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Compiled by

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WRENDA Group of Japanese Nuclear Data Committee

日本原子力研究所 Japan Atomic Energy Research Institute

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### 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.

### 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<sup>\*)</sup>

### 五十嵐信一 (編)

### (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<sup>+)</sup>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。

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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<sup>1)</sup>, 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<sup>2)</sup> 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<sup>1,2)</sup> 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 nade 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.

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### 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	NUCLID	E QUANTITY	ENER	GY(EV)	ACCURACY	Р	LAB	REQUESTORS
		·	MIN	MAX	(%)			
1. (762168)	6 <sub>Li</sub>	ELASTIC Fusion. Neutron transport calc	7.5+6 culations.	1.5+7	10.0	2	JAE	Y. Seki
2. (762051)	6 <sub>Li</sub>	DIFF ELASTIC Fusion. Neutron transport calc	7.5+6 culations.	1.5+7	10.0	2	JAE	Y. Seki
3. (762054)	6 <sub>Li</sub>	PHOTON PRODUCT Fusion. Total photon productic Gamma-ray heating calc	1.0+6 on cross sec sulations.	1.5+7 tion require	15.0 d.	2	MAP JAE	M. Kasai Y. Seki
4. (762052)	6 <sub>L1</sub>	N,ND Fusion. Neutronics calculation	s and energ	1.5+7 y deposition	10.0	2	JAE	Y. Seki
<b>5.</b> (762053)	6 <sub>Li</sub>	N,TRITON Fusion. Tritium breeding and e	3.0+6 mergy depos	1.5+7 ition calcul	5.0 ation.	1	JAE	Y. Seki
6. (762230)	<sup>7</sup> Li	ELASTIC Fusion. Neutron transport calc	7.5+6 ulations.	1.5+7	5.0	2	JAE	Y. Seki
7. (762055)	7 <sub>L1</sub>	DIFF ELASTIC Fusion. Neutron transport calc	7.5+6 ulations.	1.5+7	10.0	2	JAE	Y. Seki
8. (762231)	7 <sub>Li</sub>	INELASTIC Fusion. Neutron transport calc	ulations.	1.5+7	15.0	2	JAE	Y. Seki
9. (762056)	7 <sub>L1</sub>	DIFF INELAST Fusion. Neutron transport calc sections required.	ulations.	1.5+7 Energy diffe	15.0 rential inelastic s	2 scattering o	JAE cross	Y. Seki

REF	NUCLIDE	E QUANTITY	ENER( MIN	GY(EV) MAX	ACCURACY (%)	Р	LAB	REQUESTORS
10. (762059)	7 <sub>Li</sub>	PHOTO PRODUCT Fusion.	THR	1.5+7	15.0	2	JAE	Y. Seki
		Total photon production Gamma-ray heating calcu	cross sect lations.	tions wanted.	. Gamma-ray spect	ra also requ	ired.	
11. (762232)	7 <sub>Li</sub>	N,2N Fusion.		1.5+7	15.0	2	JAE	Y. Seki
		Angular distributions wa	anted. Bla	anket neutron	nics calculations.			
12. (762057)	7 <sub>Li</sub>	N,2N SPECTRA Fusion.	lations	1.5+7	15.0	2	JAE	Y. Seki
	7	blanket neutronics calco	nations.					
13.	'Li	N,NT		1.5+7	5.0	1	JAE	Y. Seki
(762058)		Neutron spectra with acc Tritium breeding and end	curacy 15% ergy depos:	also require ition calcula	ed. ation.			
14.	9 <sub>Be</sub>	INELASTIC		1.5 <del>+</del> 7	15.0	3	JAE	Y Seki
(762060)		Fusion. Blanket neutronics calcu	ulations.			5	0112	III DERI
15.	9 <sub>Be</sub>	N, 2N		1.5+7	15.0	3	JAE	Y. Seki
(762061)		Fusion. Neutron multiplication of	calculation	ns.		-	MAP	M. Kasai
16.	9 Be	N.2N ANG DIST		1.5+7	15.0	2	JAE	Y. Seki
(762233)		Fusion. Neutron transport calcui	lations.					
17.	9 Be	N, 2N SPECTRA		1.5+7	15.0	2	JAE	Y. Seki
(762062)		Fusion. Neutron transport calcul	lations.					_
18.	9 Be	N.ALPHA	8.0+6	1.5+7	15.0	2	JAE	Y. Seki
(762063)		Fusion.			•	_		
		Hellum accumulation cal	culations.					

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REF	NUCLIDE	QUANTITY	ENERG	Y(EV)	ACCURACY	Р	LAB	REQUESTORS
		·	MIN	MAX	(%)			
19. (762064)	12 <sub>C</sub>	INELASTIC Susion. Inelastically scattered r	8.0+6 neutron sp	1.5+7 ectra requi	10.0 red with incident e	2 energy steps	JAE 5	Y. Seki
		0.5 Mev. Neutron transpo	fit carcur	acions.				
20. (762065)	<sup>12</sup> C	N,N3 ALPHA Susion. Total alpha production cr required. Neutron transp	oss secti ort and H	1.5+7 on and seco elium accum	15.0 ndary neutron energ ulation calculation	2 gy spectrum ns.	JAE	Y. Seki
21. (New)	13 <sub>C</sub> F	ALPHA,N Tission. Experimental data wanted. Required neutron energies and evaluation of neutror in fuel recycle process.	Angular are 100 source.	distributi keV to 10 M For evalua	20.0 on also required. eV. For neutron sh tion of neutron ene	2 nielding ergy spectru	SAE	N. Yamano
22. (762066)	16 <sub>0</sub> F	N,ALPHA Tusion. Total alpha production cr in Li-oxide blankets.	7.5+6 Toss secti	1.5+7 on. Helium	15.0 accumulation calcu	2 lation	JAE	Y. Seki
23. (762067)	16 <sub>0</sub> F	N,N ALPHA Tusion. Secondary neutron energy transport and Helium accu	spectra r mulation	1.5+7 equired. C in Li-oxide	15.0 alculation of neutr blankets.	2 con	JAE	Y. Seki
24. (New)	16 <sub>0</sub> F	TRITON,N Tusion. For precise estimation of of number of <sup>18</sup> 0 atoms fr Experimental data wanted.	Li <sub>2</sub> O bur com β+-dec 5% energ	1.2+7 n-up in CTR ay of 18 <sub>F p</sub> y resolution	10.0 blanket. For eval roduced through 16 desirable.	2 uation $(t,n)^{18}F$ .	JAE JAE	K. Tanaka H. Kudo

REF	NUCLID	E QUANTITY	ENERG	Y(EV)	ACCURACY	Р	LAB	REC	UESTORS
			MIN	MAX	(%)				
25. (New)	17 <sub>0</sub>	ALPHA,N Fission. For neutron shielding an of neutron energy spect: wanted. Angular distril are 100 keV to 10 MeV.	nd evaluati rum in fuel bution also	on of neut recycle p required.	20.0 ron source. For eval rocess. Experimental Required neutron er	2 Luation L data nergies	SAE	N.	Yamano
26. (New)	17 <sub>0</sub>	N,ALPHA Fission. Evaluation for quantity wanted. Both evaluation	THR of <sup>14</sup> C fro n and measu	1.5+7 om oxide fue prement are	30.0 el in fast reactor. scarce.	2 Evaluated	MAP data	т.	Kawakita
27. (762041)	<sup>18</sup> 0	ALPHA,N Safeguards. Absolute total neutron y coincidence method.	5.1+6 yield requi	5.5+6 red. Dete	5.0 ction of Pu by neutro	2 on	МАР	К.	Onishi
28. (New)	<sup>18</sup> 0	ALPHA,N Fission. For neutron shielding as neutron energy spectrum Angular distribution als 10 MeV.	nd evaluati in fule re so required	on of neut cycle proc Required	20.0 ron source. For eval ess. Experimental da d neutron evergies an	2 Luation of ata wanted re 100 keV	SAE to	N.	Yamano
29. (762068)	19 <sub>F</sub>	INELASTIC Fusion. Potential constituent in calculations.	1.0+6 n coolant,	1.5+7 flibe. Tr	10.0 itium breeding	3	JAE	Υ.	Seki
30. (762069)	19 <sub>F</sub>	ABSORPTION Fusion. Potential constituent is calculations.	THR n coolant,	1.5+7 flibe. Tr	10.0 itium breeding	3	JAE	Ү.	Seki

