

§ 173.417 Authorized fissile materials packages.

(a) Except as provided in §173.453, fissile materials containing not more than A₁ or A₂ as appropriate, must be packaged in one of the following packagings:

(1)(i) Any packaging listed in §173.415, limited to the Class 7 (radioactive) materials specified in 10 CFR part 71, subpart C;

(ii) Any Type AF, Type B(U)F, or Type B(M)F packaging that meets the applicable standards for fissile material packages in 10 CFR part 71; or

(iii) Any Type AF, Type B(U)F, or Type B(M)F packaging that meets the applicable requirements for fissile material packages in Section VI of the International Atomic Energy Agency “Regulations for the Safe Transport of Radioactive Material, No. TS-R-1 (IBR, see §171.7 of this subchapter),” and for which the foreign Competent Authority certificate has been revalidated by the U.S. Competent Authority, in accordance with §173.473. These packages are authorized only for export and import shipments.

(2) A residual “heel” of enriched solid uranium hexafluoride may be transported without a protective overpack in any metal cylinder that meets both the requirements of §173.415 and §178.350 of this subchapter for Specification 7A Type A packaging, and the requirements of §173.420 for packagings containing greater than 0.1 kg of uranium hexafluoride. Any such shipment must be made in accordance with Table 2, as follows:

Table 2—Allowable Content of Uranium Hexafluoride (UF₆ “Heel” in a Specification 7A Cylinder)

Maximum cylinder diameter		Cylinder volume		Maximum Uranium 235-enrichment (weight) percent	Maximum “Heel” weight per cylinder			
Centimeters	Inches	Liters	Cubic feet		UF ₆		Uranium-235	
					kg	lb	kg	lb
12.7	5	8.8	0.311	100.0	0.045	0.1	0.031	0.07
20.3	8	39.0	1.359	12.5	0.227	0.5	0.019	0.04
30.5	12	68.0	2.410	5.0	0.454	1.0	0.015	0.03
76.0	30	725.0	25.64	5.0	11.3	25.0	0.383	0.84
122.0	48	3,084.0	¹ 108.9	4.5	22.7	50.0	0.690	1.52
122.0	48	4,041.0	² 142.7	4.5	22.7	50.0	0.690	1.52

110 ton.

214 ton

(3) DOT Specification 20PF–1, 20PF–2, or 20PF–3 (see §178.356 of this subchapter), or Specification 21PF–1A, 21PF–1B, or 21PF–2 (see §178.358 of this subchapter) phenolic-foam insulated overpack with snug fittings inner metal cylinders, meeting all requirements of §§173.24, 173.410, 173.412, and 173.420 and the following:

(i) Handling procedures and packaging criteria must be in accordance with United States Enrichment Corporation Report No. USEC–651 or ANSI N14.1 (IBR, see §171.7 of this subchapter); and

(ii) Quantities of uranium hexafluoride are authorized as shown in Table 3 of this section, with each package assigned a minimum criticality safety index as also shown.

(b) Fissile Class 7 (radioactive) materials with radioactive content exceeding A₁ or A₂ must be packaged in one of the following packagings:

(1) Type B(U), or Type B(M) packaging that meets the standards for packaging of fissile materials in 10 CFR part 71, and is approved by the U.S. Nuclear Regulatory Commission and used in accordance with §173.471;

(2) Type B(U) or Type B(M) packaging that also meets the applicable requirements for fissile material packaging in Section VI of the International Atomic Energy Agency "Regulations for the Safe Transport of Radioactive Material, No. TS-R-1," and for which the foreign Competent Authority certificate has been revalidated by the U.S. Competent Authority in accordance with §173.473. These packagings are authorized only for import and export shipments; or

(3) DOT Specifications 20PF-1, 20PF-2, or 20PF-3 (see §178.356 of this subchapter), for DOT Specifications 21PF-1A or 21PF-1B (see §178.356 of this subchapter) phenolic-foam insulated overpack with snug fitting inner metal cylinders, meeting all requirements of §§173.24, 173.410, and 173.412, and the following:

(i) Handling procedures and packaging criteria must be in accordance with United States Enrichment Corporation Report No. USEC-651 or ANSI N14.1; and

(ii) Quantities of uranium hexafluoride are authorized as shown in Table 3, with each package assigned a minimum criticality safety index as also shown:

Table 3—Authorized Quantities of Uranium Hexafluoride

Protective overpack specification number	Maximum inner cylinder diameter		Maximum weight of UF ₆ contents		Maximum U-235 enrichment (weight/percent)	Minimum criticality safety index
	Centimeters	Inches	Kilograms	Pounds		
20PF-1	12.7	5	25	55	100.0	0.1
20PF-2	20.3	8	116	255	12.5	0.4
20PF-3	30.5	12	209	460	5.0	1.1
21PF-1A ¹ or 21PF-1B ^{1,2} 76.0	230	2,250	4,950	5.0	5.0	
21PF-1A ¹ or 21PF-1B ¹	376.0	330	2,282	5,020	5.0	5.0
21PF-2 ¹	276.0	230	2,250	4,950	5.0	5.0
21PF-2 ¹	376.0	330	2,282	5,020	5.0	5.0

¹For 76 cm (30 in) cylinders, the maximum H/U atomic ratio is 0.088.

²Model 30A inner cylinder (reference USEC-651).

³Model 30B inner cylinder (reference USEC-651).

(c) Continued use of an existing fissile material packaging constructed to DOT Specification 6L, 6M, or 1A2, is authorized until October 1, 2008 if it conforms in all respects to the requirements of this subchapter in effect on October 1, 2003.

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