

Subpart K—Specifications for Packagings for Class 7 (Radioactive) Materials

§ 178.350 Specification 7A; general packaging, Type A.

(a) Each packaging must meet all applicable requirements of subpart B of part 173 of this subchapter and be designed and constructed so that it meets the requirements of §§ 173.403, 173.410, 173.412, 173.415 and 173.465 of this subchapter for Type A packaging.

(b) Each Specification 7A packaging must be marked on the outside “USA DOT 7A Type A.”

(c) Each Specification 7A packaging must comply with the marking requirements of § 178.3. In paragraph 178.3(a)(2), the term “packaging manufacturer” means the person certifying that the package meets all requirements of this section.

[Amdt. 178–109, 60 FR 50336, Sept. 28, 1995; 60 FR 54409, Oct. 23, 1995, as amended at 69 FR 3696, Jan. 26, 2004; 70 FR 56099, Sept. 23, 2005]

§ 178.356 Specification 20PF phenolic-foam insulated, metal overpack.

§ 178.356–1 General requirements.

(a) Each overpack must meet all of the applicable requirements of § 173.24 of this subchapter.

(b) The maximum gross weight of the package, including the inner cylinder and its contents, must not exceed the following:

(1) Specification 20PF–1—138 kg (300 pounds).

(2) Specification 20PF–2—320 kg (700 pounds).

(3) Specification 20PF–3—455 kg (1000 pounds).

(c) The general configuration of the overpack must be a right cylinder, consisting of an insulated base section, a steel liner lid, and an insulated top section. The inner liner and outer shell must be at least 16-gauge and 18-gauge steel, respectively, with the intervening cavity filled with a molded-in-place, fire-resistant, phenolic-foam insulation interspersed with wooden members for bracing and support. Wood pieces must be securely attached to both the liner and shell. No hole is permitted in the liner. Each joint between sections must be stepped a minimum of

5 cm (2 inches) and gaps between mating surfaces must not exceed 5 mm (0.2 inch). Gaps between foam surface of top section and liner lid must not exceed 1 cm (0.4 inch) or 5 cm (2 inches) where taper is required for mold stripping. For the specification 20PF–1, the top section may consist of a plug of foam insulation and a steel cover. The liner and shell closures must each be gasketed against moisture penetration. The liner must have a bolted flange closure. Shell closure must conform to paragraph (d) of this section.

(d) Drums over 5 gallons capacity must be closed by means of 12-gauge bolted ring with drop forged lugs, one of which is threaded, and having 3/8 inch bolt and nut for drums not over 30 gallons capacity and 5/8 inch bolt and nut for drums over 30 gallons capacity. Five gallon drums must be of lug type closure with cover having at least 16 lugs.

(e) Drawings in DOE CAPE–1662, Rev. 1 and Supplement 1 (IBR, see § 171.7 of this subchapter), which include bills of material, are a part of this specification.

[Amdt. 178–35, 39 FR 45247, Dec. 31, 1974. Redesignated by Amdt. 178–97, 55 FR 52716, Dec. 21, 1990; 65 FR 58632, Sept. 29, 2000; 66 FR 45386, 45389, Aug. 28, 2001; 68 FR 75757, Dec. 31, 2003]

§ 178.356–2 Materials of construction and other requirements.

(a) Phenolic foam insulation must be fire-resistant and fabricated in accordance with USDOE Material and Equipment Specification SP–9, Rev. 1 and Supplement (IBR, see § 171.7 of this subchapter), which is a part of this specification. (Note: Packagings manufactured under USAEC Specification SP–9 and Rev. 1 thereto are authorized for continued manufacture and use.) A 13.7 cm (5.4-inch) minimum thickness of foam must be provided over the entire liner except:

(1) Where wood spacers replace the foam; or

(2) At protrusions of liner or shell, such as flanges, baffles, etc., where minimum insulation thickness is 9 cm (3.5 inches); or

(3) Where alternate top section (specification 20PF–1) is used. Foam must not interfere with proper seating of

screws in inner liner flange assembly. Average density of insulation must be 0.13 g/cc (8 pounds per cubic foot (pcf)) minimum for bottom section and 0.16 g/cc (10 pcf) minimum for top section, except 0.1 g/cc (6.5 pcf) for the specification 20PF-1 top section.

