

## SCHEDULE 4

Regulation 3(1) and (3)

## SPECIFIED QUANTITIES FOR THE TRANSPORT OF RADIONUCLIDES

## PART I

**Commencement Information**

**II** Sch. 4 Pt. I in force at 20.9.2001, see [reg. 1](#)

**Table of radionuclides**

Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
Actinium		
Ac-225	(see note 1)	$6 \times 10^9$
Ac-227	(see note 1)	$9 \times 10^7$
Ac-228		$5 \times 10^{11}$
Aluminium		
Al-26		$1 \times 10^{11}$
Americium		
Am-241		$1 \times 10^9$
Am-242m	(see note 1)	$1 \times 10^9$
Am-243	(see note 1)	$1 \times 10^9$
Antimony		
Sb-122		$4 \times 10^{11}$
Sb-124		$6 \times 10^{11}$
Sb-125		$1 \times 10^{12}$
Sb-126		$4 \times 10^{11}$
Argon		
Ar-37		$4 \times 10^{13}$

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of  $UF_6$ ,  $UO_2F_2$  and  $UO_2(NO_3)_2$  in both normal and accident conditions of transport.

Note 3: These values apply only to compounds of uranium that take the chemical form of  $O_3$ ,  $UF_4$ ,  $UCl_4$  and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in Notes 2 and 3 above.

Note 5: These values apply to *unirradiated uranium* only.

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

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Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
Ar-39		2 10 <sup>13</sup>
Ar-41		3 10 <sup>11</sup>
Arsenic		
As-72		3 10 <sup>11</sup>
As-73		4 10 <sup>13</sup>
As-74		9 10 <sup>11</sup>
As-76		3 10 <sup>11</sup>
As-77		7 10 <sup>11</sup>
Astatine		
At-211	(see note 1)	5 10 <sup>11</sup>
Barium		
Ba-131	(see note 1)	2 10 <sup>12</sup>
Ba-133		3 10 <sup>12</sup>
Ba-133m		6 10 <sup>11</sup>
Ba-140	(see note 1)	3 10 <sup>11</sup>
Berkelium		
Bk-247		8 10 <sup>8</sup>
Bk-249	(see note 1)	3 10 <sup>11</sup>
Beryllium		
Be-7		2 10 <sup>13</sup>
Be-10		6 10 <sup>11</sup>
Bismuth		
Bi-205		7 10 <sup>11</sup>
Bi-206		3 10 <sup>11</sup>
Bi-207		7 10 <sup>11</sup>

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport.

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in Notes 2 and 3 above.

Note 5: These values apply to *unirradiated uranium* only.

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

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Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
Bi-210		6 10 <sup>11</sup>
Bi-210m	(see note 1)	2 10 <sup>10</sup>
Bi-212	(see note 1)	6 10 <sup>11</sup>
Bromine		
Br-76		4 10 <sup>11</sup>
Br-77		3 10 <sup>12</sup>
Br-82		4 10 <sup>11</sup>
Cadmium		
Cd-109		2 10 <sup>12</sup>
Cd-113m		5 10 <sup>11</sup>
Cd-115	(see note 1)	4 10 <sup>11</sup>
Cd-115m		5 10 <sup>11</sup>
Caesium		
Cs-129		4 10 <sup>12</sup>
Cs-131		3 10 <sup>13</sup>
Cs-132		1 10 <sup>12</sup>
Cs-134		7 10 <sup>11</sup>
Cs-134m		6 10 <sup>11</sup>
Cs-135		1 10 <sup>12</sup>
Cs-136		5 10 <sup>11</sup>
Cs-137	(see note 1)	6 10 <sup>11</sup>
Calcium		
Ca-41		unlimited
Ca-45		1 10 <sup>12</sup>
Ca-47	(see note 1)	3 10 <sup>11</sup>

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport.

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in Notes 2 and 3 above.

Note 5: These values apply to *unirradiated uranium* only.

