

- (i) Handling procedures and packaging criteria must be in accordance with DOE Report ORO-651 or ANSI N14.1; and
- (ii) Quantities of uranium hexafluoride are authorized as shown in table 6, with each package assigned a minimum transport index as also shown:

TABLE 6—AUTHORIZED QUANTITIES OF URANIUM HEXAFLUORIDE

Protective overpack specification number	Maximum inner cylinder diameter		Maximum weight of UF6 contents		Maximum U-235 enrichment (weight/percent)	Minimum transport index
	Cm	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	² 30	2,250	4,950	5.0	5.0
21PF-1A ¹ or 21PF-1B ¹	³ 76.0	³ 30	2,282	5,020	5.0	5.0
21PF-2 ¹	² 76.0	² 30	2,250	4,950	5.0	5.0
21PF-2 ¹	³ 76.0	³ 30	2,282	5,020	5.0	5.0

¹ For 76 cm (30 in) cylinders, the maximum H/U atomic ratio is 0.088.
² Model 30A inner cylinder (reference ORO-651).
³ Model 30B inner cylinder (reference ORO-651).

[Amdt. 173-244, 60 FR 50307, Sept. 28, 1995, as amended by Amdt. 173-244, 61 FR 20750, May 8, 1996; 65 FR 58630, Sept. 29, 2000; 66 FR 45380, Aug. 28, 2001; 67 FR 61014, Sept. 27, 2002]

§ 173.418 Authorized packages—pyrophoric Class 7 (radioactive) materials.

Pyrophoric Class 7 (radioactive) materials, as referenced in the §172.101 table of this subchapter, in quantities not exceeding A₂ per package must be transported in DOT Specification 7A packagings constructed of materials that will not react with, nor be decomposed by, the contents. Contents of the package must be—

- (a) In solid form and must not be fissile unless excepted by §173.453;
- (b) Contained in sealed and corrosion resistant receptacles with positive closures (friction or slip-fit covers or stoppers are not authorized);
- (c) Free of water and contaminants that would increase the reactivity of the material; and
- (d) Inerted to prevent self-ignition during transport by either—
 - (1) Mixing with large volumes of inerting materials, such as graphite, dry sand, or other suitable inerting material, or blended into a matrix of hardened concrete; or
 - (2) Filling the innermost receptacle with an appropriate inert gas or liquid.

§ 173.419 Authorized packages—oxidizing Class 7 (radioactive) materials.

(a) An oxidizing Class 7 (radioactive) material, as referenced in the §172.101 table of this subchapter, is authorized in quantities not exceeding an A₂ per package, in a DOT Specification 7A package provided that—

- (1) The contents are:
 - (i) Not fissile;
 - (ii) Packed in inside packagings of glass, metal or compatible plastic; and
 - (iii) Cushioned with a material that will not react with the contents; and
- (2) The outside packaging is made of wood, metal, or plastic.
- (b) The package must be capable of meeting the applicable test requirements of §173.465 without leakage of contents.
- (c) For shipment by air, the maximum quantity in any package may not exceed 11.3 kg (25 pounds).

[Amdt. 173-244, 60 FR 50307, Sept. 28, 1995, as amended at 66 FR 45380, Aug. 28, 2001]

§ 173.420 Uranium hexafluoride (fissile, fissile excepted and non-fissile).

(a) In addition to any other applicable requirements of this subchapter, uranium hexafluoride, fissile, fissile excepted or non-fissile, must be offered for transportation as follows:

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(1) Before initial filling and during periodic inspection and test, packagings must be cleaned in accordance with American National Standard N14.1.

(2) Packagings must be designed, fabricated, inspected, tested and marked in accordance with—

(i) American National Standard N14.1 (2001, 1995, 1990, 1987, 1982, 1971) (incorporated by reference, see §171.7 of this subchapter) in effect at the time the packaging was manufactured;

(ii) Specifications for Class DOT-106A multi-unit tank car tanks (§§179.300 and 179.301 of this subchapter); or

(iii) Section VIII, Division I of the ASME Code (incorporated by reference, see §171.7 of this subchapter), provided the packaging—

(A) Was manufactured on or before June 30, 1987;

(B) Conforms to the edition of the ASME Code in effect at the time the packaging was manufactured;

(C) Is used within its original design limitations; and

(D) Has shell and head thicknesses that have not decreased below the minimum value specified in the following table:

Packaging model	Minimum thickness; millimeters (inches)
1S, 2S	1.58 (0.062)
5A, 5B, 8A	3.17 (0.125)
12A, 12B	4.76 (0.187)
30B	7.93 (0.312)
48A, F, X, and Y	12.70 (0.500)
48T, O, OM, OM Allied, HX, H, AND G.	6.35 (0.250)

(3) Uranium hexafluoride must be in solid form.

(4) The volume of solid uranium hexafluoride, except solid depleted uranium hexafluoride, at 20 °C (68 °F) may not exceed 61% of the certified volumetric capacity of the packaging. The volume of solid depleted uranium hexafluoride at 20 °C (68 °F) may not exceed 62% of the certified volumetric capacity of the packaging.

(5) The pressure in the package at 20 °C (68 °F) must be less than 101.3 kPa (14.8 psia).

(b) Packagings for uranium hexafluoride must be periodically inspected, tested, marked and otherwise

conform with the latest incorporated edition of ANSI N14.1 (incorporated by reference, see §171.7 of this subchapter).

(c) Each repair to a packaging for uranium hexafluoride must be performed in accordance with the latest incorporated edition of ANSI N14.1 (incorporated by reference, see §171.7 of this subchapter).

[Amdt. 173-244, 60 FR 50307, Sept. 28, 1995, as amended at 67 FR 61014, Sept. 27, 2002]

§ 173.421 Excepted packages for limited quantities of Class 7 (radioactive) materials.

(a) A Class 7 (radioactive) material whose activity per package does not exceed the limits specified in §173.425 and its packaging are excepted from the specification packaging, marking, labeling and, if not a hazardous substance or hazardous waste, the shipping paper and certification requirements of this subchapter and requirements of this subpart if:

(1) Each package meets the general design requirements of §173.410;

(2) The radiation level at any point on the external surface of the package does not exceed 0.005 mSv/hour (0.5 mrem/ hour);

(3) The nonfixed (removable) radioactive surface contamination on the external surface of the package does not exceed the limits specified in §173.443(a);

(4) The outside of the inner packaging or, if there is no inner packaging, the outside of the packaging itself bears the marking “Radioactive”;

(5) Except as provided in §173.426, the package does not contain more than 15 grams of uranium-235; and

(6) The material is otherwise prepared for shipment as specified in accordance with §173.422.

(b) A limited quantity of Class 7 (radioactive) material that is a hazardous substance or a hazardous waste, is not subject to the provisions in §172.203(d) or §172.204(c)(4) of this subchapter.

§ 173.422 Additional requirements for excepted packages containing Class 7 (radioactive) materials.

(a) Except for materials subject to the shipping paper requirements of subpart C of part 172 of this subchapter,