REF	NUCLID	E QUANTITY	ENER MIN	GY(EV) MAX	ACCURACY (%)	Р	LAB	REQUESTORS
31. (762074)	27 <sub>A1</sub>	N,GAMMA Fusion. Gamma-ray heating calcu	THR lations.	1.5+7	15.0	3	MAP	M. Kasai
32. (762075)	27 <sub>A1</sub>	PHOTON PRODUCT Fusion. Total photon production Gamma-ray heating calcu	THR cross sec lations.	1.5+7 tion require	15.0 d.	3	MAP	M. Kasai
33. (762070)	27 <sub>A1</sub>	N,2N Fusion. Potential constituent f Neutron multiplication	or structu calculatio	1.5+7 ral material ns.	15.0	3	MAP	M. Kasai
34. (762071)	27 <sub>A1</sub>	N,PROTON Fusion. Hydrogen accumulation c	alculation	1.5+7 s.	15.0	3	MAP	M. Kasai
35. (762072)	27 <sub>A1</sub>	N,DEUTERON Fusion. Hydrogen accumulation c	alculation	1.5+7 s.	15.0	3	МАР	M. Kasai
36. (762073)	27 <sub>A1</sub>	N,TRITON Fusion. Hydrogen accumulation c	alculation	1.5+7 s.	15.0	3	МАР	M. Kasai
37. (New)	30 <sub>Si</sub>	N,GAMMA Fission. 31 For doping <sup>31</sup> P into sin to make semiconductor. data are available.	1.0-4 gle crysta Experimen	1.0+5 1 of Si by na tal data wan	10.0 eutron irradiation ted. Only a few ol	3 d	JAE	N. Aoyagi
38. (762177)	<sup>36</sup> Ar	N,PROTON Fission. For FBR safety analysis	THR .	1.5+7	30.0	2	MAP	T. Nishimura

REF	NUCLIDE	QUANTITY	ENE	RGY(EV)	ACCURACY	Р	LAB	REQUESTORS
		-	MIN	MAX	(%)			
39. (712006)	40 <sub>Ar</sub>	N,GAMMA Fission. For reactor hazard cald	culation.	<1.0+7	< 20.0	2	NIG	M. Kawai
40. (New)	39 <sub>K</sub>	N,PROTON Fission. For reactor hazard calo many experimental data	THR culation. in MeV rep	1.5+7 Evaluated da gion.	30.0 Ita wanted. The	2 ere are	MAP	T.Kawakita
41. (762234)	Ca	ELASTIC Fusion. Included in concrete.	1.0+6 Shielding	1.5+7 design.	15.0	3	JAE	Y. Seki
42. (762076)	Са	DIFF ELASTIC Fusion. Included in concrete.	1.0+6 Shielding	1.5+7 design.	15.0	3	JAE	Y. Seki
43. (762077)	Са	N,GAMMA Fusion. Gamma-ray spectra also Shielding design and ga	THR required. amma-ray h	1.5+7 Included in eating calcul	15.0 n concrete. Lation.	3	JAE	Y. Seki
44. (762078)	Ca	PHOTON PRODUCT Fusion. Total photon production Included in concrete.	5.0+5 n cross se Gamma-ray	1.5+7 ction wanted. heating calo	15.0 Gamma-ray spe culations.	3 ectra also requir	JAE ed.	Y. Seki
45. (762079)	Ti	INELASTIC Fusion. Potential constituent of Neutron transport calco	of structu ilations.	≤1.5+7 ral material.	15.0	3	MAP	M. Kasai
46. (762083)	Τi	PHOTON PRODUCT Fusion. Total photon production Potential constituent of Gamma-ray heating calco	THR n cross se of structu ulations.	1.5+7 ction wanted ral material	15.0	3	MAP	M. Kasai

REF	NUCLID	E QUANTITY	ENERG MIN	Y(EV) MAX	ACCURACY (%)	Ρ	LAB	REQUESTORS
47 <b>.</b> (762080)	Ti	N,2N Fusion.		≤1.5+7	15.0	3	MAP	M. Kasai
(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Potential constituent o calculations.	f structura	l material.	Neutron multiplicati	on		
48. (762081)	Ti	N,PROTON Fusion.		≤1.5+7	15.0	3	MAP	M. Kasai
(,		Potential constituent o calculations.	f structura	l material.	Hydrogen accumulatio	n		
49 <b>.</b> (762082)	Ti	N,ALPHA Fusion.		≤1.5+7	15.0	3	MAP	M. Kasai
(702002)		Potential constituent o calculations.	f structura	l material.	Helium accumulation			
50 <b>.</b> (762084)	v	INELASTIC		1.5+7	10.0	2	MAP	M. Kasai
(702004)		Potential constituent o calculations.	f structura	l material.	Neutron transport			
<b>51.</b> (762088)	v	N,GAMMA	THR	1.5+7	10.0	2	MAP	K. Ioki
(702000)		Potential constituent o calculations.	f structura	l material.	Gamma-ray heating			
52.	v	PHOTON PRODUCT	THR	1.5+7	10.0	2	MAP	M. Kasai
(702009)		Total photon production Potential constituent o calculations.	cross sect f structura	ion wanted. 1 material.	Gamma-ray heating			
53.	v	N, 2N		≤1.5+7	10.0	2	MAP	M. Kasai
(102003)		Potential constituent o calculations.	f structura	l material.	Neutron multiplication	on		

REF	NUCLID	E QUANTITY	ENERGY	(EV)	ACCURACY	Р	LAB	REQUESTORS
		۲. ۲	1IN	MAX	(%)			
54. (762086)	v	N,PROTON Fusion. Potential constituent of str Hydrogen accumulation calcul	ructural Lation.	≤1.5+7 materia	10.0	2	МАР МАР	M. Kasai K. Ioki
55. (762087)	v	N,ALPHA Fusion. Potential constituent of str and neutron transport calcul	ructural Lations.	≤1.5+7 materia	10.0 1. Helium accumulation	2	MAP MAP	M. Kasai K. Ioki
56. (762091)	50 <sub>v</sub>	N,2N Fusion Transmutation calculations.	:	≤1.5+7	10.0	3	МАР	M. Kasai
57. (762092)	50 <sub>v</sub>	N,ALPHA Fusion. Transmutation calculations.	:	≤1.5+7	10.0	3	МАР МАР	K. Ioki M. Kasai
58. (762093)	Cr	INELASTIC Fusion. Inelastic gamma-ray spectra Neutron transport and gamma-	also re -ray hea	≤1.5+7 quired. ting cal	15.0 culations.	2	JAE	Y. Seki
59. (762094)	Cr	N,GAMMA Fusion. Gamma-ray spectra also requi	ired. G	≤1.5+7 amma-ray	15.0 heating calculations.	2	JAE	Y. Seki
60. (762095)	Cr	N,2N Fusion. Neutron balance calculations	5.	≤1.5+7	15.0	2	JAE	Y. Seki
61. (762096)	Cr	N,PROTON Fusion. Hydrogen accumulation calcul	lations.	≤1 <b>.5</b> +7	20.0	2	JAE	Y. Seki

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

REF	NUCLIDE	QUANTITY	ENEF MIN	RGY (EV) MAX	ACCURACY (%)	Р	LAB	REQUESTORS
70. (762179)	<sup>58</sup> Fe	N,GAMMA Fission. Fission reactor calculat	THR	1.5+7	20.0	2	NIG	M. Kawai
71. (712028)	59 <sub>Co</sub>	ACTIVATION Fission. For fuel cask design and	l control	≤1.0+7 rod design.	20.0	2	NIG	M. Kawai
72. (762105)	Ni	INELASTIC Fusion. Inelastic gamma-ray spec Neutron transport and ga	ctra also amma-ray h	≤1.5+7 required. meating calcul	15.0 Lations.	2	JAE MAP	Y. Seki M. Kasai
73. (762110)	Ni	N,GAMMA Fusion. Gamma-ray spectra also p	THR required.	1.5+7 Gamma-ray he	15.0 eating calculations	2	JAE	Y. Seki
74. (762111)	Ni	PHOTON PRODUCT Fusion. Total photon production calculations.	THR cross sec	1.5+7 tion wanted.	10.0 Gamma-ray heating	2	МАР	M. Kasai
75. (762106)	Ni	N,2N Fusion. Neutron balance calculat	tions.	≤1.5+7	15.0	2	JAE MAP	Y. Seki M. Kasai
76. (762107)	Ni	N,PROTON Fusion. Hydrogen accumulation ca	alculation	≤1.5+7 ns.	20.0	2	JAE MAP	Y. Seki M. Kasai
77. (762109)	Ní	N,TRITON Fusion. Transmutation calculatio	ons.	≤1.5+7	15.0	3	МАР	M. Kasai
78. (762108)	Ni	N,ALPHA Fusion. Helium accumulation cal	culations.	≤1.5+7	20.0	2	JAE	Y. Seki

