(d) *Poisonous mixtures.* A mixture containing any poisonous material (Division 6.1 or 2.3) in such proportions that the mixture would be classed as poisonous under §173.115 or §173.132 must be shipped in packagings as authorized for these poisonous materials.

[29 FR 18743, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 173–70, 38 FR 5309, Feb. 27, 1973, Amdt. 173–94, 41 FR 16079, Apr. 15, 1976; 45 FR 32697, May 19, 1980; Amdt. 173–224, 56 FR 66275, 66279, Dec. 20, 1991; 66 FR 45379, Aug. 28, 2001; 67 FR 61013, Sept. 27, 2002; 67 FR 51651, Aug. 8, 2002; 68 FR 24662, May 8, 2003]

§173.306 Limited quantities of compressed gases.

(a) Limited quantities of compressed gases for which exceptions are permitted as noted by reference to this section in §172.101 of this subchapter are excepted from labeling, except when offered for transportation or transported by air, and, unless required as a condition of the exception, specification packaging requirements of this subchapter when packaged in accordance with the following paragraphs. For transportation by aircraft, the package must conform to the applicable requirements of §173.27 and only packages of hazardous materials authorized aboard passenger-carrying aircraft may be transported as a limited quantity. In addition, shipments are not subject to subpart F (Placarding) of part 172 of this subchapter, to part 174 of this subchapter except §174.24, and to part 177 of this subchapter except §177.817. Except as otherwise provided in this section, each package may not exceed 30 kg (66 lbs.) gross weight.

(1) When in containers of not more than 4 fluid ounces capacity (7.22 cubic inches or less) except cigarette lighters. Additional exceptions for certain compressed gases in limited quantities are provided in paragraph (i) of this section.

(2) When in refillable metal containers filled with a material that is not classed as a hazardous material to not more than 90% of capacity at 21.1 °C (70 °F) and then charged with nonflammable, nonliquefied gas. Each container must be tested to three times the pressure at 21.1 °C (70 °F) and, when refilled, be retested to three times the pressure of the gas at 21.1 °C (70 °F). Also, one of the following conditions must be met:

(i) The container is not over 0.95 L (1 quart) capacity and charged to not more than 170 psig (1172.1 kPa) at 21.1 °C (70 °F), and must be packed in a strong outer packaging; or

(ii) The container is not over 114 L (30 gallons) capacity and charged to not more than 75 psig (517.1 kPa) at 21.1 °C (70 °F).

(3) When in a metal aerosol container (see §171.8 of this subchapter for the definition of *aerosol*). Authorized containers include non-specification, DOT 2P (§178.33 of this subchapter), DOT 2Q (§178.33a of this subchapter), or DOT 2Q1 (§178.33(d) of this subchapter) design, provided the following conditions are met. Additional exceptions for aerosol containers conforming to this paragraph (a)(3) are provided in paragraph (i) of this section.

(i) *Capacity.* The capacity of the container must not exceed 1 L (61.0 cubic inches).

(ii) *General pressure conditions.* The authorized metal aerosol containers and associated pressure limitations are provided in the following table. Pressure inside the container may not exceed 180 psig at 54.4 °C (130 °F) except as may be authorized by variations of a DOT specification container type. In any event, the metal container must be capable of withstanding without bursting a pressure of at least one and one-half times the equilibrium pressure of the contents at 54.4 °C (130 °F).

AUTHORIZED METAL AEROSOL CONTAINERS

If the gauge pressure (psig) at 54.4 °C (130 °F) is . . .	Authorized container
140 or less	Non-DOT specification, DOT 2P, DOT 2Q, DOT 2Q1.
Greater than 140 but not exceeding 160	DOT 2P, DOT 2Q, DOT 2Q1.
Greater than 160 but not exceeding 180	DOT 2Q, DOT 2Q1.
Not to exceed 210	DOT 2Q1 (Nonflammable only).

(iii) *Liquid fill.* The liquid content of the material and gas must not completely fill the container at 54.4 °C (130 °F).

(iv) *Outer packaging.* The containers must be packed in strong outer packagings.

