

be opened unintentionally or by pressure that may arise within the package during normal transport. Special form Class 7 (radioactive) material, as demonstrated in accordance with §173.469, may be considered as a component of the containment system. If the containment system forms a separate unit of the package, it must be securely closed by a positive fastening device that is independent of any other part of the package.

(e) For each component of the containment system account is taken, where applicable, of radiolytic decomposition of materials and the generation of gas by chemical reaction and radiolysis.

(f) The containment system will retain its radioactive contents under the reduction of ambient pressure to 60 kPa (8.7 psia).

(g) Each valve, other than a pressure relief device, is provided with an enclosure to retain any leakage.

(h) Any radiation shield that encloses a component of the packaging specified as part of the containment system will prevent the unintentional escape of that component from the shield.

(i) Failure of any tie-down attachment that is a structural part of the packaging, under both normal and accident conditions, must not impair the ability of the package to meet other requirements of this subpart.

(j) When evaluated against the performance requirements of this section and the tests specified in §173.465 or using any of the methods authorized by §173.461(a), the packaging will prevent—

(1) Loss or dispersal of the radioactive contents; and

(2) A significant increase in the radiation levels recorded or calculated at the external surfaces for the condition before the test.

(k) Each packaging designed for liquids will—

(1) Be designed to provide for ullage to accommodate variations in temperature of the contents, dynamic effects and filling dynamics;

(2) Meet the conditions prescribed in paragraph (j) of this section when subjected to the tests specified in §173.466 or evaluated against these tests by any

of the methods authorized by §173.461(a); and

(3) Either—

(i) Have sufficient suitable absorbent material to absorb twice the volume of the liquid contents. The absorbent material must be compatible with the package contents and suitably positioned to contact the liquid in the event of leakage; or

(ii) Have a containment system composed of primary inner and secondary outer containment components designed to enclose the liquid contents completely and ensure retention of the liquid within the secondary outer component in the event that the primary inner component leaks.

(l) Each package designed for gases, other than tritium not exceeding 40 TBq (1080Ci) or noble gases not exceeding the A<sub>2</sub> value appropriate for the noble gas, will be able to prevent loss or dispersal of contents when the package is subjected to the tests prescribed in §173.466 or evaluated against these tests by any of the methods authorized by §173.461(a).

[Amdt. 173-244, 60 FR 50307, Sept. 28, 1995, as amended by 66 FR 45379, Aug. 28, 2001; 68 FR 57633, Oct. 6, 2003; 79 FR 40612, July 11, 2014]

#### **§173.413 Requirements for Type B packages.**

Except as provided in §173.416, each Type B(U) or Type B(M) package must be designed and constructed to meet the applicable requirements specified in 10 CFR part 71.

#### **§ 173.415 Authorized Type A packages.**

The following packages are authorized for shipment if they do not contain quantities exceeding A<sub>1</sub> or A<sub>2</sub> as appropriate:

(a) DOT Specification 7A (see §178.350 of this subchapter) Type A general packaging. Until January 1, 2017 each offeror of a Specification 7A package must maintain on file for at least one year after the latest shipment, and shall provide to DOT on request, complete documentation of tests and an engineering evaluation or comparative data showing that the construction methods, packaging design, and materials of construction comply with that specification. After January 1, 2017

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each offeror of a Specification 7A package must maintain on file for at least two years after the offeror's latest shipment, and shall provide to DOT on request, one of the following:

(1) A description of the package showing materials of construction, dimensions, weight, closure and closure materials (including gaskets, tape, etc.) of each item of the containment system, shielding and packing materials used in normal transportation, and the following:

(i) If the packaging is subjected to the physical tests of §173.465, and if applicable, §173.466, documentation of testing, including date, place of test, signature of testers, a detailed description of each test performed including equipment used, and the damage to each item of the containment system resulting from the tests, or

(ii) For any other demonstration of compliance with tests authorized in §173.461, a detailed analysis which shows that, for the contents being shipped, the package meets the pertinent design and performance requirements for a DOT 7A Type A specification package.

(2) If the offeror has obtained the packaging from another person who meets the definition of "packaging manufacturer" in §178.350(c) of this subchapter, a certification from the packaging manufacturer that the package meets all the requirements of §178.350 for the radioactive contents presented for transport and a copy of documents maintained by the packaging manufacturer that meet the requirements of paragraph (a)(1) of this section.

(b) Any other Type A packaging that also meets the applicable standards for fissile materials in 10 CFR part 71 and is used in accordance with §173.471.

(c) Any Type B(U) or Type B(M) packaging authorized pursuant to §173.416.

(d) Any foreign-made packaging that meets the standards in "IAEA Regulations for the Safe Transport of Radioactive Material No. TS-R-1" (IBR, see §171.7 of this subchapter) and bears the marking "Type A". Such packagings may be used for domestic and export shipments of Class 7 (radioactive) materials provided the offeror obtains the

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applicable documentation of tests and engineering evaluations and maintains the documentation on file in accordance with paragraph (a) of this section. These packagings must conform with requirements of the country of origin (as indicated by the packaging marking) and the IAEA regulations applicable to Type A packagings.

[Amdt. 173–244, 60 FR 50307, Sept. 28, 1995, as amended at 67 FR 61014, Sept. 27, 2002; 68 FR 75742, Dec. 31, 2003; 69 FR 3673, Jan. 26, 2004; 69 FR 55117, Sept. 13, 2004; 79 FR 40612, July 11, 2014]

### § 173.416 Authorized Type B packages.

Each of the following packages is authorized for shipment of quantities exceeding A<sub>1</sub> or A<sub>2</sub>, as appropriate:

(a) Any Type B(U) or Type B(M) packaging that meets the applicable requirements of 10 CFR part 71 and that has been approved by the U.S. Nuclear Regulatory Commission may be shipped pursuant to §173.471.

(b) Any Type B(U) or B(M) packaging that meets the applicable requirements in "IAEA 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 DOT pursuant to §173.473. These packagings are authorized only for export and import shipments.

(c) A package approved by the U.S. Nuclear Regulatory Commission under a special package authorization granted in accordance with 10 CFR 71.41(d) provided it is offered only for domestic transportation in accordance with the requirements in §173.471(b) and (c).

[69 FR 3673, Jan. 26, 2004, as amended at 79 FR 40612, July 11, 2014]

### § 173.417 Authorized fissile materials packages.

(a) Except as provided in §173.453, fissile materials containing not more than A<sub>1</sub> or A<sub>2</sub> 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