REF	NUCLID	E QUANTITY	ENEI MIN	RGY (EV) Max	ACCURACY (%)	Р	LAB	REQUESTORS
79. (762114)	Cu	N,GAMMA Fusion.	THR	1.5+7	15.0	2	JAE	Y. Seki
(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Gamma-ray spectra also	required.	Gamma-ray	heating in magnets.			
80. (762112)	Cu	PHOTON PRODUCT Fusion.		≤1.5+7	15.0	2	JAE	Y. Seki
		Photon production cross spectra also required.	s section i Gamma-ray	in inelastic / heating in	scattering. Gamma-r magnets.	ay		
81. (762113)	Cu	PHOTON PRODUCT Fusion.	THR	1.5+7	15.0	2	JAE	Y. Seki
		Total photon production spectra also required.	n cross sec Gamma-ray	tion wanted heating in	. Gamma-ray magnets.			
82. (New)	<sup>64</sup> Zn	N,GAMMA Fission. For estimation of radio	THR	1.5+7	20.0	2	MAP	T. Kawakita
		materials in fast react and evaluated data are	scarce.	erimental da	ta wanted. Both expe	rimental		
83. (762001)	87 <sub>Br</sub>	GAMMA RAY YIELD Safeguards.			10.0	3	TOS	H. Shimojima
		Yield per disintegration event). Detection of the	on of 1419 Failed fuel	keV gamma-r	ay required. (Follow	ing beta-	decay	
84. (762002)	88 <sub>Br</sub>	GAMMA RAY YIELD Safeguards.			10.0	3	TOS	H. Shimojima
<b>、</b>		Yield per disintegratic event). Detection of d	on of 767 k Tailed fuel	keV gamma-ra 	y required. (Followi	ng beta-d	ecay	
85. (762003)	90 <sub>Kr</sub>	GAMMA RAY YIELD Safeguards.			10.0	3	TOS	H. Shimojima
(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Yield per disintegratic event). Detection of f	on of major failed fuel	gamma-rays	required. (Following	beta-dec	ay	

REF	NUCLIDE	E QUANTITY	ENER	RGY (EV)	ACCURACY	Р	LAB	REQUESTORS
			MIN	MAX	(%)			
86. (752004)	93 <sub>Zr</sub>	N,GAMMA Fission.	1.0+2	5.0+5	20.0	2	NIG SAE	S. Iijima H. Matsunobu
		Only one resonance level More resonance data are	ls at 110 required.	eV. No expense	cimental data in k	eV region.		
87. (762115)	<sup>92</sup> NЪ	N,ALPHA Fusion.		≤1.5+7	30.0	3	MAP	K. Ioki
		Transmutation calculation	ons.					
88.	<sup>93</sup> Nb	INELASTIC		≤1.5+7	20.0	2	MAP	M. Kasai
(762117)		93mNb production cross a Transmutation and neutro accuracy required for ne	section by on transpo eutron tra	y inelastic so ort calculatio unsport calcui	cattering. ons. 15% lation.			
89. (762122)	93 <sub>ND</sub>	N,GAMMA Fusion. Gamma-ray spectra also p	THR	1.5+7 Gamma-ray h	15.0 eating calculation	2	JAE	Y. Seki
	93		•					
90. (762123)	<sup>-</sup> Nb	N,GAMMA Fusion	THR	1.5+7	20.0	3	MAP	M. Kasai
(102123)	Capture cross section to 94m Nb is requested. Transmutation calculations.							
<b>91.</b>	93 <sub>Nb</sub>	PHOTON PRODUCT	THR	1.5+7	15.0	2	JAE	Y. Seki
(762124)		Fusion. Total photon production Gamma-ray spectra also :	cross sec requested.	tion wanted. Gamma-ray	neating calculation	ns.		
92.	93 <sub>Nb</sub>	N. 2N		≤1.5+7	10.0	2	МАР	M. Kasai
(762118)		Fusion. Neutron multiplication	calculatio	ons.		_		
0.2	93,	N. DROMON		<1 F 1 7	20.0	2		
93. (762119)	ND	N, PROTON Fusion.		\$1.5+/	20.0	Z	MAP MAP	M. Kasai K. Toki
/		Hydrogen accumulation ca	alculation	ns.				

REF	NUCLID	E QUANTITY	ENERG MIN	Y(EV) MAX	ACCURACY (%)	Р	LAB	REQUESTORS
94. (762120)	93 <sub>Nb</sub>	N,ALPHA Fusion. Helium accumulation calcu	lations.	≤1.5+7	15.0	2	МАР МАР	M. Kasai K. Ioki
95. (762121)	93 <sub>Nb</sub>	ALPHA PRODUCT Fusion. Total alpha production cr Helium accumulation calcu	oss secti lations.	≤1.5+7 on wanted.	15.0	2	MAP	K. Ioki
96. (762125)	94 <sub>Nb</sub>	N,GAMMA Fusion. Transmutation calculation	THR s.	1.5+7	10.0	3	МАР	M. Kasai
97. (762235)	Мо	ELASTIC Fusion. Cross section for each is Neutron transport calcula	1.0+6 otope are tions.	1.5+7 requested.	10.0	2	JAE	Y. Seki
98. (762126)	Мо	DIFF ELASTIC Fusion. Cross section for each is transport calculations.	1.0+6 otope are	1.5+7 also requested	10.0 . Neutron	2	JAE	Y. Seki
99. (762236)	Мо	INELASTIC Fusion. Cross sections for each i spectra also required. N	sotope ar eutron tr	≤1.5+7 e requested. G ansport calcula	15.0 amma-ray tions.	2	JAE	Y. Seki
100. (762127)	Мо	DIFF INELASTIC Fusion. Energy differential inela for each isotope are also required. Neutron transp	stic cros requeste ort calcu	≤1.5+7 s section wante d. Gamma-ray s lations.	15.0 d. Cross sections pectra also	2	JAE	Y. Seki
101. (762131)	Мо	N,GAMMA Fusion. Cross sections for each i Gamma-ray spectra also re heating calculation.	1.0+6 sotope are quired.	1.5+7 e also requeste Neutron balance -15-	15.0 d. and gamma-ray	2	JAE MAP	Y. Seki K. Ioki

REF	NUCLIDE	QUANTITY	ENER MIN	GY(EV) MAX	ACCURACY (%)	Р	LAB	REQUESTORS
102. (762128)	Мо	N,2N Fusion. Cross sections for each transport calculatins.	h isotope a	≤1.5+7 re also requé	10.0 ested. Neutron	2	JAE	Y. Seki
103. (762129)	Мо	N,PROTON Fusion. Cross sections for each data of 95,96 <sub>Mo</sub> are reach the molybdenum structur calculation of induced	n isotope a quired for re. Hydrog activities	≤1.5+7 re also reque estimation o: en accumulat:	10.0 ested. Especially, f dose rates around ion calculation and	2 for	JAE MAP JAE	Y. Seki K. Ioki H. Iida
104. (762130)	Мо	N,ALPHA Fusion. Cross sections for eac accumulation calculation	h isotope a ons.	≤1.5+7 re also requ	20.0 ested. Helium	2	JAE MAP	Y. Seki K. Ioki
105. (762181)	92 <sub>Mo</sub>	N,GAMMA Fission. For fast reactor calcu	THR lations.	1.0+5	20.0	2	MAP	T. Hojuyama
106. (762132)	92 <sub>Mo</sub>	N,GAMMA Fusion. Neutron balance and tr	THR	1.5+7 calculation	10.0 s.	2	MAP	K. Ioki
107. (New)	92 <sub>Mo</sub>	N,PN Fusion. For calculation of ind Experimental data requ	uced activi ired.	≤1.5+7 ties around n	20.0 nolybdenum structur	2 es.	JAE	H. Iida
108. (762183)	94 <sub>Mo</sub>	TOTAL Fission. For fast reactor calcu	THR lations.	1.5+6	10.0	2	MAP	T. Hojuyama
109. (762184)	94 <sub>Мо</sub>	N,GAMMA Fission. For fast reactor calcu	THR lations.	1.0+5	20.0	2	МАР	T. Hojuyama