(v) *Pressure testing.* Except as otherwise provided in this paragraph, each container, after it is filled, must be subjected to a test performed in a hot water bath; the temperature of the bath and the duration of the test must be such that the internal pressure reaches that which would be reached at 55 °C (131 °F), or 50 °C (122 °F) if the liquid phase does not exceed 95% of the capacity of the container at 50 °C (122 °F)). If the contents are sensitive to heat, the temperature of the bath must be set at between 20 °C (68 °F) and 30 °C (86 °F) but, in addition, one container in 2,000 must be tested at the higher temperature. No leakage or permanent deformation of a container may occur. However, instead of this standard water bath test, container(s) may be tested using one of the following methods subject to certain conditions—

(A) *Alternative water bath test.* (*1*) One filled container in a lot of 2,000 must be subjected to a test performed in a hot water bath; the temperature of the bath and the duration of the test must be such that the internal pressure reaches that which would be reached at 55 °C (131 °F). If the container shows evidence of leakage or permanent deformation, the lot of 2,000 containers must be rejected;

(*2*) A second filled container in the lot of 2,000 must be weighed and compared to the weight specification for the containers as documented in the operating procedures for the weight test. Failure of the container to meet the weight specification is evidence of leakage or overfilling and the lot of 2,000 must be rejected;

(*3*) The remainder of the containers in the lot of 2,000 must be visually inspected (e.g, examination of the seams). Containers showing evidence of leakage or overfilling must not be transported; and

(*4*) Each person employing this test must maintain a copy of the operating procedures (or an electronic file thereof) that is accessible at, or through, its principal place of business and must make the procedures available upon request, at a reasonable time and location, to an authorized official of the Department.

(B) *Automated pressure test.* Each person employing an automated process for pressure testing of filled containers must develop procedures for implementation of the test. Each person must maintain a copy of the procedures (or an electronic file thereof) that is accessible at, or through, its principal place of business and must make the procedures available upon request, at a reasonable time and location, to an authorized official of the Department. The procedures must, at a minimum, include instruction on the following:

(*1*) Pressure specifications. Each person must specify pressure standard(s) (e.g., a pressure limit or range) for a container respective of the design and/or contents. Each container, after it is filled, must be pressure checked and compared to the standards. For a pressure limit, any container exceeding the pressure limit must be rejected. For a pressure range, any container outside of the set range must be rejected. The instruments used to determine the pressure must be properly calibrated before a production run to an accuracy of ±or better; and

(*2*) Periodic inspection. At designated intervals, a randomly selected container must be inspected for proper closure and verification of filling pressure. If a container shows signs of improper closure or over-filling, five (5) additional randomly selected containers must be inspected. If any of the additional containers show signs of improper closure or over-filling, all containers produced since the last inspection must be rejected.

(C) *Weight test.* Each person employing a weight test of filled containers must develop procedures for implementation of the test. Each person must maintain a copy of the procedures (or an electronic file thereof) that is accessible at, or through, its principal place of business and must make the procedures available upon request, at a reasonable time and location, to an authorized official of the Department. The procedures must, at a minimum, include instruction on the following:

(*1*) Weight specifications. Each person must specify target weight specifications for a particular container.

Each container, after it is filled, must be weighed and compared to the target weight specification for the container. Any container outside the target weight specification is an indication of leakage or overfilling and must be rejected. The instruments used to determine the weight must be properly calibrated before a testing run and be sufficiently sensitive to measure within 0.10 g of the true weight of the container;

(*2*) Heat testing and pressure limits. One container out of each lot of successfully filled containers must be heat tested by raising the internal pressure until it reaches that which would be reached at 55 °C (131 °F). The lot size should be no greater than 2,000. If the pressure in the container exceeds the maximum pressure allowed for the container type or if the container shows signs of leakage or permanent deformation, the lot must be rejected. Alternatively, five (5) additional randomly selected containers from the lot may be tested to qualify the lot but if any of the five containers fail the test, the entire lot must be rejected;

(*3*) Periodic inspection. At intervals of not more than 10 minutes, a randomly selected container must be inspected for proper closure and verification of filling pressure. If a container shows signs of improper closure or over-filling, five (5) additional randomly selected containers must be inspected. If any of the additional containers show signs of improper closure or over-filling, all containers produced since the last inspection must be rejected; and

(*4*) Visual inspection. Each container must be visually inspected prior to being packed. Any container showing signs of leakage or permanent deformation must be rejected.