(b) Gaskets must be as follows:

(1) Inner liner flange—Neoprene rubber of 30 to 60 type A durometer hardness or other equivalent gasket material which is compatible with the specific contents.

(2) Outer shell—Synthetic rubber conforming to MIL-R-6855 (available from the Naval Publications Forms Center, 5801 Tabor Avenue, Philadelphia, Pennsylvania 19120) class 2, grade 60.

(3) Support and pressure pads for inner liner top and bottom must be sponge rubber or equivalent.

(c) Alternate top section (specification 20PF-1 only). Average insulation density must be 0.16 g/cc (10 pcf minimum). Thickness of plug must be 11 cm (4.3 inches) minimum, except thickness may be reduced to 10 cm (4 inches) to clear bolt heads. A flush mounted top lifting device must be securely fastened to a wood block encapsulated by the foam.

(d) Vent holes 5 mm (0.2-inch) diameter must be drilled in the outer shell to provide pressure relief during the insulation foaming and in the event of a fire. These holes, which must be drilled in all areas of the shell that mate with the foam insulation, must be spaced in accordance with DOE CAPE-1662, Rev. 1 and Supplement 1 (IBR, see §171.7 of this subchapter).

(e) Welding must be by a fusion welding process in accordance with American Welding Society Codes B-3.0 and D-1.0 (IBR, see §171.7 of this subchapter). Body seams and joints for the liner or shell must be continuous welds.

(f) Waterproofing. Each screw hole in the outer shell must be sealed with appropriate resin-type sealing material, or equivalent, during installation of the screw. All exposed foam surfaces,

including any vent hole, must be sealed with waterproofing material as prescribed in USDOE Material and Equipment Specification SP-9, Rev. 1 and Supplement, or equivalent.

[Amdt. 178-35, 39 FR 45247, Dec. 31, 1974, as amended by Amdt. 178-56, 44 FR 49458, Aug. 23, 1979. Redesignated by Amdt. 178-97, 55 FR 52716, Dec. 21, 1990; 66 FR 45387, Aug. 28, 2001; 68 FR 75757, Dec. 31, 2003]

§ 178.356-3 Tests.

(a) Leakage test—Each inner liner assembly must be tested for leakage prior to installation. Seam welds of the liner must be covered for a distance of at least 15 cm (6 inches) on either side of the seam with soapsuds, heavy oil, or equivalent material, and interior air pressure applied to at least 776 mm Hg (15 p.s.i.g.) above atmospheric pressure must be held for at least 30 seconds. Liners failing to pass this test may not be used until repairs are made, and retests successfully passed.

(b) [Reserved]

[Amdt. 178-35, 39 FR 45247, Dec. 31, 1974. Redesignated by Amdt. 178-97, 55 FR 52716, Dec. 21, 1990; 66 FR 45387, Aug. 28, 2001; 67 FR 61016, Sept. 27, 2002]

§ 178.356-4 Required markings.

(a) Marking must be as prescribed in §178.3.

(b) Marking on the outside of each overpack must be as follows:

(1) "USA-DOT-20PF-1" or "-2," as appropriate, and if the entire liner is made of stainless steel, additional marking such as "3041-SS" to indicate the type of stainless steel used.

(2) "TARE WT: xxx lbs." where xxx is the tare weight of the assembled overpack without the inner container.

(3) Year of manufacture.

[Amdt. 178-35, 39 FR 45247, Dec. 31, 1974. Redesignated by Amdt. 178-97, 55 FR 52716, Dec. 21, 1990, as amended at 63 FR 37462, July 10, 1998]

§ 178.356-5 Typical assembly detail.

(a) Specifications 20PF-1.