REF	NUCLID	E QUANTITY	ENER	RGY(EV)	ACCURACY	Р	LAB	REQUESTORS
		•	MIN	MAX	(%)			
110. (762186)	94 <sub>Mo</sub>	N,PROTON Fission. For fast reactor calcu	TR 11ations.	1.5+7	30.0	2	МАР	T. Hojuyama
111. (762187)	94 <sub>Mo</sub>	N,ALPHA Fission. For fast reactor calcu	THR 11ations.	1.5+7	30.0	2	MAP	T. Hojuyama
112. (762133)	94 <sub>Mo</sub>	N,2N Fusion. Neutron balance and ta	cansmutation	≤1.5+7 n calculation	10.0 s.	2	МАР	K. Ioki
113 <b>.</b> (762188)	95 <sub>Мо</sub>	TOTAL Fission. For fast reactor calcu	THR 11ations.	1.5+7	10.0	2	МАР	T. Hojuyama
114. (762189)	95 <sub>Mo</sub>	INELASTIC Fission. For fast reactor calcu	TR lations.	1.5+7	20.0	2	МАР	T. Hojuyama
115. (762191)	95 <sub>Mo</sub>	N,ALPHA Fission. For fast reactor calcu	THR 11ations.	1.5+7	20.0	2	МАР	T. Hojuyama
116. (762193)	96 <sub>Mo</sub>	N,GAMMA Fission. For fast reactor calcu	THR Lations.	1.0+5	20.0	2	МАР	T. Hojuyama
117. (762195)	96 <sub>Mo</sub>	N,ALPHA Fission. For fast reactor calcu	THR 11ations.	1.5+7	30.0	2	МАР	T. Hojuyama
118. (762196)	97 <sub>Mo</sub>	TOTAL Fission. For fast reactor calcu	THR	1.0+5	10.0	2	MAP	T. Hojuyama

REF	NUCLID	E QUANTITY EN		ENERGY (EV) ACCURACY		CY P 1		LAB REQUESTORS	
			MIN	MAX	(%)				
119. (762197)	97 <sub>Мо</sub>	INELASTIC Fission. For fast reactor calcu	TR	1.5+7	30.0	2	MAP	T. Hojuyama	
120. (762198)	97 <sub>Мо</sub>	N,ALPHA Fission. For fast reactor calcu	THR	1.5+7	30.0	2	МАР	T. Hojuyama	
121. (762200)	98 <sub>Мо</sub>	N,ALPHA Fission. For fast reactor calcu	THR	1.5+7	30.0	2	MAP	T. Hojuyama	
122. (762203)	100 <sub>Mo</sub>	N,PROTON Fission. For fast reactor calcu	TR	1.5+7	30.0	2	MAP	T. Hojuyama	
123. (762204)	100 <sub>Mo</sub>	N,ALPHA Fission. For fast reactor calcu	THR	1.5+7	30.0	2	MAP	T. Hojuyama	
124. (752007)	99 <sub>Tc</sub>	N,GAMMA Fission. For fast reactor burn- 50 keV. Experimental	1.0+2 up calculat data requir	5.0+5 ions. Only o ed.	10.0 one set of data bel	1 ow	NIG SAE	S. Iijima H. Matsunobu	
125. (752008)	101 <sub>Ru</sub>	N,GAMMA Fission. For fast reactor burn- Experimental data requ	1.0+2 -up calculat lired.	5.0+5 ions. Evalua	10.0 ations are very dis	l crepant.	NIG SAE	S. Iijima H. Matsunobu	
126. (New)	103 <sub>Ru</sub>	N,GAMMA Fission. For fast reactor calcu large discrepancies be at all. Experimental	1.0+2 lation, 40 tween evalu data wanted	5.0+5 days life tin ations. No o	20.0 me. Very experimental data	2	NIG	S. Iijima	

REF	NUCLIDI	E QUANTITY	ENER	GY(EV)	ACCURACY	Р	LAB	REQUESTORS
			MIN	MAX	(%)			
127. (722002)	103 <sub>Ru</sub>	GAMMA RAY YIELD Safeguards. Yields per disintegrati (Following beta-decay e measurement.	on of 497 a vent). For	and 610 keV r burn-up ca	10.0 gamma-ray required. lculation from non-	2 destructiv	JAE e	K. Tasaka
128. (722004)	106 <sub>Rh</sub>	GAMMA RAY YIELD Safeguards. Yield per disintegration required. (Following be non-destructive measure	n of 512,6 ta-decay ev ment.	L6,622 and 1 vent). For	1.0 050 keV gamma-rays burn-up calculation	2 a from	JAE	K. Tasaka
129. (752011)	105 <sub>Pd</sub>	N,GAMMA Fission. For fast reactor burn-u are lacking. Experimen	1.0+2 p calculat: tal and/or	5.0+5 ion. Data b evaluated d	10.0 etween 160 eV and a ata required.	l few keV	NIG SAE	S. lijima H. Matsunobu
130. (752012)	107 <sub>Pd</sub>	N,GAMMA Fission. For fast reactor burn-u No experimental data in	1.0+2 p calculat: keV region	5.0+5 ion. Evalua 1. Experime	10.0 tions are very disc ntal data wanted.	l repant.	NIG SAE	S. Iijima H. Matsunobu
131. (752013)	109 <sub>Ag</sub>	N,GAMMA Fission. For fast reactor burn-u data in keV region. Ex available for <sup>107</sup> Ag and	1.0+2 p calculat: perimental natural Ag	5.0+5 lon. Discre data requir g.	10.0∿20.0 pant series of ed. Data are also	2	NIG SAE	S. Iijima H. Matsunobu
132. (New)	115 <sub>In</sub>	PHOTON INELA Fission. Correction of <sup>115m</sup> In pr Experimental data of 11 Analysis of shielding e	5.0+5 oduction th $5_{In}(\gamma,\gamma')^{11}$ xperiments.	1.0+7 Drough <sup>115</sup> In <sup>5m</sup> In cross Shielding	20.0 (n,n') <sup>115m</sup> In. section wanted. and neutron dosime	3 try.	TKO	Y. Oka

REF	NUCLID	E QUANTITY	ENEI MIN	RGY(EV) MAX	ACCURACY (%)	Р	LAB	REQUESTORS
133. (762205)	<sup>121</sup> Sb	N,GAMMA Fission. For neutron source cal	THR culations.	1.5+7 For estimat	15.0 ion of gamma-ray he	2 ating	МАР	T. Hojuyama
134. (762206)	<sup>123</sup> Sb	N,GAMMA Fission. For neutron source cal	THR culations.	1.5+7	15.0	2	МАР	T. Hojuyama
135. (New)	<sup>124</sup> Sb	N,GAMMA Fission. 124 For estimation of <sup>124</sup> S large discrepancy exis required.	THR b productio ts among es	on in Sb-Be n xperimental d	20.0 eutron source. Ver ata. Experimental	3 y data	JAE	K. Nishimura
136. (722006)	125 <sub>Sb</sub>	GAMMA RAY YIELD Safeguards. Yield per disintegrati ray required. (Followi non-destructive measur	on of 176,3 ng beta-dec ement.	381,428,464,6 cay event).	1.0 01,607,636 and 672 For burn-up calcula	2 keV gamma- tion from	JAE	K. Tasaka
137. (762004)	135 <sub>I</sub>	GAMMA RAY YIELD Safeguards. Yield per disintegrati required. (Following b	on of 527,2 eta-decay (	1132,1260 and event). Dete	10.0 1458 keV gamma-ray ction of failed fue	3 s	TOS	H. Shimojima
138. (762005)	137 <sub>I</sub>	GAMMA RAY YIELD Safeguards. Yield per disintegrati (Following beta-decay	on of major event). Do	r gamma-rays etection of f	10.0 required. ailed fuel.	3	TOS	H. Shimojima
139. (762006)	138 <sub>1</sub>	GAMMA RAY YIELD Safeguards. Yield per desintegrati (Following beta-decay	on of 589 i event). Do	keV gamma-ray etection of f	10.0 required. ailed fuel.	3	TOS	H. Shimojima