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Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
Californium		
Cf-248		6 10 <sup>9</sup>
Cf-249		8 10 <sup>8</sup>
Cf-250		2 10 <sup>9</sup>
Cf-251		7 10 <sup>8</sup>
Cf-252		3 10 <sup>9</sup>
Cf-253	(see note 1)	4 10 <sup>10</sup>
Cf-254		1 10 <sup>9</sup>
Carbon		
C-11		6 10 <sup>11</sup>
C-14		3 10 <sup>12</sup>
Cerium		
Ce-139		2 10 <sup>12</sup>
Ce-141		6 10 <sup>11</sup>
Ce-143		6 10 <sup>11</sup>
Ce-144	(see note 1)	2 10 <sup>11</sup>
Chlorine		
Cl-36		6 10 <sup>11</sup>
Cl-38		2 10 <sup>11</sup>
Chromium		
Cr-51		3 10 <sup>13</sup>
Cobalt		
Co-55		5 10 <sup>11</sup>
Co-56		3 10 <sup>11</sup>
Co-57		1 10 <sup>13</sup>

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport.

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in Notes 2 and 3 above.

Note 5: These values apply to *unirradiated uranium* only.

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Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
Co-58		1 10 <sup>12</sup>
Co-58m		4 10 <sup>13</sup>
Co-60		4 10 <sup>11</sup>
Copper		
Cu-64		1 10 <sup>12</sup>
Cu-67		7 10 <sup>11</sup>
Curium		
Cm-240		2 10 <sup>10</sup>
Cm-241		1 10 <sup>12</sup>
Cm-242		1 10 <sup>10</sup>
Cm-243		1 10 <sup>9</sup>
Cm-244		2 10 <sup>9</sup>
Cm-245		9 10 <sup>8</sup>
Cm-246		9 10 <sup>8</sup>
Cm-247	(see note 1)	1 10 <sup>9</sup>
Cm-248		3 10 <sup>8</sup>
Dysprosium		
Dy-159		2 10 <sup>13</sup>
Dy-165		6 10 <sup>11</sup>
Dy-166	(see note 1)	3 10 <sup>11</sup>
Erbium		
Er-169		1 10 <sup>12</sup>
Er-171		5 10 <sup>11</sup>
Europium		
Eu-147		2 10 <sup>12</sup>

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Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

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Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
Eu-148		5 10 <sup>11</sup>
Eu-149		2 10 <sup>13</sup>
Eu-150	(long lived isotope)	7 10 <sup>11</sup>
Eu-150	(short lived isotope)	7 10 <sup>11</sup>
Eu-152		1 10 <sup>12</sup>
Eu-152m		8 10 <sup>11</sup>
Eu-154		6 10 <sup>11</sup>
Eu-155		3 10 <sup>12</sup>
Eu-156		7 10 <sup>11</sup>
Fluorine		
F-18		6 10 <sup>11</sup>
Gadolinium		
Gd-146	(see note 1)	5 10 <sup>11</sup>
Gd-148		2 10 <sup>9</sup>
Gd-153		9 10 <sup>12</sup>
Gd-159		6 10 <sup>11</sup>
Gallium		
Ga-67		3 10 <sup>12</sup>
Ga-68		5 10 <sup>11</sup>
Ga-72		4 10 <sup>11</sup>
Germanium		
Ge-68	(see note 1)	5 10 <sup>11</sup>
Ge-71		4 10 <sup>13</sup>
Ge-77		3 10 <sup>11</sup>
Gold		

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Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

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Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
Au-193		2 10 <sup>12</sup>
Au-194		1 10 <sup>12</sup>
Au-195		6 10 <sup>12</sup>
Au-198		6 10 <sup>11</sup>
Au-199		6 10 <sup>11</sup>
Hafnium		
Hf-172	(see note 1)	6 10 <sup>11</sup>
Hf-175		3 10 <sup>12</sup>
Hf-181		5 10 <sup>11</sup>
Hf-182		unlimited
Holmium		
Ho-166		4 10 <sup>11</sup>
Ho-166m		5 10 <sup>11</sup>
Hydrogen		
H-3		4 10 <sup>13</sup>
Indium		
In-111		3 10 <sup>12</sup>
In-113m		2 10 <sup>12</sup>
In-114m	(see note 1)	5 10 <sup>11</sup>
In-115m		1 10 <sup>12</sup>
Iodine		
I-123		3 10 <sup>12</sup>
I-124		1 10 <sup>12</sup>
I-125		3 10 <sup>12</sup>
I-126		1 10 <sup>12</sup>

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport.