(D) *Leakage test.* (*1*) Pressure and leak testing before filling. Each empty container must be subjected to a pressure equal to or in excess of the maximum expected in the filled containers at 55 °C (131 °F) or 50 °C (122 °F) if the liquid phase does not exceed 95% of the capacity of the container at 50 °C (122 °F). This must be at least two-thirds of the design pressure of the container. If any container shows evidence of leakage at a rate equal to or greater than 3.3×10^{-2} mbar L/s at the test pressure, distortion or other defect, it must be rejected; and

(*2*) Testing after filling. The person filling each container must ensure that the crimping equipment is set appropriately and the specified propellant is used before filling a container. Once filled, each container must be weighed and leak tested. The leak detection equipment must be sufficiently sensitive to detect at least a leak rate of 2.0×10^{-3} mbar L/s at 20 °C (68 °F). Any filled container which shows evidence of leakage, deformation, or overfilling must be rejected.

(vi) Each outer packaging must be marked ''INSIDE CONTAINERS COMPLY WITH PRESCRIBED REGULATIONS.''

(4) Gas samples must be transported under the following conditions:

(i) A gas sample may only be transported as non-pressurized gas when its pressure corresponding to ambient atmospheric pressure in the container is not more than 105 kPa absolute (15.22 psia).

(ii) Non-pressurized gases, toxic (or toxic and flammable) must be packed in hermetically sealed glass or metal inner packagings of not more than one L (0.3 gallons) overpacked in a strong outer packaging.

(iii) Non-pressurized gases, flammable must be packed in hermetically sealed glass or metal inner packagings of not more than 5 L (1.3 gallons) and overpacked in a strong outer packaging.

(5) For limited quantities of Division 2.2 gases with no subsidiary risk, when in a non-DOT specification or a specification DOT 2S (§178.33b of this subchapter) plastic aerosol container (see §171.8 of this subchapter for the definition of aerosol) provided all of the following conditions are met. Additional exceptions for aerosols conforming to this paragraph (a)(5) are provided in paragraph (i) of this section.

(i) *Capacity.* The capacity of the container must not exceed 1 L (61.0 cubic inches).

(ii) *General pressure conditions.* Authorized plastic aerosol containers and associated pressure limitations are provided in the following table. The pressure in the container must not exceed

160 psig at 54.4 °C (130 °F). The container must be capable of withstanding without bursting a pressure of at least one and one-half times the equilibrium pressure of the contents at 54.4 °C (130 °F).

AUTHORIZED PLASTIC AEROSOL CONTAINERS

If the gauge pressure (psig) at 55 °C (131 °F) is . . .	Authorized plastic container
Less than 140	Non-DOT specification, DOT 2S.
140 or greater but not exceeding 160	DOT 2S.

(iii) *Liquid fill*. Liquid content of the material and gas must not completely fill the container at 54.4 °C (130 °F).

(iv) *Outer packaging*. The containers must be packed in strong outer packagings.

(v) *Pressure testing*. Except as provided in paragraph (a)(5)(vi) of this section, each container must be subjected to a test performed in a hot water bath. The temperature of the bath and the duration of the test must be such that the internal pressure reaches that which would be reached at 55 °C (131 °F) or 50 °C (122 °F) if the liquid phase does not exceed 95% of the capacity of the container at 50 °C (122 °F). If the contents are sensitive to heat, or if the container is made of plastic material which softens at this test temperature, the temperature of the bath must be set at between 20 °C (68 °F) and 30 °C (86 °F) but, in addition, one container in 2,000 must be tested at the higher temperature. No leakage or permanent deformation of a container is permitted except that a plastic container may be deformed through softening provided that it does not leak.

(vi) *Leakage test*. As an alternative to the hot water bath test in paragraph (a)(5)(v) of this section, testing may be performed as follows:

(A) Pressure and leak testing before filling. Each empty container must be subjected to a pressure equal to or in excess of the maximum expected in the filled containers at 55 °C (131 °F) or 50 °C (122 °F) if the liquid phase does not exceed 95% of the capacity of the container at 50 °C (122 °F). This must be at least two-thirds of the design pressure of the container. If any container shows evidence of leakage at a rate equal to or greater than 3.3×10^{-2} mbar L/s at the test pressure, distortion or other defect, it must be rejected; and

(B) Testing after filling. Prior to filling, the filler must ensure that the crimping equipment is set appropriately and the specified propellant is used before filling the container. Once filled, each container must be weighed and leak tested. The leak detection equipment must be sufficiently sensitive to detect at least a leak rate of 2.0×10^{-3} mbar L/s at 20 °C (68 °F). Any filled container that shows evidence of leakage, deformation, or excessive weight must be rejected.