REF	NUCLID	E QUANTITY	ENER MIN	GY(EV) MAX	ACCURACY (%)	Р	LAB	REQUESTORS
140. (762013)	139 <sub>1</sub>	HALF LIFE Safeguards. Detection of failed fue	21.		10.0	3	TOS	H. Shimojima
141. (762007)	139 <sub>1</sub>	GAMMA RAY YIELD Safeguards. Yield per disintegratic (Following beta-decay e	on of major event). De	gamma-rays tection of f	10.0 required. ailed fuel.	3	TOS	H. Shimojima
142. (752014)	131 <sub>Xe</sub>	N,GAMMA Fission. For fast reactor burn-u experimental data in ke Resonance parameters al	1.0+2 up calculat eV region. lso require	4.0+5 ions. Evalu Experimenta d.	20.0 ations are very dis 1 and evaluated dat	l crepant. 1 a wanted.	NIG SAE No	S. Iijima H. Matsunobu
143. (762008)	139 <sub>Xe</sub>	GAMMA RAY YIELD Safeguards. Yield per disintegratic required. (Following be	on of 175,2 eta-decay e	19,290,297 a vent). Dete	10.0 nd 393 keV gamma-ra ction of failed fue	3 .ys	TOS	H. Shimojima
144. (752015)	133 <sub>Cs</sub>	N,GAMMA Fission. For fast reactor burn-o discrepancy between dat data wanted.	1.0+2 up calculat ta sets in	5.0+5 ion. Many r keV region.	10.0 esonance data, but Experimental and e	l systematic valuated	NIG SAE	S. Iijima H. Matsunobu
145. (722021)	133 <sub>Cs</sub>	N,GAMMA Safeguards. For burn-up calculation integral also wanted.	THR n from non-	1.4+7 destructive	3.0 measurement. Reson	1 ance	JAE	H. Okashita
146. (722007)	134 <sub>Cs</sub>	GAMMA RAY YIELD Safeguards. YIELD per disintegratic (Following beta-decay of measurement.	on of 563,5 event). Fo	69,796,802 a r burn-up ca	1.0 nd 1365 keV gamma-r lculation from non-	2 ays require destructive	JAE ed.	H. Okashita

REF	NUCLIDI	E QUANTITY	ENER	GY(EV)	ACCURACY	Р	LAB	REQUESTORS
		·	MIN	MAX	(%)			-
147. (722022)	<sup>134</sup> Cs	N,GAMMA Safeguards. For hurn-up calculati	THR	destructive	3.0	1	JAE	H. Okashita
		Resonance integral al	so wanted.		medourementer			
148. (762024)	<sup>134</sup> Cs	N,GAMMA Safeguards.	THR	1.0+7	20.0	1	JAE	K. Tasaka
		Cross-section values well as at thermal en accuracy for higher en absolute measurement decay power of fission	at higher never ergy. 10% and hergy region of activity h products.	utron energi ccuracy for . Burn-up d ratio <sup>134</sup> Cs/	es are needed, as 25.3 mV, and 20% etermination based 137 <sub>Cs.</sub> Estimation	on of the		
149. (752016)	<sup>135</sup> Cs	N,GAMMA Fission. For fast reactor burn discrepant. No exper	1.0+2 -up calculat imental data	5.0+5 ion. Evalua at all. Ex	10.0 tions are very perimental data war	l	NIG SAE	S. Iijima H. Matsunobu
	133_							
(762207)	Ва	MISCELLA Fission. Relative yields of 53 keV gamma-rays. Inte	.2, 79.6, 81 nsity standa	.0, 160.6, 2 rds for gamm	3.0 76.4, 302.0 and 356 a-ray measurements.	5.0	111	K. Hisatake
151. (722009)	140 <sub>La</sub>	GAMMA RAY YIELD Safeguards.			1.0	2	JAE	K. Tasaka
		Yield per disintegrat gamma-rays required. burn-up calculation f	ion of 328.8 (Following rom non-dest	, 487.0, 815 beta-decay e ructive meas	.8, and 2522.0 keV vent). For urement.			
152. (722011)	<sup>144</sup> Ce	GAMMA RAY YIELD Safeguards. Yield per disintegrat (Following beta-decay	ion of 133.5 event). Fo	keV gamma-r	1.0 ay required. loulation from	2	JAE	H. Okashita
		non-destructive measu	rement.					

REF	NUCLID	E QUANTITY	ENER MIN	RGY (EV) MAX	ACCURACY (%)	Р	LAB	REQUESTORS
153. (722023)	141 <sub>Pr</sub>	N,GAMMA Safeguards. Resonance integral also	THR	1.4+7 For burn-up	3.0 calculation from	1	JAE	H. Okashita
154. (722012)	144 <sub>Pr</sub>	GAMMA RAY YIELD Safeguards. Yield per disintegratic rays required. (Follow calculation from non-de	on of 696.5 ving beta-destructive	, 1498.1 and lecay event). measurement.	1.0 2165.7 keV gamma- For burn-up	1	JAE	H. Okashita
155. (752017)	143 <sub>Nd</sub>	N,GAMMA Fission. For fast reactor calcul wider energy range. No 400 keV.	1.0+2 ations. D experimen	4.0+5 Desired with Ital data bet	20.0 lower priority for ween 100 eV and	1	NIG SAE	S. I <b>ijima</b> H. Matsunobu
156. (752018)	145 <sub>Nd</sub>	N,GAMMA Fission. For fast reactor calcul wider energy range. No	1.0+2 ations. D experimen	4.0+5 Desired with Ital data fro:	20.0 lower priority for m 100 eV to 400 keV	1	NIG SAE	S. Iijima H. Matsunobu
157. (752019)	147 <sub>Pm</sub>	N,GAMMA Fission. For fast reactor calcul no keV data. Experimen	l.0+2 ations. T ital data r	5.0+5 Chere are man required.	10.0 y resonances, but	1	NIG SAE	S. Iijima H. Matsunobu
158. (752020)	149 <sub>Sm</sub>	N,GAMMA Fission. For fast reactor burn-u Discrepancy between STE Experimental data wante	1.0+2 up calculat CK data and ed.	5.0+5 ion. Many r recent diff	10.0 esonances up to 250 erential data.	1 ) eV.	NIG SAE	S. Iijima H. Matsunobu
159. (752021)	151 <sub>Sm</sub>	N,GAMMA Fission For fast reactor burn-u also. Experimental dat	1.0+2 up calculat a required	5.0+5 tions. Reson	10.0 ance parameters wan	2 uted	NIG SAE	S. Iijima H. Matsunobu

REF	NUCLID	E QUANTITY	ENE	RGY(EV)	ACCURACY	Р	LAB	REG	QUESTORS
			MIN	MAX	(%)				
160. (722038)	153 <sub>Eu</sub>	N,GAMMA Safeguards. Resonance integral a	THR also wanted.	1.4+7 For burn-up	5.0 calculation from no	1 n-	JAE	Н.	Okashita
		destructive measure	ment.						
161. (722039)	154 <sub>Eu</sub>	N,GAMMA Safeguards.	THR		5.0	1	JAE	Н.	Okashita
		Resonance integral a non-destructive measured	also wanted. surement.	For burn-up	calculation from				
162 <b>.</b> (722015)	155 <sub>Eu</sub>	GAMMA RAY YIELD Safeguards.			1.0	2	JAE	К.	Tasaka
,		Yield per disintegra required. (Followin from non-destructive	ation of 86.5 ng beta-decay e measurement	and 105.3 ke event). For	eV gamma-rays burn-up calculatio	n			
163. (New)	182 <sub>Ta</sub>	N,GAMMA Fission.	THR		10.0	3	КТО	м.	Koyama
		For estimation of no data required.	eutron fluenc	e and spectru	ım. Experimental				
164. (New)	198 <sub>Au</sub>	N,GAMMA Fission.	THR		10.0	3	KTO	Μ.	Koyama
		For estimation of no required.	eutron fluenc	e and spectru	ım. Experimental da	ta			
165. (762134)	Pb	PHOTON PRODUCT Fusion.	THR	1.5+7	15.0	2	JAE	Υ.	Seki
		Total photon product required. An upper Neutron energy resolu Gamma energy resolu calculation.	tion cross se limit of the lution 300 ke tion 1 MeV.	ection wanted cross section V above 100 1 Shielding dea	. Gamma-ray spectra on or accuracy 20 % keV and 10 % otherwi sign and gamma-ray h	also useful. se. eating			
166.	<sup>206</sup> РЪ	N, ALPHA		≤1.5+7	20.0	2	JAE	н.	Iida
(New)		For fusion reactor residual activity.	shielding cal No experimen	culation, and tal data exce	l for calculation of ept for a few at 14	MeV.			
		Experimental data w	anted.	-24-					