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

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Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
I-129		unlimited
I-131		7 10 <sup>11</sup>
I-132		4 10 <sup>11</sup>
I-133		6 10 <sup>11</sup>
I-134		3 10 <sup>11</sup>
I-135	(see note 1)	6 10 <sup>11</sup>
<b>Iridium</b>		
Ir-189	(see note 1)	1 10 <sup>13</sup>
Ir-190		7 10 <sup>11</sup>
Ir-192		6 10 <sup>11</sup>
Ir-194		3 10 <sup>11</sup>
<b>Iron</b>		
Fe-52	(see note 1)	3 10 <sup>11</sup>
Fe-55		4 10 <sup>13</sup>
Fe-59		9 10 <sup>11</sup>
Fe-60	(see note 1)	2 10 <sup>11</sup>
<b>Krypton</b>		
Kr-81		4 10 <sup>13</sup>
Kr-85		1 10 <sup>13</sup>
Kr-85m		3 10 <sup>12</sup>
Kr-87		2 10 <sup>11</sup>
<b>Lanthanum</b>		
La-137		6 10 <sup>12</sup>
La-140		4 10 <sup>11</sup>
<b>Lead</b>		

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Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

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Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
Pb-201		1 10 <sup>12</sup>
Pb-202		2 10 <sup>13</sup>
Pb-203		3 10 <sup>12</sup>
Pb-205		unlimited
Pb-210	(see note 1)	5 10 <sup>10</sup>
Pb-212	(see note 1)	2 10 <sup>11</sup>
Lutetium		
Lu-172		6 10 <sup>11</sup>
Lu-173		8 10 <sup>12</sup>
Lu-174		9 10 <sup>12</sup>
Lu-174m		1 10 <sup>13</sup>
Lu-177		7 10 <sup>11</sup>
Magnesium		
Mg-28	(see note 1)	3 10 <sup>11</sup>
Manganese		
Mn-52		3 10 <sup>11</sup>
Mn-53		unlimited
Mn-54		1 10 <sup>12</sup>
Mn-56		3 10 <sup>11</sup>
Mercury		
Hg-194	(see note 1)	1 10 <sup>12</sup>
Hg-195m	(see note 1)	7 10 <sup>11</sup>
Hg-197		1 10 <sup>13</sup>
Hg-197m		4 10 <sup>11</sup>
Hg-203		1 10 <sup>12</sup>

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Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

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Molybdenum		
Mo-93		2 10 <sup>13</sup>
Mo-99	(see note 1)	6 10 <sup>11</sup>
Neodymium		
Nd-147		6 10 <sup>11</sup>
Nd-149		5 10 <sup>11</sup>
Neptunium		
Np-235		4 10 <sup>13</sup>
Np-236	(long lived isotope)	2 10 <sup>10</sup>
Np-236	(short lived isotope)	2 10 <sup>12</sup>
Np-237		2 10 <sup>9</sup>
Np-239		4 10 <sup>11</sup>
Nickel		
Ni-59		unlimited
Ni-63		3 10 <sup>13</sup>
Ni-65		4 10 <sup>11</sup>
Niobium		
Nb-93m		3 10 <sup>13</sup>
Nb-94		7 10 <sup>11</sup>
Nb-95		1 10 <sup>12</sup>
Nb-97		6 10 <sup>11</sup>
Nitrogen		
N-13		6 10 <sup>11</sup>
Osmium		
Os-185		1 10 <sup>12</sup>

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Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