(vii) Each outer packaging must be marked ''INSIDE CONTAINERS COMPLY WITH PRESCRIBED REGULATIONS.''

(b) *Exceptions for foodstuffs, soap, biologicals, electronic tubes, and audible fire alarm systems*. Limited quantities of compressed gases (except Division 2.3 gases) for which exceptions are provided as indicated by reference to this section in §172.101 of this subchapter, when in conformance with one of the following paragraphs, are excepted from labeling, except when offered for transportation or transported by aircraft, and the specification packaging requirements of this subchapter. For transportation by aircraft, the package must conform to the applicable requirements of §173.27 and only packages of hazardous materials authorized aboard passenger-carrying aircraft may be transported as a limited quantity. In addition, shipments are not subject to subpart F (Placarding) of part 172 of this subchapter, to part 174 of this subchapter, except §174.24, and to part 177 of this subchapter, except §177.817. Additional exceptions for certain compressed gases in limited quantities are provided in paragraph (i) of this section.

(1) Foodstuffs or soaps with soluble or emulsified compressed gas are authorized in non-refillable metal or plastic containers not to exceed 1 L (61.0 cubic inches) capacity provided the pressure in each container does not exceed 140 psig at 54.4 °C (130 °F) unless authorized by variation of a container type. For pressures ranging from greater than 140 psig to 160 psig, a variation DOT 2P1 or DOT 2Q2 (§§178.33(c) and (d)

of this subchapter, respectively) container must be used. However, the pressure of the contents in the container may not be greater than 150 psig at 23.9 °C (75 °F). Plastic containers may only contain Division 2.2 non-flammable soluble or emulsified compressed gas. Metal or plastic containers must be capable of withstanding, without bursting, a pressure of at least one and one-half times the equilibrium pressure of the contents at 54.4 °C (130 °F).

AUTHORIZED AEROSOL CONTAINERS FOR FOODSTUFFS AND SOAPS

If the gauge pressure (psig) at 54.4 °C (130 °F) is . . .	Authorized container
Not exceeding 140	Non-DOT specification, DOT 2P, DOT 2P1, DOT 2Q, DOT 2Q2.
Greater than 140 but not exceeding 160	DOT 2P, DOT 2P1, DOT 2Q, DOT 2Q2.
Greater than 160 but not exceeding 180	DOT 2Q, DOT 2Q2.

(i) Containers must be packed in strong outer packagings.

(ii) Liquid content of the material and the gas must not completely fill the container at 55 °C (131 °F).

(iii) Each outer packaging must be marked ''INSIDE CONTAINERS COMPLY WITH PRESCRIBED REGULATIONS.''

(2) Cream in refillable metal or plastic containers with soluble or emulsified compressed gas. Plastic containers must only contain Division 2.2 non-flammable soluble or emulsified compressed gas. Containers must be of such design that they will hold pressure without permanent deformation up to 375 psig and must be equipped with a device designed so as to release pressure without bursting of the container or dangerous projection of its parts at higher pressures. This exception applies to shipments offered for transportation by refrigerated motor vehicles only.

(3) Nonrefillable metal or plastic containers charged with a Division 6.1 PG III or nonflammable solution containing biological products or a medical preparation that could be deteriorated by heat, and compressed gas or gases. Plastic containers may only contain 2.2 non-flammable soluble or emulsified compressed gas. The capacity of each container may not exceed 35 cubic inches (19.3 fluid ounces). The pressure in the container may not exceed 140 psig at 54.4 °C (130 °F), and the liquid content of the product and gas must not completely fill the containers at 54.4 °C (130 °F). One completed container out of each lot of 500 or less, filled for shipment, must be heated, until the pressure in the container is equivalent to equilibrium pressure of the contents at 54.4 °C (130 °F). There must be no evidence of leakage, distortion, or other defect. The container must be packed in strong outer packagings.

