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to any other requirements of this subchapter, when they are capable of withstanding a 1.2 m (3.9 feet) drop test unpackaged onto a rigid, non-resilient, flat and horizontal surface without loss of contents.

(e) Capacitors containing an electrolyte meeting the definition of one or more hazard class or division as defined in this part, that are not installed in equipment, and with an energy storage capacity of more than 10 Wh are subject to the requirements of this subchapter.

(f) Capacitors installed in equipment and containing an electrolyte meeting the definition of one or more hazard class or division as defined in this part, are not subject to any other requirements of this subchapter, provided the equipment is packaged in a strong outer packaging and in such a manner as to prevent accidental functioning of the capacitors during transport. Large, robust equipment containing capacitors may be offered for transport unpackaged or on pallets when the capacitors are afforded equivalent protection by the equipment in which they are contained.

[78 FR 1087, Jan. 7, 2013]

§ 173.181 Pyrophoric materials (liquids).

When the §172.101 table specifies that a hazardous material be packaged under this section, only the following non-bulk packagings are authorized:

(a) Specification steel or nickel cylinders prescribed for any compressed gas except acetylene having a minimum design pressure of 1206 kPa (175 psig). Cylinders with valves must be:

(1) Equipped with steel valve protection caps or collars, unless overpacked; or

(2) Overpacked in a wooden box (4C1, 4C2, 4D or 4F); fiberboard box (4G), or plastic box (4H1 or 4H2). Cylinders must be secured to prevent shifting in the box and, when offered for transportation or transported, must be so loaded that pressure relief devices remain in the vapor space of the cylinder. (See §177.838(h) of this subchapter.)

(b) Steel boxes (4A), aluminum boxes (4B), metal boxes, other than steel or aluminum (4N), wooden boxes (4C1, 4C2, 4D, or 4F) or fiberboard boxes (4G);

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steel drums (1A1 or 1A2), aluminum drums (1B1 or 1B2), metal drums, other than steel or aluminum (1N1 or 1N2), plywood drums (1D), or fiber drums (1G); or steel jerricans (3A1 or 3A2) or aluminum jerricans (3B1 or 3B2) enclosing not more than four strong, tight metal cans with inner receptacles of glass or metal, not over 1 L (0.3 gallon) capacity each, having positive screwcap closures adequately gasketed. Inner packagings must be cushioned on all sides with dry, absorbent, incombustible material in a quantity sufficient to absorb the entire contents. The strong, tight metal cans must be closed by positive means, not by friction.

(c) Steel drums (1A1 or 1A2), aluminum drums (1B1 or 1B2), metal drums, other than steel or aluminum (1N1 or 1N2) or fiber drums (1G); steel jerricans (3A1 or 3A2) or aluminum jerricans (3B1 or 3B2); or steel boxes (4A), aluminum boxes (4B) or metal boxes, other than steel or aluminum (4N) not exceeding 220 L (58 gallons) capacity each with strong, tight inner metal cans not over 4.0 L (1 gallon) capacity each. The strong, tight metal cans must be closed by positive means, not friction.

[Amdt. 173–224, 55 FR 52643, Dec. 21, 1990, as amended at 56 FR 66270, Dec. 20, 1991; 65 FR 58629, Sept. 29, 2000; 66 FR 45183, 45380, Aug. 28, 2001; 68 FR 24660, May 8, 2003; 68 FR 61941, Oct. 30, 2003; 78 FR 1087, Jan. 7, 2013]

§ 173.182 Barium azide—50 percent or more water wet.

Barium azide—50 percent or more water wet, must be packed in wooden boxes (4C1, 4C2, 4D, or 4F) or fiber drums (1G) with inner glass packagings not over 0.5 kg (1.1 pounds) capacity each. Packagings must have rubber stoppers wire tied for securement. If transportation is to take place when and where freezing weather is possible, a suitable antifreeze solution must be used to prevent freezing. Each packaging must conform to the requirements of part 178 of this subchapter at the Packing Group I performance level.

§ 173.183 Nitrocellulose base film.