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Os-191		2 10 <sup>12</sup>
Os-191m		3 10 <sup>13</sup>
Os-193		6 10 <sup>11</sup>
Os-194	(see note 1)	3 10 <sup>11</sup>
Palladium		
Pd-103	(see note 1)	4 10 <sup>13</sup>
Pd-107		unlimited
Pd-109		5 10 <sup>11</sup>
Phosphorus		
P-32		5 10 <sup>11</sup>
P-33		1 10 <sup>12</sup>
Platinum		
Pt-188	(see note 1)	8 10 <sup>11</sup>
Pt-191		3 10 <sup>12</sup>
Pt-193		4 10 <sup>13</sup>
Pt-193m		5 10 <sup>11</sup>
Pt-195m		5 10 <sup>11</sup>
Pt-197		6 10 <sup>11</sup>
Pt-197m		6 10 <sup>11</sup>
Plutonium		
Pu-236		3 10 <sup>9</sup>
Pu-237		2 10 <sup>13</sup>
Pu-238		1 10 <sup>9</sup>
Pu-239		1 10 <sup>9</sup>
Pu-240		1 10 <sup>9</sup>

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport.

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

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Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
Pu-241	(see note 1)	6 10 <sup>10</sup>
Pu-242		1 10 <sup>9</sup>
Pu-244	(see note 1)	1 10 <sup>9</sup>
Polonium		
Po-210		2 10 <sup>10</sup>
Potassium		
K-40		9 10 <sup>11</sup>
K-42		2 10 <sup>11</sup>
K-43		6 10 <sup>11</sup>
Praseodymium		
Pr-142		4 10 <sup>11</sup>
Pr-143		6 10 <sup>11</sup>
Promethium		
Pm-143		3 10 <sup>12</sup>
Pm-144		7 10 <sup>11</sup>
Pm-145		1 10 <sup>13</sup>
Pm-147		2 10 <sup>12</sup>
Pm-148m	(see note 1)	7 10 <sup>11</sup>
Pm-149		6 10 <sup>11</sup>
Pm-151		6 10 <sup>11</sup>
Protactinium		
Pa-230	(see note 1)	7 10 <sup>10</sup>
Pa-231		4 10 <sup>8</sup>
Pa-233		7 10 <sup>11</sup>
Radium		

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport.

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in Notes 2 and 3 above.

Note 5: These values apply to *unirradiated uranium* only.

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

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Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
Ra-223	(see note 1)	7 10 <sup>9</sup>
Ra-224	(see note 1)	2 10 <sup>10</sup>
Ra-225	(see note 1)	4 10 <sup>9</sup>
Ra-226	(see note 1)	3 10 <sup>9</sup>
Ra-228	(see note 1)	2 10 <sup>10</sup>
Radon		
Rn-222	(see note 1)	4 10 <sup>9</sup>
Rhenium		
Re-184		1 10 <sup>12</sup>
Re-184m		1 10 <sup>12</sup>
Re-186		6 10 <sup>11</sup>
Re-187		unlimited
Re-188		4 10 <sup>11</sup>
Re-189	(see note 1)	6 10 <sup>11</sup>
Re-natural		unlimited
Rhodium		
Rh-99		2 10 <sup>12</sup>
Rh-101		3 10 <sup>12</sup>
Rh-102		5 10 <sup>11</sup>
Rh-102m		2 10 <sup>12</sup>
Rh-103m		4 10 <sup>13</sup>
Rh-105		8 10 <sup>11</sup>
Rubidium		
Rb-81		8 10 <sup>11</sup>
Rb-83	(see note 1)	2 10 <sup>12</sup>

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport.

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in Notes 2 and 3 above.

Note 5: These values apply to *unirradiated uranium* only.

