762223)	^{242}Pu	N,GAMMA	1.0+3	1.5+7	10.0	2	MAP	T. Hojuyama
		Fission. For shielding of spent fuel.						
223. (762224)	^{242}Pu	FISSION	1.0+3	1.5+7	10.0	2	MAP	T. Hojuyama
		Fission. For shielding of spent fuel.						
224. (762017)	^{242}Pu	FISSION HALF LIFE			1.0	2	MAP	K. Onishi
		Safeguards. Detection of Pu by neutron coincidence method.						
225. (722043)	^{242}Pu	N,GAMMA	THR	1.4+7		2	JAE	Y. Naito
		Safeguards. Accuracy required at thermal is 5 %, 10 % above. For burn-up calculation of a Pu loaded thermal reactor.						
226. (762022)	^{242}Pu	MISCELLA			0.5	1	MAP	K. Onishi
		Safeguards. Decay heat (W/G) required. Assay of Pu by calorimetry.						
227. (752032)	^{241}Am	N,GAMMA	1.0-2	2.0+1	5.0~10.0	1	PNC SAE MAP	R. Yumoto H. Matsunobu T. Hojuyama
		Fission. Burn-up calculation of thermal and fast reactors, and estimation for build-up of transuranium nuclides in spent fuel. Neutron shielding design for transport cask of spent fuel. Energy dependence wanted.						

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
228. (752033)	^{241}Am	N,GAMMA	2.0+1	1.5+7	10.0	1	PNC SAE MAP	R. Yumoto H. Matsunobu T. Hojuyama

Fission.
Burn-up calculation of thermal and fast reactors, and estimation for build-up of transuranium nuclides in spent fuel. Capture cross sections to the ground and isomer states of ^{242}Am. Neutron shielding design for transport cask of spent fuel.

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
229. (762040)	^{241}Am	FP MASS YIELD	4.0+6	1.4+7	10.0	3	KKU	R. Miki

Safeguards.
Fission product mass yield spectrum wanted. Total fission yield produced by bremsstrahlung required. Yield may be in the unit of Yield/Roentgen×Nucleus or relative to ^{238}U or other photo-activation yields. Bremsstrahlung converter (preferably Ta) of sufficient thickness to stop electrons. Non-destructive assay of Pu.

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
230. (762023)	^{241}Am	MISCELLA			0.5	1	MAP	K. Onishi

Safeguards.
Decay heat (W/G) required. Assay of Pu by calorimetry.

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
231. (752036)	^{242}Am	N,GAMMA	THR	1.0+5	5.0∿20.0	1	PNC SAE JAE	R. Yamoto H. Matusnobu R. Shindo

Fission.
Burn-up calculation of thermal and fast reactors, and estimation for build-up of transuranium nuclides in spent fuel. Capture cross sections of the ground and isomer states of ^{242}Am. Neutron shielding design for transport cask of spent fuel.

REF	NUCLIDE	QUANTITY	ENERGY (EV) MIN	ENERGY (EV) MAX	ACCURACY (%)	P	LAB	REQUESTORS
232. (722945)	^{242m}Am	N,GAMMA	THR	1.4+7		2	JAE	Y. Naito

Safeguards.
Accuracy required at thermal is 10 percent, 20 percent above.
For burn-up calculation of a Pu loaded thermal reactor.