Films, nitrocellulose base, must be packaged in packagings conforming to the requirements of part 178 of this

subchapter at the Packing Group III performance level, as follows:

(a) In steel drums (1A2), aluminum drums (1B2), other metal drums (4A2), steel jerricans (3A2), aluminum jerricans (3B2), steel, aluminum or other metal (4A, 4B, 4N) boxes, wooden (4C1, 4C2), plywood (4D) or reconstituted wood (4F) boxes or plywood drums (1D) with each reel in a tightly closed metal can, polypropylene canister, or strong cardboard or fiberboard inner packaging with cover held in place by adhesive tape or paper; or

(b) In fiberboard (4G) boxes or fiber drums (1G) with a single tightly closed metal can, polypropylene canister, or strong cardboard or fiberboard inner packaging with cover held in place by adhesive tape or paper; authorized only for not over 600 m (1969 feet) of film.

[Amdt. 173-224, 55 FR 52643 Dec. 21, 1990, as amended by Amdt. 173-255, 61 FR 50627, Sept. 26, 1996; 78 FR 1087, Jan. 7, 2013]

§ 173.184 Highway or rail fusee.

(a) A fusee is a device designed to burn at a controlled rate and to produce visual effects for signaling purposes. The composition of the fusee must be such that the fusee will not ignite spontaneously or undergo marked decomposition when subjected to a temperature of 75 °C (167 °F) for 48 consecutive hours.

(b) Fusees (highway and railway) must be packaged in steel (1A2), aluminum (1B2) or other metal (1N2) drums, steel (3A2) or aluminum (3B2) jerricans, steel (4A), aluminum (4B) or other metal (4N) boxes, wooden (4C1, 4C2), plywood (4D) or reconstituted wood (4F) boxes or in fiberboard boxes (4G), plywood (1D) or fiber (1G) drums. If the fusees are equipped with spikes packagings must have reinforced ends to prevent penetration of spikes through the outer packagings; packagings must be capable of passing drop test requirements (§178.603 of this subchapter), including at least one drop with spike in a downward position, and other requirements of part 178 of this subchapter, at the Packing Group II performance level.

[Amdt. 173-224, 55 FR 52643, Dec. 21, 1990, as amended at 66 FR 45379; 78 FR 1088, Jan. 7, 2013]

§ 173.185 Lithium cells and batteries.

(a) *Cells and batteries.* A lithium cell or battery, including a lithium polymer cell or battery and a lithium-ion cell or battery, must conform to all of the following requirements:

(1) Be of a type proven to meet the requirements of each test in the UN Manual of Tests and Criteria (IBR; see §171.7 of this subchapter). A cell or battery and equipment containing a cell or battery that was first transported prior to January 1, 2006 and is of a type proven to meet the criteria of Class 9 by testing in accordance with the tests in the UN Manual of Tests and Criteria, Third Revised Edition, 1999, need not be retested.

(2) Incorporate a safety venting device or otherwise be designed in a manner that will preclude a violent rupture under conditions normally incident to transportation.

(3) Be equipped with an effective means to prevent dangerous reverse current flow (e.g., diodes, fuses, etc.) if a battery contains cells or series of cells that are connected in parallel.

(4) Be packaged in combination packagings conforming to the requirements of part 178, subparts L and M, of this subchapter at the Packing Group II performance level. The lithium battery or cell must be packed in inner packagings in such a manner as to prevent short circuits, including movement which could lead to short circuits. The inner packaging must be packed within one of the following outer packagings: metal boxes (4A or 4B); wooden boxes (4C1, 4C2, 4D, or 4F); fiberboard boxes (4G); solid plastic boxes (4H2); fiber drums (1G); metal drums (1A2 or 1B2); plywood drums (1D); plastic jerricans (3H2); or metal jerricans (3A2 or 3B2).

(5) Be equipped with an effective means of preventing external short circuits.

(6) Except as provided in paragraph (d) of this section, cells and batteries with a liquid cathode containing sulfur dioxide, sulfonyl chloride or thionyl chloride may not be offered for transportation or transported if any cell has been discharged to the extent that the open circuit voltage is less than two volts or is less than $\frac{2}{3}$ of the voltage of the fully charged cell, whichever is less.