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Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
Rb-84		1 10 <sup>12</sup>
Rb-86		5 10 <sup>11</sup>
Rb-87		unlimited
Rb-natural		unlimited
Ruthenium		
Ru-97		5 10 <sup>12</sup>
Ru-103	(see note 1)	2 10 <sup>12</sup>
Ru-105		6 10 <sup>11</sup>
Ru-106	(see note 1)	2 10 <sup>11</sup>
Samarium		
Sm-145		1 10 <sup>13</sup>
Sm-147		unlimited
Sm-151		1 10 <sup>13</sup>
Sm-153		6 10 <sup>11</sup>
Scandium		
Sc-44		5 10 <sup>11</sup>
Sc-46		5 10 <sup>11</sup>
Sc-47		7 10 <sup>11</sup>
Sc-48		3 10 <sup>11</sup>
Selenium		
Se-75		3 10 <sup>12</sup>
Se-79		2 10 <sup>12</sup>
Silicon		
Si-31		6 10 <sup>11</sup>
Si-32		5 10 <sup>11</sup>

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport.

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in Notes 2 and 3 above.

Note 5: These values apply to *unirradiated uranium* only.

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

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Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
Silver		
Ag-105		2 10 <sup>12</sup>
Ag-108m	(see note 1)	7 10 <sup>11</sup>
Ag-110m	(see note 1)	4 10 <sup>11</sup>
Ag-111		6 10 <sup>11</sup>
Sodium		
Na-22		5 10 <sup>11</sup>
Na-24		2 10 <sup>11</sup>
Strontium		
Sr-82	(see note 1)	2 10 <sup>11</sup>
Sr-85		2 10 <sup>12</sup>
Sr-85m		5 10 <sup>12</sup>
Sr-87m		3 10 <sup>12</sup>
Sr-89		6 10 <sup>11</sup>
Sr-90	(see note 1)	3 10 <sup>11</sup>
Sr-91	(see note 1)	3 10 <sup>11</sup>
Sr-92	(see note 1)	3 10 <sup>11</sup>
Sulphur		
S-35		3 10 <sup>12</sup>
Tantalum		
Ta-178	(long lived isotope)	8 10 <sup>11</sup>
Ta-179		3 10 <sup>13</sup>
Ta-182		5 10 <sup>11</sup>
Technetium		
Tc-95m	(see note 1)	2 10 <sup>12</sup>

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport.

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in Notes 2 and 3 above.

Note 5: These values apply to *unirradiated uranium* only.

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

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Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
Tc-96		4 10 <sup>11</sup>
Tc-96m	(see note 1)	4 10 <sup>11</sup>
Tc-97		unlimited
Tc-97m		1 10 <sup>12</sup>
Tc-98		7 10 <sup>11</sup>
Tc-99		9 10 <sup>11</sup>
Tc-99m		4 10 <sup>12</sup>
Tellurium		
Te-121		2 10 <sup>12</sup>
Te-121m		3 10 <sup>12</sup>
Te-123m		1 10 <sup>12</sup>
Te-125m		9 10 <sup>11</sup>
Te-127		7 10 <sup>11</sup>
Te-127m	(see note 1)	5 10 <sup>11</sup>
Te-129		6 10 <sup>11</sup>
Te-129m	(see note 1)	4 10 <sup>11</sup>
Te-131m	(see note 1)	5 10 <sup>11</sup>
Te-132	(see note 1)	4 10 <sup>11</sup>
Terbium		
Tb-157		4 10 <sup>13</sup>
Tb-158		1 10 <sup>12</sup>
Tb-160		6 10 <sup>11</sup>
Thallium		
Tl-200		9 10 <sup>11</sup>
Tl-201		4 10 <sup>12</sup>

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport.

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in Notes 2 and 3 above.

Note 5: These values apply to *unirradiated uranium* only.

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.



