

## § 178.512

more than 40 L (11 gallons) of liquid must be welded. Body seams of jerricans intended to carry 40 L (11 gallons) or less must be mechanically seamed or welded.

(4) Openings in jerricans (3A1) may not exceed 7.0 cm (3 inches) in diameter. Jerricans with larger openings are considered to be of the removable head type. Closures must be so designed that they remain secure and leakproof under normal conditions of transport. Gaskets or other sealing elements must be used with closures, unless the closure is inherently leakproof.

(5) If materials used for body, heads, closures and fittings are not in themselves compatible with the contents to be transported, suitable internal protective coatings or treatments must be applied. These coatings or treatments must retain their protective properties under normal conditions of transport.

(6) Maximum capacity of jerrican: 60 L (16 gallons).

(7) Maximum net mass: 120 kg (265 pounds).

[Amdt. 178-97, 55 FR 52717, Dec. 21, 1990, as amended by Amdt. 178-102, 59 FR 28494, June 2, 1994; Amdt. 178-119, 62 FR 24742, May 6, 1997]

## § 178.512 Standards for steel or aluminum boxes.

(a) The following are identification codes for steel or aluminum boxes:

(1) 4A for a steel box; and

(2) 4B for an aluminum box.

(b) Construction requirements for steel or aluminum boxes are as follows:

(1) The strength of the metal and the construction of the box must be appropriate to the capacity and intended use of the box.

(2) Boxes must be lined with fiberboard or felt packing pieces or must have an inner liner or coating of suitable material in accordance with subpart C of part 173 of this subchapter. If a double seamed metal liner is used, steps must be taken to prevent the ingress of materials, particularly explosives, into the recesses of the seams.

(3) Closures may be of any suitable type, and must remain secure under normal conditions of transport.

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(4) Maximum net mass: 400 kg (882 pounds).

[Amdt. 178-97, 55 FR 52717, Dec. 21, 1990, as amended by Amdt. 178-106, 59 FR 67521, Dec. 29, 1994]

## § 178.513 Standards for boxes of natural wood.

(a) The following are the identification codes for boxes of natural wood:

(1) 4C1 for an ordinary box; and

(2) 4C2 for a box with sift-proof walls.

(b) Construction requirements for boxes of natural wood are as follows:

(1) The wood used must be well-seasoned, commercially dry and free from defects that would materially lessen the strength of any part of the box. The strength of the material used and the method of construction must be appropriate to the capacity and intended use of the box. The tops and bottoms may be made of water-resistant reconstituted wood such as hard board, particle board or other suitable type.

(2) Fastenings must be resistant to vibration experienced under normal conditions of transportation. End grain nailing must be avoided whenever practicable. Joints which are likely to be highly stressed must be made using clenched or annular ring nails or equivalent fastenings.

(3) Each part of the 4C2 box must be one piece or equivalent. Parts are considered equivalent to one piece when one of the following methods of glued assembly is used: Linderman joint, tongue and groove joint, ship lap or rabbet joint, or butt joint with at least two corrugated metal fasteners at each joint.

(4) Maximum net mass: 400 kg (882 pounds).

[Amdt. 178-97, 55 FR 52717, Dec. 21, 1990, as amended by Amdt. 178-106, 59 FR 67521, Dec. 29, 1994]

## § 178.514 Standards for plywood boxes.

(a) The identification code for a plywood box is 4D.

(b) Construction requirements for plywood boxes are as follows:

(1) Plywood used must be at least 3 ply. It shall be made from well-seasoned rotary cut, sliced or sawn veneer, commercially dry and free from defects that would materially lessen the strength of the box. The strength of the

material used and the method of construction must be appropriate to the capacity and intended use of the box. All adjacent plies must be glued with water-resistant adhesive. Other suitable materials may be used together with plywood in the construction of boxes. Boxes must be nailed or secured to corner posts or ends or assembled with other equally suitable devices.

(2) Maximum net mass: 400 kg (882 pounds).

**§ 178.515 Standards for reconstituted wood boxes.**

(a) The identification code for a reconstituted wood box is 4F.

(b) Construction requirements for reconstituted wood boxes are as follows:

(1) The walls of boxes must be made of water-resistant, reconstituted wood such as hardboard, particle board, or other suitable type. The strength of the material used and the method of construction must be appropriate to the capacity of the boxes and their intended use.

(2) Other parts of the box may be made of other suitable materials.

(3) Boxes must be securely assembled by means of suitable devices.

(4) Maximum net mass: 400 kg (882 pounds).

**§ 178.516 Standards for fiberboard boxes.**

(a) The identification code for a fiberboard box is 4G.

(b) Construction requirements for fiberboard boxes are as follows:

(1) Strong, solid or double-faced corrugated fiberboard (single or multi-wall) must be used, appropriate to the capacity and intended use of the box. The water resistance of the outer surface must be such that the increase in mass, as determined in a test carried out over a period of 30 minutes by the Cobb method of determining water absorption, is not greater than 155 g per square meter (0.0316 pounds per square foot)—see ISO International Standard 535. Fiberboard must have proper bending qualities. Fiberboard must be cut, creased without cutting through any thickness of fiberboard, and slotted so as to permit assembly without cracking, surface breaks, or undue bending.

The fluting of corrugated fiberboard must be firmly glued to the facings.

(2) The ends of boxes may have a wooden frame or be entirely of wood or other suitable material. Reinforcements of wooden battens or other suitable material may be used.

(3) Manufacturing joints. (i) Manufacturing joints in the bodies of boxes must be—

- (A) Taped;
- (B) Lapped and glued; or
- (C) Lapped and stitched with metal staples.

(ii) Lapped joints must have an appropriate overlap.

(4) Where closing is effected by gluing or taping, a water resistant adhesive must be used.

(5) Boxes must be designed so as to provide a snug fit to the contents.

(6) Maximum net mass: 400 kg (882 pounds).

[Amdt. 178-97, 55 FR 52717, Dec. 21, 1990, and amended by Amdt. 178-99, 58 FR 51534, Oct. 1, 1993; Amdt. 178-106, 59 FR 67521, Dec. 29, 1994]

**§ 178.517 Standards for plastic boxes.**

(a) The following are identification codes for plastic boxes:

- (1) 4H1 for an expanded plastic box; and
- (2) 4H2 for a solid plastic box.

(b) Construction requirements for plastic boxes are as follows:

(1) The box must be manufactured from suitable plastic material and be of adequate strength in relation to its capacity and intended use. The box must be adequately resistant to aging and to degradation caused either by the substance contained or by ultraviolet radiation.

(2) An expanded plastic box must consist of two parts made of a molded expanded plastic material: a bottom section containing cavities for the inner receptacles, and a top section covering and interlocking with the bottom section. The top and bottom sections must be so designed that the inner receptacles fit snugly. The closure cap for any inner receptacle may not be in contact with the inside of the top section of the box.

(3) For transportation, an expanded plastic box must be closed with a self-adhesive tape having sufficient tensile