(4) Electronic tubes, each having a volume of not more than 30 cubic inches and charged with gas to a pressure of not more than 35 psig and packed in strong outer packagings are authorized.

(5) Audible fire alarm systems powered by a compressed gas contained in an inside metal container when shipped are authorized under the following conditions:

(i) Each inside container must have contents that are not flammable, poisonous, or corrosive as defined under this part,

(ii) Each inside container may not have a capacity exceeding 35 cubic inches (19.3 fluid ounces),

(iii) Each inside container may not have a pressure exceeding 70 psig at 21.1 °C (70 °F) and the liquid portion of the gas may not completely fill the inside container at 54.4 °C (130 °F), and

(iv) Each nonrefillable inside container must be designed and fabricated with a burst pressure of not less than four times its charged pressure at 54.4 °C (130 °F). Each refillable inside container must be designed and fabricated with a burst pressure of not less than five times its charged pressure at 54.4 °C (130 °F).

(c)–(d) [Reserved]

(e) *Refrigerating machines.* (1) New (unused) refrigerating machines or components thereof are excepted from the specification packaging requirements of this part if they meet the following conditions. In addition, shipments are not subject to subpart F of part 172 of this subchapter, to part 174 of this subchapter except §174.24 and to

part 177 of this subchapter except §177.817.

(i) Each pressure vessel may not contain more than 5,000 pounds of Group A1 refrigerant as classified in ANSI/ASHRAE Standard 15 or not more than 50 pounds of refrigerant other than Group A1.

(ii) Machines or components having two or more charged vessels may not contain an aggregate of more than 2,000 pounds of Group I refrigerant or more than 100 pounds of refrigerant other than Group I.

(iii) Each pressure vessel must be equipped with a safety device meeting the requirements of ANSI/ASHRAE 15 (IBR, see §171.7 of this subchapter).

(iv) Each pressure vessel must be equipped with a shut-off valve at each opening except openings used for safety devices and with no other connection. These valves must be closed prior to and during transportation.

(v) Pressure vessels must be manufactured, inspected and tested in accordance with ANSI/ASHRAE 15, or when over 6 inches internal diameter, in accordance with Section VIII of the ASME Code (IBR, see §171.7 of this subchapter).

(vi) All parts subject to refrigerant pressure during shipment must be tested in accordance with ANSI/ASHRAE 15.

(vii) The liquid portion of the refrigerant, if any, may not completely fill any pressure vessel at 130 °F.

(viii) The amount of refrigerant, if liquefied, may not exceed the filling density prescribed in §173.304.

(2) *Used refrigerating machines*—(i) *Packaging.* Reconditioned (used) refrigerating machines (UN 2857, Div. 2.2) may be excepted from the marking requirements of §172.302(c) of this subchapter and transported by motor vehicle when they conform to the requirements prescribed in §173.306(e)(1), are secured or permanently attached to the motor vehicle, and are:

(A) Permanently affixed to a steel base structure,

(B) Permanently affixed to a trailer, or

(C) Manufactured with a rigid internal structure designed for transportation and stacking conditions such that they do not leak and do not deteriorate, distort, or become damaged in a manner that could adversely affect their safety or reduce their strength in transportation, cause instability in stacks of refrigerating machines, or cause damage to these machines in a way that is likely to reduce safety in transportation.

(ii) *Testing.* Used refrigerating machines returned from their rental locations must be transported back to an authorized original equipment manufacturer service facility and undergo maintenance, repair and/or replacement that renders these machines operational at the same level as that of new refrigerating machines, and must undergo a leak test by a certified technician, prior to re-shipment.

(f) *Accumulators (Articles, pressurized pneumatic or hydraulic containing nonflammable gas).* The following applies to accumulators, which are hydraulic accumulators containing nonliquefied, nonflammable gas, and nonflammable liquids or pneumatic accumulators containing nonliquefied, nonflammable gas, fabricated from materials which will not fragment upon rupture.

(1) Accumulators installed in motor vehicles, construction equipment, and assembled machinery and designed and fabricated with a burst pressure of not less than five times their charged pressure at 70 °F, when shipped, are not subject to the requirements of this subchapter.