REF	NUCLID	E QUANTITY	ENER MIN	GY (EV) MAX	ACCURACY (%)	Р	LAB	REQUESTORS
167. (762208)	<sup>233</sup> Pa	N,GAMMA Fission. For burn-up calculation	2.0+1	1.5+7 m fueled the	10.0 rmal reactors.	1	JAE	R. Shindo
168. (New)	233 <sub>U</sub>	N,GAMMA Fission. For fission reactor cal	1.0+6 culations.	2.0+7 Experiment	10.0 al data wanted.	1	SAE	N. Asano
169. (New)	233 <sub>U</sub>	N,2N Fission. For fission reactor cal	TR .culations.	2.0+7 Experiment	10.0 al data wanted.	1	SAE	N. Asano
170. (682055)	235 <sub>U</sub>	N,GAMMA Fission. For fast reactors. Alp Resolution 1∿2% desired	l.0+6 ha-value al . No expe	1.0+7 lso desired. rimental dat	5.0∿10.0 For nuclear data a above 2.6 MeV.	l evaluation	JAE SAE	S. Katsuragi H. Matsunobu
171. (762034)	235 <sub>U</sub>	FP MASS YIELD Safeguards. Fission product mass yi produced by bremsstrahl yield Roentgen × Nucleu yields. Bremsstrahlung to stop electrons. Nor	4.0+6 eld spectro ung requiro s or relat: converter -destructiv	1.4+7 um required. ed. Yield m ive to <sup>238</sup> U (preferably ve assay of	10.0 Total fission yie ay be in the unit o or other photo-acti Ta) of sufficient U.	3 1d f vation thickness	KKU	R. Miki
172. (762042)	235 <sub>U</sub>	FP MASS YIELD Safeguards. Fission product mass yi yield isotopes. Bremss thickness to stop elect	4.0+6 eld spectro trahlung co rons. Non-	1.4+7 um. Cumulat onverter (pr -destructive	5.0 ive yields of high eferably Ta) of suf assay of nuclear m	3 fission ficient aterials.	ĸĸIJ	R. Miki
173. (762046)	235 <sub>U</sub>	NU-DELAYED Safeguards. The requested quantitie (normalized to 1 fission delayed neutrons for the	THR s are the g on) whick ca he time rang	1.0+7 group half-1 an be used t ge 0.1∿300 s	5.0 ives and group yiel o fit the decay cur ec within an accura	2 ds ve of cy of	NIG	T. Murata

5 %. Incident energy step less than 2 MeV. Active assay of mixed

fresh and irradiated fuel.

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REF	NUCLID	E QUANTITY	ENERGY MIN	(EV) MAX	ACCURACY (%)	Р	LAB	REQUESTORS
174. (722040)	236 <sub>U</sub>	N,GAMMA Safeguards. Accuracy required at therm For burn-up calculation of	THR al is 3 % a Pu loa	1.4+7 5, 10 % abov ded thermal	e. reactor.	2	JAE	Y. Naito
175. (New)	237 <sub>U</sub>	GAMMA RAY YIELD Safeguards. Spontaneous gamma-ray yiel for <sup>241</sup> Pu daughter. Yield 208 keV gamma-rays.	d. Radia per disi	tion dose c ntegration	5.0 alculation of 59.5 and	2	NIR NIR	Y. Noda H. Okabayashi
176. (762035)	238 <sub>U</sub>	FP MASS YIELD Safeguards. Fission product mass yield yield produced by bremsstr unit of Yield/Roentgen×Nuc yields. Bremsstrahlung co thickness to stop electron	4.0+6 spectrum ahlung re leus or r nverter ( s. Non-de	1.4+7 wanted. T quired. Yi elative to preferably estructive a	10.0 otal fission eld may be in the other photo-activatio Ta) sufficient ssay of U.	3 on	ККЦ	R. Miki
177. (762043)	238 <sub>U</sub>	FP MASS YIELD Safeguards. Fission product mass yield of high fission yield isot materials.	4.0+6 spectrum opes. No	1.4+7 wanted. C on-destructi	5.0 umulative yields ve assay of nuclear	3	KKU	R. Miki
178. (762047)	238 <sub>U</sub>	NU-DELAYED Safeguards. The requested quantities a (normalized to 1 fission) of delayed neutrons for th accuracy of 5 %. Incident Active assay of mixed fres	THR re the gr which can e time ra energy s h and irr	1.0+7 Toup half-li to be used to ange 0.1∿300 Step less th radiated fue	5.0 ves and group yields fit the decay curve sec within an an 2 MeV. 1.	2	NIG	T. Murata
179. (762044)	238 <sub>U</sub>	FP MASS YIELD Safeguards. Fission product mass yield 87 <sub>Br</sub> , <sup>87</sup> <sub>Br</sub> ,90 <sub>Kr</sub> ,137 <sub>I</sub> ,138 <sub>I</sub> ,1 1∿14 MeV neutron spectra.	spectrum 39 <sub>1,</sub> 137 <sub>Xe</sub> Detectio	n wanted. C 2, <sup>138</sup> Xe for on of failed	10.0 umulative yields of fission neutron and fuel.	3	TOS	H. Shimojima

REF	NUCLID	E QUANTITY	ENER	GY(EV)	ACCURACY	Р	LAB	REQUESTORS
		·	MIN	MAX	(%)			
180. (New)	237 <sub>Np</sub>	N,GAMMA Fission. For burn-up calculati	THR on of therma	1.0+3 1 and fast r	10.0 eactors. Resonance	1	PNC	I. Otake
	0.07	parameters are also r	equirea. Ex	perimental d	ata wanted, Evalua	ation desira	abre.	
181. (New)	237 <sub>Np</sub>	N,GAMMA Fission. For burn-up calculation required. Evaluation	1.0+3 on of therma desirable.	1.5+7 l and fast r	20.0 eactors. Experimen	l ntal data	PNC	I. Otake
182	237 <sub>ND</sub>	FISSION		1.5+7	1.0	2	JAE	Y. Seki
(762135)		Fusion. 235 Ratio to U fission energy resolution 300 in neutronics experim	useful. Ac keV. For m ents on blan	curacy 3 % u onitor react ket system o	seful. Neutron ion and radiation of f fusion reactors.	losimetry	0112	
183. (712075)	239 <sub>Np</sub>	N,GAMMA Fission. For burn-up calculation cross section.	1.0+4 on. For nor	5.0+6 malization o	20.0 f calculated captur	2 ce	KYU	M. Ohta
184. (762209)	239 <sub>Np</sub>	N,GAMMA Fission. For burn-up calculation	THR on of therma	l.5+7 l reactor.	20.0	2	JAE	R. Shindo
185. (762025)	239 <sub>Np</sub>	N,GAMMA Safeguards. For high burn-up calc	THR ulation.	1.0+7	10.0	3	NFI	M. Yada
186. (762032)	239 <sub>Np</sub>	FISSION Safeguards. The values of Nu also for application. No breeder reactors.	THR wanted. 10 experimental	1.0+7 % accuracy data. Burn	25.0 is desirable —up analysis of fas	3 st	NFI	M. Yada

REF	NUCLID	E QUANTITY	ENERG	GY(EV)	ACCURACY	Р	LAB	REQUESTORS
			MIN	MAX	(%)			
187. (New)	238 <sub>Pu</sub>	N,GAMMA Fission. Burn-up calculation o data desired. Evalua	THR f thermal and ted data also	5.0+2 fast reactors required.	20.0 5. Experimental	2	PNC	I. Otake
188. (New)	238 <sub>Pu</sub>	N,GAMMA Fission. Burn-up calculation o data desired. Evalua	5.0+2 f thermal and ted data also	1.5+7 l fast reactors p required.	10.0 5. Experimental	2	PNC	I. Otake
189. (762014)	238 <sub>Pu</sub>	FISSION HALF LIFE Safeguards. Detection of Pu by ne	utron coincid	lence method.	1.0	2	MAP	K. Onishi
190. (762009)	238 <sub>Pu</sub>	GAMMA RAY YIELD Safeguards. Yield per disintegrat (Following alpha-deca seemed to meet the re of Pu-isotopes by gam	ion of 43.45, y event). Th quirement, co ma-ray specth	99.7, 152.7 1 hough present a onfirmation is coscopy.	1.0 keV gamma-rays restatus of accuration required. Assa	l equired. cy y	JAE	T. Suzuki
191. (762036)	238 <sub>Pu</sub>	FP MASS YIELD Safeguards. Fission product mass produced by bremsstra (preferably Ta) of su experimental data. N	4.0+6 yield spectru hlung. Brems fficient thic on-destructiv	1.4+7 um wanted. To sstrahlung con ckness to stop ve assay of U.	10.0 tal fission yield verter electrons. No	3	ККU	R. Miki
192. (762018)	<sup>238</sup> Pu	MISCELLA Safeguards. Decay heat (W/G) requ	ired. Assay	of Pu by calo	0.5 rimetry.	1	MAP	K. Onishi
193. (762210)	239 <sub>Pu</sub>	TOTAL Fission. For fission reactors.	1.0+4	1.0+5	2.0	1	NIG	M. Kawai