REF	NUCLIDE	QUANTITY	ENERGY(EV) MIN	MAX	ACCURACY (%)	P	LAB	REQUESTORS
233. (762026)	^{242m}Am	N,GAMMA	THR	1.0+7	10.0	3	NFI	M. Yada
		Safeguards. No measurements of capture cross section but a few data of fission cross section are available. For higher burn-up calculations.						
234. (762033)	^{242m}Am	FISSION	THR	1.0+7	5.0	3	NFI	M. Yada
		Safeguards. The value of Nu also wanted. 10 % accuracy is desirable for application. No experimental data. The values of fission cross section and Nu are known within an error of 5 % at 25.3 meV. Burn-up analysis of fast breeder reactors.						
235. (752038)	^{243}Am	N,GAMMA	2.0+1	1.5+7	1.5∿20.0	1	PNC SAE JAE MAP	R. Yumoto H. Matsunobu R. Shindo T. Hojuyama
		Fission. Burn-up calculation of thermal and fast reactors, and estimation for build-up of transuranium nuclides in spent fuel. Capture cross sections to ground and isomer states of ^{244}Am. Neutron shielding design for transport cask of spent fuel.						
236. (762227)	^{243}Am	FISSION	THR	4.0+6	20.0	1	MAP	T. Hojuyama
		Fission. For fast reactor calculations.						
237. (762028)	^{243}Am	N,GAMMA	THR	2.0+6	20.0	3	NFI TIT	M. Yada K. Ebizuka
		Safeguards Total, elastic and inelastic cross sections are also required by K. Ebizuka TIT. 10 % accuracy for 25 meV. 20 % accuracy for higher energy region. Burn-up analysis of fast breeder reactors.						
238. (752042)	^{242}Cm	N,GAMMA	THR	1.5+7	10.0∿20.0	1	PNC SAE MAP	R. Yumoto H. Matsunobu T. Hojuyama
		Fission. Burn-up calculation of thermal and fast reactors, and estimation for build-up of transuranium nuclides in spent fuel. Neutron shielding design for transport cask of spent fuel.						

REF	NUCLIDE	QUANTITY	ENERGY(EV) MIN	MAX	ACCURACY (%)	P	LAB	REQUESTORS
239. (752041)	^{242}Cm	FISSION	THR	1.5+7	10.0∿20.0	1	PNC SAE MAP	R. Yumoto H. Matsunobu T. Hojuyama
		Fission. Burn-up calculation of thermal and fast reactors, and estimation for build-up of transuranium nuclides in spent fuel. Neutron shielding design for transport cask of spent fuel.						
240. (762029)	^{242}Cm	N,GAMMA	THR	1.0+7	20.0	3	NFI	M. Yada
		Safeguards. 10 % accuracy for 25.3 meV. 20 % accuracy for higher energy. For higher burn-up calculations.						
241. (752047)	^{243}Cm	N,GAMMA	2.0+1	1.0+7	10.0∿20.0	1	PNC SAE	R. Yumoto H. Matsunobu
		Fission. Burn-up calculation of thermal and fast reactors, and estimation for build-up of transuranium nuclides in spent fuel. Neutron shielding design for transport cask of spent fuel.						
242. (752045)	^{243}Cm	FISSION	3.0+6	1.0+7	10.0∿20.0	1	PNC SAE	R. Yumoto H. Matsunobu
		Fission. Burn-up calculation of thermal and fast reactors, and estimation for build-up of transuranium nuclides in spent fuel. Neutron shielding design for transport cask of spent fuel.						
243. (762030)	^{243}Cm	N,GAMMA	THR	1.0+7	20.0	3	NFI	M. Yada
		Safeguards. 10 % accuracy for 25.3 meV. 20 % for higher energy region. For higher burn-up calculations.						
244. (762031)	^{244}Cm	N,GAMMA	THR	1.0+7	20.0	3	NFI	M. Yaka
		Safegurads. 10 % accuracy for 25 meV. 20 % accuracy for higher energy region. For higher burn-up calculations.						

3. References.

1). Lessler, R.M. : World Request List for Nuclear Data, WRENDA 76/77, INDC(SEC)-55/URSF (1976).

2). Igarasi, S. and Asami, T. : Japanese List of Requests for Neutron Nucelar Data - for Fission Reactors -, JAERI-M 7081 (1977)

Appendix. Codes of Laboratories.

JAE	Japan Atomic Energy Research Institute
KKU	Kinki University Atomic Energy Research Institute
KTO	Kyoto University
KYU	Kyushu University
MAP	Mitsubishi Atomic Power Industries, Inc.
NFI	Nuclear Fuel Industries
NIG	Nippon Atomic Industry Group Co., Ltd.
NIR	National Institute of Radiological Sciences
PNC	Power Reactor and Nuclear Fuel Development Corporation
SAE	Sumitomo Atomic Energy Industries, Ltd.
TIT	Tokyo Institute of Technology
TKO	Tokyo University
TOS	Toshiba Research and Development Center