(2) Accumulators charged with limited quantities of compressed gas to not more than 200 psig at 70 °F are excepted from labeling (except when offered for transportation by air) and the specification packaging requirements of this subchapter when shipped under the following conditions. In addition, shipments are not subject to subpart F (placarding) of part 172 of this subchapter, to part 174 of this subchapter except §174.24 and to part 177 of this subchapter except §177.817.

(i) Each accumulator must be shipped as an inside packaging. Robust accumulators may be transported unpackaged, in crates, or in appropriate overpacks, when the hazardous materials are afforded equivalent protection by the article in which they are contained;

(ii) Each accumulator may not have a gas space exceeding 2,500 cubic inches under stored pressure; and

(iii) Each accumulator must be tested, without evidence of failure or damage, to at least three times its charged pressure of 70 °F, but not less than 120 psi before initial shipment and before each refilling and reshipment.

(3) Accumulators with a charging pressure exceeding 200 psig at 70 °F and in compliance with the requirements stated in paragraph (f)(2) of this section, as applicable, are excepted from labeling (except when offered for transportation by air) and the specification packaging requirements of this subchapter when shipped under the following conditions:

(i) Each accumulator must be designed and fabricated with a burst pressure of not less than five (5) times its charged pressure at 70 °F when shipped;

(ii) For an accumulator with a gas space not to exceed 100 cubic inches, it must be designed and fabricated with a burst pressure of not less than five (5) times its charged pressure at 70 °F. Out of each lot not to exceed 1,000 successively produced accumulators per day of the same type, accumulators must be tested, in lieu of the testing of paragraph (f)(2)(iii) of this section, as follows:

(A) One (1) accumulator must be tested to the minimum design burst pressure;

(B) Two (2) accumulators, one at the beginning of production and one at the end must be tested to at least two and a half times the charge pressure without evidence of leakage or distortion;

(C) If accumulators fail either test, an additional four (4) sets of accumulators from the lot may be tested. If any additional accumulators fail, the lot must be rejected;

(iii) For an accumulator with a gas space not to exceed 30 cubic inches, it must be designed and fabricated with a burst pressure of not less than four (4) times its charged pressure at 70 °F. Out of each lot not to exceed 1,000 successively produced accumulators per day of the same type, accumulators must be tested, in lieu of the testing of paragraph (f)(2)(iii) of this section, as follows:

(A) One (1) accumulator must be tested to the minimum design burst pressure;

(B) Two (2) accumulators, one at the beginning of production and one at the end must be tested to at least two and a half times the charge pressure without evidence of leakage or distortion;

(C) If accumulators fail either test, an additional four (4) sets of accumulators from the lot may be tested. If any additional accumulators fail, the lot must be rejected;

(iv) Accumulators must be packaged in strong outer packaging. Robust accumulators may be transported unpackaged, in crates, or in appropriate overpacks, when the hazardous materials are afforded equivalent protection by the article in which they are contained.

(4) Accumulators intended to function as shock absorbers, struts, gas springs, pneumatic springs or other impact or energy-absorbing devices are not subject to the requirements of this subchapter provided each:

(i) Has a gas space capacity not exceeding 1.6 L and a charge pressure not exceeding 280 bar, where the product of the capacity expressed in liters and charge pressure expressed in bars does not exceed 80 (for example, 0.5 L gas space and 160 bar charge pressure);

(ii) Has a minimum burst pressure of 4 times the charge pressure at 20 °C for products not exceeding 0.5 L gas space capacity and 5 times the charge pressure for products greater than 0.5 L gas space capacity;

(iii) Design type has been subjected to a fire test demonstrating that the article relieves its pressure by means of a fire degradable seal or other pressure relief device, such that the article will not fragment and that the article does not rocket; and

(iv) Accumulators must be manufactured under a written quality assurance program which monitors parameters controlling burst strength, burst mode and performance in a fire situation as specified in paragraphs (f)(4)(i) through (f)(4)(iii) of this section. A copy of the quality assurance program must be maintained at each facility at which the accumulators are manufactured.

(5) Accumulators not conforming to the provisions of paragraphs (f)(1) through (f)(4) of this section may only be transported subject to the approval of the Associate Administrator.

