

greater than 0.3 Wh. Capacitors with an energy storage capacity of 0.3 Wh or less are not subject to the requirements of this subchapter.

Energy storage capacity means the energy stored in a capacitor, as calculated according to the following equation,

$$Wh = 1/2 C_N (U_R^2 - U_L^2) \times (1/3600)$$

Using the nominal capacitance (C_N), rated voltage (U_R) and the rated lower limit voltage (U_L).

Nickel-carbon asymmetric capacitors containing Class 8 alkaline electrolytes must be transported as UN2795, Batteries, wet, filled with alkali, electric storage.

379 When offered for transport by highway, rail, or cargo vessel, anhydrous ammonia adsorbed or absorbed on a solid contained in ammonia dispensing systems or receptacles intended to form part of such systems is not subject to the requirements of this subchapter if the following conditions in this provision are met. In addition to meeting the conditions in this provision, transport on cargo aircraft only may be authorized with prior approval of the Associate Administrator.

a. The adsorption or absorption presents the following properties:

- (1) The pressure at a temperature of 20 °C (68 °F) in the receptacle is less than 0.6 bar (60 kPa);
- (2) The pressure at a temperature of 35 °C (95 °F) in the receptacle is less than 1 bar (100 kPa);
- (3) The pressure at a temperature of 85 °C (185 °F) in the receptacle is less than 12 bar (1200 kPa).

b. The adsorbent or absorbent material shall not meet the definition or criteria for inclusion in Classes 1 to 8;

c. The maximum contents of a receptacle shall be 10 kg of ammonia; and

d. Receptacles containing adsorbed or absorbed ammonia shall meet the following conditions:

- (1) Receptacles shall be made of a material compatible with ammonia as specified in ISO 11114-1:2012 (IBR, see §171.7 of this subchapter);
- (2) Receptacles and their means of closure shall be hermetically sealed and able to contain the generated ammonia;
- (3) Each receptacle shall be able to withstand the pressure generated at 85 °C (185 °F) with a volumetric expansion no greater than 0.1%;
- (4) Each receptacle shall be fitted with a device that allows for gas evacuation once pressure exceeds 15 bar (1500 kPa) without violent rupture, explosion or projection; and
- (5) Each receptacle shall be able to withstand a pressure of 20 bar (2000 kPa) with-

out leakage when the pressure relief device is deactivated.

- e. When offered for transport in an ammonia dispenser, the receptacles shall be connected to the dispenser in such a way that the assembly is guaranteed to have the same strength as a single receptacle.
- f. The properties of mechanical strength mentioned in this special provision shall be tested using a prototype of a receptacle and/or dispenser filled to nominal capacity, by increasing the temperature until the specified pressures are reached.
- g. The test results shall be documented, shall be traceable, and shall be made available to a representative of the Department upon request.

380 For transportation by private carrier in a motor carrier only, this material is not subject to the segregation requirements of §177.848(d) of this subchapter under the following conditions:

- a. The material is packaged in a DOT Specification 4BW240 cylinder, or in a DOT-51 portable tank.
- b. The material may only be loaded with Class 3, Class 8, and Division 4.1 materials in Packing Group II or III.
- c. The motor carrier must maintain a satisfactory safety rating as prescribed in 49 CFR part 385.

381 For railroad flagging kits, see §173.184 (c) of this subchapter.

382 Packages containing toy plastic or paper caps for toy pistols described as “UN0349, Articles, explosive, n.o.s. (Toy caps), 1.4S” or “NA0337, Toy caps, 1.4S” are not subject to the subpart E (labeling) requirements of this part when offered for transportation by motor vehicle, rail freight, cargo vessel, and cargo aircraft and, notwithstanding the packing method assigned in §173.62 of this subchapter, in conformance with the following conditions:

- a. The toy plastic or paper caps must be in the form of sheets, strips, rolls, or individual caps;
- b. The caps must not contain more than an average of twenty-five hundredths of a grain of explosive composition per cap;
- c. The caps must be packed inside packagings constructed of cardboard not less than 0.013-inch in thickness, metal not less than 0.008-inch in thickness, non-combustible plastic not less than 0.015-inch in thickness, or a composite blister package consisting of cardboard not less than 0.013-inch in thickness and non-combustible plastic not less than 0.005-inch in thickness that completely encloses the caps;
- d. The minimum dimensions of each side and each end of the cardboard packaging must be 1/8th inch in height or more;
- e. The number of caps inside each packaging must be limited so that not more