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Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
Tl-202		2 10 <sup>12</sup>
Tl-204		7 10 <sup>11</sup>
<b>Thorium</b>		
Th-227		5 10 <sup>9</sup>
Th-228	(see note 1)	1 10 <sup>9</sup>
Th-229		5 10 <sup>8</sup>
Th-230		1 10 <sup>9</sup>
Th-231		2 10 <sup>10</sup>
Th-232		unlimited
Th-234	(see note 1)	3 10 <sup>11</sup>
Th-natural		unlimited
<b>Thulium</b>		
Tm-167		8 10 <sup>11</sup>
Tm-170		6 10 <sup>11</sup>
Tm-171		4 10 <sup>13</sup>
<b>Tin</b>		
Sn-113	(see note 1)	2 10 <sup>12</sup>
Sn-117m		4 10 <sup>11</sup>
Sn-119m		3 10 <sup>13</sup>
Sn-121m	(see note 1)	9 10 <sup>11</sup>
Sn-123		6 10 <sup>11</sup>
Sn-125		4 10 <sup>11</sup>
Sn-126	(see note 1)	4 10 <sup>11</sup>
<b>Titanium</b>		
Ti-44	(see note 1)	4 10 <sup>11</sup>

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport.

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in Notes 2 and 3 above.

Note 5: These values apply to *unirradiated uranium* only.

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

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Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
Tungsten		
W-178	(see note 1)	5 10 <sup>12</sup>
W-181		3 10 <sup>13</sup>
W-185		8 10 <sup>11</sup>
W-187		6 10 <sup>11</sup>
W-188	(see note 1)	3 10 <sup>11</sup>
Uranium		
U-230	(fast lung absorption, see notes 1 and 2)	1 10 <sup>11</sup>
U-230	(medium lung absorption see notes 1 and 3)	4 10 <sup>9</sup>
U-230	(slow lung absorption, see notes 1 and 4)	3 10 <sup>9</sup>
U-232	(fast lung absorption, see note 2)	1 10 <sup>10</sup>
U-232	(medium lung absorption, see note 3)	7 10 <sup>9</sup>
U-232	(slow lung absorption, see note 4)	1 10 <sup>9</sup>
U-233	(fast lung absorption, see note 2)	9 10 <sup>10</sup>
U-233	(medium lung absorption, see note 3)	2 10 <sup>10</sup>
U-233	(slow lung absorption, see note 4)	6 10 <sup>9</sup>
U-234	(fast lung absorption, see note 2)	9 10 <sup>10</sup>
U-234		2 10 <sup>10</sup>
U-234	(medium lung absorption, see note 3)	6 10 <sup>9</sup>

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport.

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in Notes 2 and 3 above.

Note 5: These values apply to *unirradiated uranium* only.

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Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
U-235	(slow lung absorption, see note 4)	unlimited
U-236	(all lung absorption types, see notes 1, 2, 3 and 4)	unlimited
U-236	(fast lung absorption, see note 2)	$2 \times 10^{10}$
U-236	(medium lung absorption, see note 3)	$6 \times 10^9$
U-238	(slow lung absorption, see note 4)	unlimited
U-natural	(all lung absorption types, see notes 2, 3 and 4)	unlimited
U (enriched to 20% or less)		unlimited
U-depleted	(see note 5)	unlimited
Vanadium		
V-48		$4 \times 10^{11}$
V-49		$4 \times 10^{13}$
Xenon		
Xe-122	(see note 1)	$4 \times 10^{11}$
Xe-123		$7 \times 10^{11}$
Xe-127		$2 \times 10^{12}$
Xe-131m		$4 \times 10^{13}$
Xe-133		$1 \times 10^{13}$
Xe-135		$2 \times 10^{12}$
Ytterbium		
Yb-169		$1 \times 10^{12}$

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport.

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in Notes 2 and 3 above.

Note 5: These values apply to *unirradiated uranium* only.

