

degradation caused by ultraviolet radiation.

(1) If protection against ultraviolet radiation is necessary, it must be provided by the addition of a pigment or inhibitor such as carbon black to plastic materials. These additives must be compatible with the contents and remain effective throughout the life of the plastic Large Packaging body. Where use is made of carbon black, pigments or inhibitors, other than those used in the manufacture of the tested design type, retesting may be omitted if changes in the carbon black content, the pigment content or the inhibitor content do not adversely affect the physical properties of the material of construction.

(2) Additives may be included in the composition of the plastic material to improve the resistance to aging or to serve other purposes, provided they do not adversely affect the physical or chemical properties of the material of construction.

(3) No used material other than production residues or regrind from the same manufacturing process may be used in the manufacture of rigid plastic Large Packagings.

(c) Rigid plastic Large Packagings:

(1) May not have a volumetric capacity greater than 3,000 L (793 gallons); and

(2) May not have a volumetric capacity less than 450 L (119 gallons).

**§ 178.930 Standards for fiberboard Large Packagings.**

(a) The provisions in this section apply to fiberboard Large Packagings intended to contain solids. Rigid fiberboard Large Packaging types are designated:

(1) 50G fiberboard

(2) [Reserved]

(b) *Construction requirements for fiberboard Large Packagings.* (1) Fiberboard Large Packagings must be constructed of strong, solid or double-faced corrugated fiberboard (single or multiwall) that is appropriate to the capacity of the Large Packagings and to their intended use. 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 deter-

mining water absorption, is not greater than 155 grams per square meter (0.0316 pounds per square foot)—see ISO 535 (E) (IBR, see §171.7 of this subchapter). 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 or corrugated fiberboard must be firmly glued to the facings.

(i) The walls, including top and bottom, must have a minimum puncture resistance of 15 Joules (11 foot-pounds of energy) measured according to ISO 3036 (IBR, see §171.7 of this subchapter).

(ii) Manufacturers' joints in the outer packaging of Large Packagings must be made with an appropriate overlap and be taped, glued, stitched with metal staples or fastened by other means at least equally effective. Where joints are made by gluing or taping, a water resistant adhesive must be used. Metal staples must pass completely through all pieces to be fastened and be formed or protected so that any inner liner cannot be abraded or punctured by them.

(2) *Integral and detachable pallets.* (i) Any integral pallet base forming part of a Large Packaging or any detachable pallet must be suitable for mechanical handling with the Large Packaging filled to its maximum permissible gross mass.

(ii) The pallet or integral base must be designed to avoid protrusions causing damage to the fiberboard Large Packagings in handling.

(iii) The body must be secured to any detached pallet to ensure stability in handling and transport. Where a detachable pallet is used, its top surface must be free from protrusions that might damage the Large Packaging.

(3) Strengthening devices, such as timber supports to increase stacking performance may be used but must be external to the liner.

(4) The load-bearing surfaces of Large Packagings intended for stacking must be designed to distribute the load in a stable manner.

(c) Fiberboard Large Packagings may not have a volumetric capacity greater

than 3,000 L (793 gallons) and not less than 450 L (119 gallons).

[75 FR 5397, Feb. 2, 2010, as amended at 75 FR 60339, Sept. 30, 2010]

**§ 178.935 Standards for wooden Large Packagings.**

(a) The provisions in this section apply to wooden Large Packagings intended to contain solids. Wooden Large Packaging types are designated:

- (1) 50C natural wood.
- (2) 50D plywood.
- (3) 50F reconstituted wood.

(b) Construction requirements for wooden Large Packagings are as follows:

(1) The strength of the materials used and the method of construction must be appropriate to the capacity and intended use of the Large Packagings.

(i) Natural wood used in the construction of Large Packagings must be well-seasoned, commercially dry and free from defects that would materially lessen the strength of any part of the Large Packagings. Each Large Packaging part must consist of uncut wood or a piece equivalent in strength and integrity. Large Packagings parts are equivalent to one piece when a suitable method of glued assembly is used (*i.e.*, a Lindermann joint, tongue and groove joint, ship, lap or babbet joint; or butt joint with at least two corrugated metal fasteners at each joint, or when other methods at least equally effective are used).

(ii) Plywood used in construction must be at least 3-ply. Plywood must be made of well-seasoned rotary cut, sliced or sawn veneer, commercially dry and free from defects that would materially lessen the strength of the Large Packagings. All adjacent piles must be glued with water resistant adhesive. Materials other than plywood may be used for the construction of the Large Packaging.

(iii) Reconstituted wood used in the construction of Large Packagings must be water resistant reconstituted wood such as hardboard, particle board or other suitable type.

(iv) Wooden Large Packagings must be firmly nailed or secured to corner posts or ends or be assembled by similar devices.

(2) *Integral and detachable pallets.* (i) Any integral pallet base forming part of a Large Packaging, or any detachable pallet must be suitable for mechanical handling of a Large Packaging filled to its maximum permissible gross mass.

(ii) The pallet or integral base must be designed to avoid protrusion that may cause damage to the Large Packaging in handling.

(iii) The body must be secured to any detachable pallet to ensure stability in handling and transportation. Where a detachable pallet is used, its top surface must be free from protrusions that might damage the Large Packaging.

(3) Strengthening devices, such as timber supports to increase stacking performance, may be used but must be external to the liner.

(4) The load bearing surfaces of the Large Packaging must be designed to distribute loads in a stable manner.

(c) Wooden Large Packagings:

(1) May not have a volumetric capacity greater than 3,000 L (793 gallons); and

(2) May not have a volumetric capacity less than 450 L (119 gallons).

**§ 178.940 Standards for flexible Large Packagings.**

(a) The provisions in this section apply to flexible Large Packagings intended to contain liquids and solids. Flexible Large Packagings types are designated:

- (1) 51H flexible plastics.
- (2) 51M flexible paper.

(b) Construction requirements for flexible Large Packagings are as follows:

(1) The strength of the material and the construction of the flexible Large Packagings must be appropriate to its capacity and its intended use.

(2) All materials used in the construction of flexible Large Packagings of types 51M must, after complete immersion in water for not less than 24 hours, retain at least 85 percent of the tensile strength as measured originally on the material conditioned to equilibrium at 67 percent relative humidity or less.