

Pipeline and Hazardous Materials Safety Admin., DOT

§ 173.435

Where:

n + m represents all the radionuclides in the mixture;
 m are the radionuclides that do not need to be considered;

$a_{(i)}$ is the activity of radionuclide i in the mixture; and
 $A_{(i)}$ is the A_1 or A_2 value, as appropriate for radionuclide i.

(h) Tables 7 and 8 are as follows:

TABLE 7—GENERAL VALUES FOR A_1 AND A_2

Radioactive contents	A_1		A_2	
	(TBq)	(Ci)	(TBq)	(Ci)
1. Only beta or gamma emitting nuclides are known to be present	1×10^{-1}	2.7×10^0	2×10^{-2}	5.4×10^{-1}
2. Only alpha emitting nuclides are known to be present	2×10^{-1}	5.4×10^0	9×10^{-5}	2.4×10^{-3}
3. No relevant data are available	1×10^{-3}	2.7×10^{-2}	9×10^{-5}	2.4×10^{-3}

TABLE 8—GENERAL EXEMPTION VALUES

Radioactive contents	Activity concentration for exempt material		Activity limits for exempt consignments	
	(Bq/g)	(Ci/g)	(Bq)	(Ci)
1. Only beta or gamma emitting nuclides are known to be present	1×10^1	2.7×10^{-10}	1×10^4	2.7×10^{-7}
2. Only alpha emitting nuclides are known to be present	1×10^{-1}	2.7×10^{-12}	1×10^3	2.7×10^{-8}
3. No relevant data are available	1×10^{-1}	2.7×10^{-12}	1×10^3	2.7×10^{-8}

[69 FR 3677, Jan. 26, 2004; 69 FR 55119, Sept. 13, 2004]

§ 173.434 Activity-mass relationships for uranium and natural thorium.

The table of activity-mass relationships for uranium and natural thorium are as follows:

Thorium and uranium enrichment ¹ (Wt% ²³⁵ U present)	Specific activity			
	TBq/gram	Grams/Tbq	Ci/gram	Grams/Ci
0.45 (depleted)	1.9×10^{-8}	5.4×10^7	5.0×10^{-7}	2.0×10^6
0.72 (natural)	2.6×10^{-8}	3.8×10^7	7.1×10^{-7}	1.4×10^6
1.0	2.8×10^{-8}	3.6×10^7	7.6×10^{-7}	1.3×10^6
1.5	3.7×10^{-8}	2.7×10^7	1.0×10^{-6}	1.0×10^6
5.0	1.0×10^{-7}	1.0×10^7	2.7×10^{-6}	3.7×10^5
10.0	1.8×10^{-7}	5.6×10^6	4.8×10^{-6}	2.1×10^5
20.0	3.7×10^{-7}	2.7×10^6	1.0×10^{-5}	1.0×10^5
35.0	7.4×10^{-7}	1.4×10^6	2.0×10^{-5}	5.0×10^4
50.0	9.3×10^{-7}	1.1×10^6	2.5×10^{-5}	4.0×10^4
90.0	2.1×10^{-6}	4.7×10^5	5.8×10^{-5}	1.7×10^4
93.0	2.6×10^{-6}	3.9×10^5	7.0×10^{-5}	1.4×10^4
95.0	3.4×10^{-6}	3.0×10^5	9.1×10^{-5}	1.1×10^4
Natural thorium	8.1×10^{-9}	1.2×10^8	2.2×10^{-7}	4.6×10^6

¹ The figures for uranium include representative values for the activity of uranium-234 which is concentrated during the enrichment process. The activity for thorium includes the equilibrium concentration of thorium-228.

[Amdt. 173-244, 60 FR 50307, Sept. 28, 1995, as amended by 63 FR 52849, Oct. 1, 1998]

§ 173.435 Table of A_1 and A_2 values for radionuclides.

The table of A_1 and A_2 values for radionuclides is as follows:

Symbol of radionuclide	Element and atomic number	A_1 (TBq)	A_1 (Ci) ^b	A_2 (TBq)	A_2 (Ci) ^b	Specific activity	
						(TBq/g)	(Ci/g)
Ac-225 (a)	Actinium (89)	8.0×10^{-1}	2.2×10^1	6.0×10^{-3}	1.6×10^{-1}	2.1×10^3	5.8×10^4
Ac-227 (a) .....	.....	9.0×10^{-1}	2.4×10^1	9.0×10^{-5}	2.4×10^{-3}	2.7	7.2×10^1
Ac-228 .....	.....	6.0×10^{-1}	1.6×10^1	5.0×10^{-1}	1.4×10^1	8.4×10^4	2.2×10^6
Ag-105	Silver (47)	2.0	5.4×10^1	2.0	5.4×10^1	1.1×10^3	3.0×10^4
Ag-108m (a) .....	.....	7.0×10^{-1}	1.9×10^1	7.0×10^{-1}	1.9×10^1	9.7×10^{-1}	2.6×10^1
Ag-110m (a) .....	.....	4.0×10^{-1}	1.1×10^1	4.0×10^{-1}	1.1×10^1	1.8×10^2	4.7×10^3
Ag-111 .....	.....	2.0	5.4×10^1	6.0×10^{-1}	1.6×10^1	5.8×10^3	1.6×10^5
Al-26	Aluminum (13)	1.0×10^{-1}	2.7	1.0×10^{-1}	2.7	7.0×10^{-4}	1.9×10^{-2}