REF	NUCLID	E QUANTITY	ENER MIN	CGY (EV) MAX	ACCURACY (%)	Р	LAB	REQUESTORS
194. (762211)	<sup>239</sup> Pu	FISSION Fission. For fission reactor.	1.0+4	2.0+7	3.0	1	NIG	M. Kawai
195. (702037)	239 <sub>Pu</sub>	NU-BAR Fission. For fast reactor calcu	lations.	≤1.5+7	<0.2	1	NIG	M. Kawai
196. (762015)	239 <sub>Pu</sub>	FISSION HALF LIFE Safeguards. Detection of Pu by neu	tron coinci	dence method	1.0	2	МАР	K. Onishi
197. (762010)	239 <sub>Pu</sub>	GAMMA RAY YIELD Safeguards. Yield per disintegrati required. (Following of accuracy seemed to Assay of Pu-isotopes b	on of 45.2, alpha-decay meet the re y gamma-ray	104.2 and 6 event). Th quirement, c spectroscop	1.0 42.3 keV gamma-ray ough present statu onfirmation is req y.	1 s uired.	JAE	T. Suzuki
198. (762037)	239 <sub>Pu</sub>	FP MASS YIELD Safeguards. Fission product mass y produced by bremsstrah Yield/Roentgen×Nucleus yields. Bremsstrahlun thickness to stop elec	4.0+6 ield spectr lung requir or relativ g converter trons. Non	1.4+7 um required. ed. Yield m e to 238U or (preferably -destructive	10.0 Total fission yi ay be in the unit other photo-activ Ta) of sufficient assay of Pu.	3 eld of ation	KKU	R. Miki
199. (762045)	239 <sub>Pu</sub>	FP MASS YIELD Safeguards. Fission product mass y high fission yield iso sufficient thickness t	4.0+6 ield spectr topes. Bre o stop elec	1.4+7 um wanted. msstrahlung trons. Non-	5.0 Cumulative yields converter (prefera destructive assay o	3 of bly Ta) of of Pu.	KKU	R. Miki
200. (722046)	239 <sub>Pu</sub>	ALPHA Safeguards. Capture to fission rat 5 % above. For burn-u thermal reactor.	THR io. Accura p calculati	1.4+7 cy required on of a Pu 1	at thermal is 1 %, oaded	2	JAE	Y. Naito

REF	NUCLID	E QUANTITY	ENERG	GY(EV)	ACCURACY	Р	LAB	REQUESTORS
		·	MIN	MAX	(%)			
201. (722048)	239 <sub>Pu</sub>	NU-BAR Safeguards. Data wanted for epi-t calculation of a Pu l	THR hermal neutro oaded thermal	ons also. H Freactor.	0.5 or burn-up	2	JAE	Y. Naito
202. (762048)	239 <sub>Pu</sub>	NU-DELAYED Safeguards. The requested quantit (normalized to 1 fiss delayed neutrons for 5 %. Incident energy fresh and irradiated	THR ies are the g ion) which ca the time rang step less th fuel.	1.0+7 group half-J an be used t ge 0.1∿300 s nan 2 MeV.	5.0 tives and group yie o fit the decay cur ec within an accura Active assay of mis	2 lds rve of acy of xed	NIG	T. Murata
203. (762019)	239 <sub>Pu</sub>	MISCELLA Safeguards. Decay heat (W/G) requ	ired. Assay	of Pu by ca	0.5 lorimetry.	1	MAP	K. Onishi
204. (762016)	240 <sub>Pu</sub>	FISSION HALF LIFE Safeguards. Detection of Pu by ne	utron coincid	lence method	1.0	2	MAP	K. Onishi
205. (762011)	240 <sub>Pu</sub>	GAMMA RAY YIELD Safeguards. Yield per disintegrat (Following alpha-deca meet the requirement, gamma-ray spectroscop	ion of 45.2, y event). Th confirmation y.	104.2 and 6 hough presen h is require	1.0 642.3 keV gamma-rays at status of accurated. Assay of Pu-ise	2 s required. cy seemed t otopes by	JAE o	T. Suzuki
206. (762038)	240 <sub>Pu</sub>	FP MASS YIELD Safeguards. Fission product mass bremsstrahlung requir or relative to <sup>238</sup> U o (preferably Ta) of su Non-destructive assay	4.0+6 yield spectro ed. Yield ma or other photo officient thio of Pu.	l.4+7 um required. ay be in the p-activation ckness to st	10.0 Total fission yi unit of Yield/Roen yields. Bremsstra op electrons. No o	3 eld produce ntgen×Nucle ahlung conv experimenta	KKU d by us rerter 1 data.	R. Miki

REF	NUCLIE	E QUANTITY	ENER	GY(EV)	ACCURACY	Р	LAB	REQUESTORS
			MIN	MAX	(%)			
207. (762049)	240 <sub>Pu</sub>	NU-DELAYED Safeguards. The requested quantitie (normalized to l fissio of delayed neutrons for of 5 %. Incident energ mixed fresh and irradia	THR s are the n) which c the time y step les ted fuel.	1.0+7 group half-1 an be used t range 0.1∿30 s than 2 MeV	5.0 ives and group yie: o fit the decay cur O sec within an acc . Active assay of	2 Ids cve curacy	NIG	T. Murata
208. (762020)	240 <sub>Pu</sub>	MISCELLA Safeguards. Decay heat (W/G) requir	ed. Assay	of Pu by ca	0.5 lorimetry.	1	МАР	K. Onishi
209. (762214)	240 <sub>Pu</sub>	N,GAMMA Fission. For evaluation of breed in fast reactor calcula	1.0+3 ing ratio a tions.	5.0+5 and burn-up	10.0 reactivity change	1	МАР	Y. Seki
210. (762213)	240 <sub>Pu</sub>	FISSION Fission. For fast reactor calcul	THR ations.	1.0+6	10.0	1	МАР	M. Sasaki
211. (762215)	240 <sub>Pu</sub>	RES PARAM Fission. For fast reactor calcul	1.0+1 ations.	1.0+4		1	MAP	M. Sasaki
212. (762216)	241 <sub>Pu</sub>	TOTAL Fission. For fast reactor calcul	1.0+2 ations.	1.5+7	10.0	1	MAP	T. Hojuyama
213. (762217)	241 <sub>Pu</sub>	N,GAMMA Fission For fast reactor calcul	1.0-1 ations.	1.5+7	8.0	1	МАР	T. Hojuyama
214. (762221)	241 <sub>Pu</sub>	N,2N Fission For fast reactor calcul	TR ations.	1.5+7	20.0	2	MAP	T. Hojuyama

REF	NUCLIDE	QUANTITY	ENER	GY(EV)	ACCURACY	Р	LAB	REQUESTORS
			MIN	MAX	(%)			
215. (762219)	<sup>241</sup> Pu	ALPHA Fission. For fast reactor calcula	1.0-1 tions.	1.5+7	8.0	1	MAP	T. Hojuyama
216. (762222)	<sup>241</sup> Pu	RES PARAM Fission. For fast reactor calcula	2.0-1 tions. 10	2.0+2 D% in fissio	10.0 n width.	1	MAP	T. Hojuyama
217. (762012)	241 <sub>Pu</sub>	GAMMA RAY YIELD Safeguards. Yield per disintegration gamma-rays required. (F accuracy for 103.5 and 1 for 56.4, 77 and 160 keV accuracy seemed to meet Assay of Pu-isotopes by	of 56.4, ollowing 48.6 keV gamma-ray the requir gamma-ray	77, 103.5, alpha-decay gamma-rays, ys. Though rement, conf spectroscop	5.0 148.6 and 160 keV event). 1 % 5 % accuracy present status of irmation is required by.	1	JAE	T. Suzuki
218. (762039)	241 <sub>Pu</sub>	FP MASS YIELD Safeguards. Fission product mass yie produced by bremsstrahlu Yield/Roentgen×Nucleus o yields. Bremsstrahlung thickness to stop electr	4.0+6 Id spectrong require r relative converter ons. Non-	1.4+7 um wanted. ed. Yield m e to <sup>238</sup> U or (preferably -destructive	10.0 Total fission yield ay be in the unit of other photo-activat Ta) of sufficient assay of Pu.	3 ion	KKU	R. Miki
219. (722047)	241 <sub>Pu</sub>	ALPHA Safeguards. Accuracy required at the burn-up calculation of a	THR rmal is 1 Pu loaded	1.4+7 %, 5 % abov 1 thermal re	e. For actor.	2	JAE	Y. Naito
220. (762051)	241 <sub>Pu</sub>	NU-DELAYED Safeguards. The requested quantities yields (normalized to 1 decay curve of delayed n within an accuracy of 5 and irradiated fuel. In	THR are the f fission) eutrons fo %. Active cident end	1.0+7 group half-1 which can be or the time e assay of m ergy step le	5.0 ives and group used to fit the range 0.1 300 sec ixed fresh iss than 2 MeV.	2	NIG	T. Murata