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Radionuclide name, symbol	Radionuclide form	Quantity (Bq)
Yb-175		9 10 <sup>11</sup>
<b>Yttrium</b>		
Y-87	(see note 1)	1 10 <sup>12</sup>
Y-88		4 10 <sup>11</sup>
Y-90		3 10 <sup>11</sup>
Y-91		6 10 <sup>11</sup>
Y-91m		2 10 <sup>12</sup>
Y-92		2 10 <sup>11</sup>
Y-93		3 10 <sup>11</sup>
<b>Zinc</b>		
Zn-65		2 10 <sup>12</sup>
Zn-69		6 10 <sup>11</sup>
Zn-69m	(see note 1)	6 10 <sup>11</sup>
<b>Zirconium</b>		
Zr-88		3 10 <sup>12</sup>
Zr-93		unlimited
Zr-95	(see note 1)	8 10 <sup>11</sup>
Zr-97	(see note 1)	4 10 <sup>11</sup>
Other radionuclides not listed above where only beta or gamma emitting nuclides are known to be present	(see note 6)	2 10 <sup>10</sup>
Other radionuclides not listed above where alpha emitting nuclides are known to be present or no relevant data are available	(see note 6)	9 10 <sup>7</sup>

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport.

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds other than those specified in Note 2 above in both normal and accident conditions of transport.

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## PART II

### Quantity ratios for more than one radionuclide

1. For the purpose of regulation 3(3), the quantity ratio for more than one radionuclide is the sum of the quotients of the quantity of a radionuclide present  $Q_p$  divided by the quantity of that radionuclide specified in the appropriate column of Part I of this Schedule  $Q_{lim}$ , namely—

$$\sum \frac{Q_p}{Q_{lim}}$$

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#### Commencement Information

**I2** Sch. 4 Pt. II para. 1 in force at 20.9.2001, see reg. 1

2. In any case where the isotopic composition of a radioactive substance is not known or is only partially known, the quantity ratio for that substance shall be calculated by using the values specified in the appropriate column in Part I for “other radionuclides not listed above” for any radionuclide that has not been identified or where the quantity of a radionuclide is uncertain, unless the employer can show that the use of some other value is appropriate in the circumstances of a particular case, when he may use that value.

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#### Commencement Information

**I3** Sch. 4 Pt. II para. 2 in force at 20.9.2001, see reg. 1

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**Changes and effects yet to be applied to :**

- Sch. 4 Pt. 1 Note 3 word substituted by [S.I. 2002/2099 Sch. 4 para. 10](#)
- Regulations revoked by [S.I. 2019/703 reg. 27](#)
- defn(s) appl by [S.I. 2005/2042 reg 12\(e\)](#)

**Changes and effects yet to be applied to the whole Instrument associated Parts and Chapters:**

Whole provisions yet to be inserted into this Instrument (including any effects on those provisions):

- reg. 2(9A) added by [S.I. 2005/2560 reg. 2\(3\)](#)
- reg. 3(6) added by [S.I. 2004/568 Sch. 13 para. 11\(3\)\(e\)](#)
- reg. 3(6) substituted by [S.I. 2007/1573 Sch. 8](#)
- reg. 7(6)(aa)(ab) substituted for word by [S.I. 2013/235 Sch. 2 para. 47\(3\)](#)
- reg. 7(6)(ab) words inserted by [S.I. 2018/378 Sch. para. 20\(d\)](#)
- reg. 8(7)(aa) substituted for word by [S.I. 2013/235 Sch. 2 para. 47\(4\)](#)
- reg. 8(7)(aa) words inserted by [S.I. 2018/378 Sch. para. 20\(d\)](#)
- reg. 9(12)(aa)(ab) substituted for word by [S.I. 2013/235 Sch. 2 para. 47\(5\)](#)
- reg. 9(12)(ab) words inserted by [S.I. 2018/378 Sch. para. 20\(d\)](#)
- reg. 18A inserted by [S.I. 2006/557 Sch. para. 10](#)
- reg. 18A heading words substituted by [S.I. 2015/1682 Sch. para. 10\(f\)](#)
- reg. 18A words substituted by [S.I. 2015/1682 Sch. para. 10\(f\)\(i\)](#)
- reg. 18A(2)(aa) inserted by [S.I. 2014/469 Sch. 3 para. 105\(2\)](#)
- reg. 18B inserted by [S.I. 2014/469 Sch. 3 para. 105\(3\)](#)
- reg. 18B(2)(b) words substituted by [S.I. 2015/1682 Sch. para. 10\(f\)\(ii\)](#)