(g) *Water pump system tank.* Water pump system tanks pre-charged at time of manufacture with compressed air or limited quantities of nitrogen or helium to not over 275.79 kPa gauge pressure (40 psig) for single-trip shipment to installation sites are excepted from labeling, and the specification packaging requirements of this subchapter when shipped under the following conditions. In addition, shipments of these tanks are not subject to the placarding requirements of subpart F of part 172 of this subchapter, and not subject to parts 174 (except §174.24) and 177 (except §177.817) of this subchapter.

(1) The tank must be of steel or composite construction, with heads concave to pressure, having a rated water capacity not exceeding 455 L (120 gallons) and with an outside diameter not exceeding 61 cm (24 inches). These tanks may be operated in ambient air temperatures of up to 49 °C (120 °F) with a maximum working pressure not less than 75 psig and not greater than 150 psig. Safety relief devices are not required.

(2) Each tank must be pneumatically tested to the manufacturer's specified maximum working pressure. The test pressure must be permanently marked on the tank. In any case, the pneumatic test must not be conducted to a pressure exceeding 150 psig.

(3) The stress at prescribed pressure for steel tanks must not exceed 20,000 psig (or 25,000 psig for deep-draw steel), using the formula:

$$S = Pd/2t$$

Where:
S = wall stress in psi;
P = prescribed pressure for the tank is at least the manufacturer's rated maximum working pressure or three (3) times the pre-charged pressure at 21.1 °C (70 °F), whichever is greater;
d = inside diameter in inches; and
t = minimum wall thickness, in inches.

(4) For steel and composite tanks, the burst pressure must be at least six (6) times the pre-charge pressure at 21.1 °C (70 °F) or three (3) times the manufacturer's specified maximum working pressure, whichever is greater.

(5) Each tank must be over-packed in a strong outer packaging in conformance with §173.301(h).

(6) Transportation is limited to motor vehicle, railcar, and vessel. Transportation by aircraft is not authorized.

(h) *Lighter refills.* (1) Lighter refills (see §171.8 of this subchapter) must not contain an ignition element but must contain a release device. Lighter refills offered for transportation under this section may not exceed 4 fluid ounces capacity (7.22 cubic inches) or contain more than 65 grams of a Division 2.1 fuel. For transportation by highway or rail, lighter refills must be tightly packed and secured against shifting in strong outer packagings. For transportation by aircraft or vessel, lighter refills must be tightly packed and secured against shifting in any rigid specification outer packaging authorized in subpart L of part 178 of this subchapter at the Packing Group II performance level.

(2) *Exceptions.* (i) For other than transportation by aircraft, exceptions for certain compressed gases in limited quantities are provided in paragraph (i) of this section.

(ii) For highway transportation, when no more than 1,500 lighter refills covered by this paragraph are transported in one motor vehicle, the requirements of subparts C through H of part 172, and part 177 of this subchapter do not apply. Lighter refills covered under this paragraph must be packaged in rigid, strong outer packagings meeting the general packaging requirements of subpart B of this part. Outer packagings must be plainly and durably marked on two opposing sides or ends with the words ''LIGHTER REFILLS'' and the number of devices contained therein in letters measuring at least 20 mm (0.79 in) in height. No person may offer for transportation or transport the lighter refills or prepare the lighter refills for shipment unless that person has been specifically informed of the requirements of this section.

(i) *Limited quantities.* A limited quantity that conforms to the provisions of

paragraph (a)(1), (a)(3), (a)(5), (b) or, except for transportation by aircraft, paragraph (h) of this section is excepted from labeling requirements, unless the material is offered for transportation or transported by aircraft, and the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph. Packages must be marked in accordance with §172.315(a) or (b), as appropriate. Packages of limited quantities intended for transportation by aircraft must conform to the applicable requirements (*e.g.*, authorized materials, inner packaging quantity limits, and closure securement) of §173.27 of this part. A limited quantity package that conforms to the provisions of this section is not subject to the shipping paper requirements of subpart C of part 172 of this subchapter, unless the material meets the definition of a hazardous substance, hazardous waste, marine pollutant, or is offered for transportation and transported by aircraft or vessel and is eligible for the exceptions provided in §173.156 of this part. Outside packagings conforming to this paragraph are not required to be marked ''INSIDE CONTAINERS COMPLY WITH PRESCRIBED REGULATIONS.'' In addition, packages of limited quantities are not subject to subpart F (Placarding) of part 172 of this subchapter. Each package must conform to the packaging requirements of subpart B of this part and may not exceed 30 kg (66 pounds) gross weight.