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REF	NUCLIDE	QUANTITY	ENER	GY(EV)	ACCURACY	Р	LAB	REQUESTORS
		-	MIN	MAX	(%)			
228. (752033)	241 <sub>Am</sub>	N,GAMMA Fission. Burn-up calculation of estimation for build-up fuel. Capture cross so states of <sup>242</sup> Am. Neutr cask of spent fuel.	2.0+1 thermal and o of transu ections to ron shieldi	1.5+7 d fast reactor ranium nuclio the ground an ng design for	10.0 ors, and les in spent nd isomer r transport	1	PNC SAE MAP	R. Yumoto H. Matsunobu T. Hojuyama
229. (762040)	241 <sub>Am</sub>	FP MASS YIELD Safeguards. Fission product mass yi yield produced by brems unit of Yield/Roentgen photo-activation yields sufficient thickness to	4.0+6 ield spectro sstrahlung s Nucleus or s. Bremsst s stop elec	1.4+7 um wanted. 7 required. 7 relative to rahlung conve trons. Non-o	10.0 Total fission Leld may be in the <sup>238</sup> U or other erter (preferably T destructive assay o	3 Sa) of of Pu.	KKU	R. Miki
230. (762023)	241 <sub>Am</sub>	MISCELLA Safeguards. Decay heat (W/G) requir	red. Assay	of Pu by ca	0.5 Lorimetry.	1	МАР	K. Onishi
231. (752036)	<sup>242</sup> Am	N,GAMMA Fission. Burn-up calculation of estimation for build-up fuel. Capture cross se of <sup>242</sup> Am. Neutron shie fuel.	THR thermal and o of transu ections of elding desig	1.0+5 d fast reactor ranium nuclio the ground an gn for transp	5.0~20.0 ors, and les in spent nd isomer states port cask of spent	1	PNC SAE JAE	R. Yamoto H. Matusnobu R. Shindo
232. (722945)	242m <sub>Am</sub>	N,GAMMA Safeguards. Accuracy required at th For burn-up calculation	THR nermal is 10 n of a Pu 10	1.4+7 0 percent, 20 paded thermal	) percent above. L reactor.	2	JAE	Y. Naito

REF	NUCLID	E QUANTITY	ENER	GY(EV)	ACCURACY	Р	LAB	REQUESTORS
		-	MIN	MAX	(%)			·
221. (762021)	241 <sub>Pu</sub>	MISCELLA Safeguards. Decay heat (W/G) requi	ired. Assay	of Pu by ca	0.5 lorimetry.	1	MAP	K, Onishi
222. (762223)	242 <sub>Pu</sub>	N,GAMMA Fission. For shielding of spent	1.0+3	1.5+7	10.0	2	MAP	T. Hojuyama
223. (762224)	242 <sub>Pu</sub>	FISSION Fission. For shielding of spent	1.0+3 : fuel.	1.5+7	10.0	2	MAP	T. Hojuyama
224. (762017)	242 <sub>Pu</sub>	FISSION HALF LIFE Safeguards. Detection of Pu by new	itron coincid	lence method	1.0	2	MAP	K. Onishi
225. (722043)	242 <sub>Pu</sub>	N,GAMMA Safeguards. Accuracy required at t For burn-up calculatio	THR thermal is 5 on of a Pu lo	1.4+7 %, 10 % aboy paded thermai	ve. 1 reactor.	2	JAE	Y. Naito
226. (762022)	242 <sub>Pu</sub>	MISCELLA Safeguards. Decay heat (W/G) requi	ired. Assay	of Pu by ca	0.5 lorimetry.	1	MAP	K. Onishi
227. (752032)	241 <sub>Am</sub>	N,GAMMA Fission. Burn-up calculation of estimation for build-u Neutron shielding desi Energy dependence want	1.0-2 thermal and p of transu ign for trans ted.	2.0+1 d fast reactor ranium nuclio sport cask of	5.0~10.0 ors, and des in spent fuel. f spent fuel.	1	PNC SAE MAP	R. Yumoto H. Matsunobu T. Hojuyama

REF	NUCLID	E QUANTITY	ENER	GY(EV)	ACCURACY	Р	LAB	REQUESTORS
			MIN	MAX	(%)			
233. (762026)	242m <sub>Am</sub>	N,GAMMA Safeguards. No measurements of cap of fission cross sect burn-up calculations.	THR oture cross ion are avai	1.0+7 section but a lable. For h	10.0 a few data nigher	3	NFI	M. Yada
234. (762033)	242m <sub>Am</sub>	FISSION Safeguards. The value of Nu also w application. No expense section and Nu are known Burn-up analysis of family set family se	THR vanted. 10 rimental dat own within a ast breeder	1.0+7 % accuracy is a. The value n error of 5 reactors.	5.0 s desirable for es of fission cross % at 25.3 meV.	3	NFI	M. Yada
235. (752038)	243 <sub>Am</sub>	N,GAMMA Fission. Burn-up calculation of estimation for build-u fuel. Capture cross s of <sup>244</sup> Am. Neutron shi spent fuel.	2.0+1 thermal an p of transu sections to telding desi	1.5+7 d fast reactor ranium nuclic ground and is gn for transp	1.5~20.0 ors, and des in spent somer states port cask of	1	PNC SAE JAE MAP	R. Yumoto H. Matsunobu R. Shindo T. Hojuyama
236. (762227)	243 <sub>Am</sub>	FISSION Fission. For fast reactor calcu	THR mlations.	4.0+6	20.0	1	МАР	T. Hojuyama
237. (762028)	243 <sub>Am</sub>	N,GAMMA Safeguards Total, elastic and ine by K. Ebizuka TIT. 10 for higher energy regi breeder reactors.	THR elastic cros ) % accuracy ion. Burn-u	2.0+6 s sections an for 25 meV. p analysis of	20.0 re also required 20 % accuracy f fast	3	NFI TIT	M. Yada K. Ebizuka
238. (752042)	242 <sub>Cm</sub>	N,GAMMA Fission. Burn-up calculation of estimation for build-u fuel. Neutron shields spent fuel.	THR thermal an of transu ing design f	1.5+7 d fast reactor ranium nuclic or transport	10.0~20.0 ors, and les in spent cask of	1	PNC SAE MAP	R. Yumoto H. Matsunobu T. Hojuyama

REF	NUCLIDI	E QUANTITY	ENER	GY(EV)	ACCURACY	Р	LAB	REQUESTORS
			MIN	MAX	(%)			
239. (752041)	242 <sub>Cm</sub>	FISSION Fission. Burn-up calculation o estimation for build- fuel. Neutron shield fuel.	THR f thermal an up of transu ing design f	1.5+7 d fast react ranium nucli or transport	10.0v20.0 ors, and des in spent cask of spent	1	PNC SAE MAP	R. Yumoto H. Matsunobu T. Hojuyama
240. (762029)	242 <sub>Cm</sub>	N,GAMMA Safeguards. 10 % accuracy for 25. energy. For higher b	THR 3 meV. 20 % urn-up calcu	1.0+7 accuracy fo lations.	20.0 r higher	3	NFI	M. Yada
241. (752047)	243 <sub>Cm</sub>	N,GAMMA Fission. Burn-up calculation o estimation for build- fuel. Neutron shield fuel.	2.0+1 f thermal an up of transu ing design f	1.0+7 d fast react ranium nucli or transport	10.0∿20.0 ors, and des in spent cask of spent	1	PNC SAE	R. Yumoto H. Matsunobu
242. (752045)	243 <sub>Cm</sub>	FISSION Fission. Burn-up calculation o estimation for build- spent fuel. Neutron cask of spent fuel.	3.0+6 f thermal an up of transu shielding de	1.0+7 d fast react ranium nucli sign for tra	10.0∿20.0 ors, and des in nsport	1	PNC SAE	R. Yumoto H. Matsunobu
243. (762030)	243 <sub>Cm</sub>	N,GAMMA Safeguards. 10 % accuracy for 25. region. For higher b	THR 3 meV. 20 % urn-up calcu	1.0+7 for higher lations.	20.0 energy	3	NFI	M. Yada
244. (762031)	244 <sub>Cm</sub>	N,GAMMA Safegurads. 10 % accuracy for 25 higher energy region.	THR meV. 20 % a For higher	1.0+7 ccuracy for burn-up cal	20.0 culations.	3	NFI	M. Yaka

- 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
кто	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
тко	Tokyo University
TOS	Toshiba Research and Development Center

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