(j) *Aerosols and receptacles small, containing gas with a capacity of less than 50 mL.* Aerosols, as defined in §171.8 of this subchapter, and receptacles, small, containing gas, with a capacity not exceeding 50 mL (1.7 fluid oz.) and with a pressure not exceeding 970 kPa (141 psig) at 55 °C (131 °F), containing no hazardous materials other than a Division 2.2 gas, are not subject to the requirements of this subchapter except that for transport by aircraft, such aerosols and receptacles must be transported as cargo and may not be carried onboard an aircraft by passengers or crewmembers in carry-on baggage, checked baggage, or on their person unless specifically excepted by §175.10. The pressure limit may be increased to 2,000 kPa (290 psig) at 55 °C (131 °F) provided the aerosols are transported in outer packages that conform to the packaging requirements of Subpart B of this part. This paragraph (j) does not apply to a self-defense spray (e.g., pepper spray).

(k) *Aerosols for recycling or disposal.* Aerosols (as defined in §171.8 of this subchapter) intended for recycling or disposal may be transported under the following conditions:

(1) Aerosols conforming to paragraph (a)(3), (a)(5), (b)(1), (b)(2), or (b)(3) of this section are excepted from the labeling requirements of subpart E of part 172 this subchapter, the specification packaging requirements of this subchapter when packaged in accordance with this paragraph, the shipping paper requirements of subpart C of part 172 of this subchapter (unless the material meets the definition of a hazardous substance or hazardous waste), and the 30 kg (66 pounds) gross weight limitation, when transported by motor vehicle for purposes of recycling or disposal under the following conditions:

(i) The aerosols must be packaged in a strong outer packaging. The strong outer packaging and its contents must not exceed a gross weight of 500 kg (1,100 pounds);

(ii) Each aerosol must be secured with a cap to protect the valve stem or the valve stem must be removed;

(iii) Each completed package must be marked in accordance with §172.315(a); and

(iv) The packaging must be offered for transportation or transported by—

(A) Private or contract motor carrier; or

(B) Common carrier in a motor vehicle under exclusive use for such service.

(2) Aerosols intended to conform to paragraphs (a)(3) or (a)(5) of this section at the time of filling but are leaking, have been improperly filled, or otherwise no longer conform to paragraphs (a)(3) or (a)(5) of this section may be offered for transportation and transported for disposal or recycling under the conditions provided in this paragraph (k)(2). Such aerosols are not eligible for the exceptions provided in paragraphs (a) and (i) of this section

except for subpart F (Placarding) of part 172 of this subchapter.

(i) *Packaging.* (A) The aerosols must be packaged in a metal or plastic removable head UN 1A2, 1B2, 1N2 or 1H2 drum tested and marked to the PG II performance level or higher for liquids;

(B) Each drum must be provided, when necessary, with sufficient cushioning and absorption material to prevent excessive shifting of the aerosols and to eliminate the presence of any free liquid at the time the drum is closed. All cushioning and absorbent material used in the drum must be compatible with the hazardous material; and

(C) The pressure inside each completed drum, at any time during transportation, may not exceed the design test pressure marked on the drum.

(ii) *Hazard communication.* (A) Notwithstanding the marking requirements for non-bulk packages in §172.301 of this subchapter, each drum must be marked ''AEROSOL SALVAGE'' or ''AEROSOL SALVAGE DRUM'' in association with the required label(s); and

(B) The overpack marking requirements of §173.25 of this subchapter do not apply.

(3) *Modal restrictions.* The completed drums must be offered for transportation and transported by private or contract carrier by highway or rail. Vessel and air transportation are not authorized.

(l) For additional exceptions, *see* §173.307.

(m) *Reverse logistics.* Hazardous materials meeting the definition of ''reverse logistics'' under §171.8 of this subchapter and in compliance with this section may be offered for transport and transported in highway transportation in accordance with §173.157. For the purposes of this paragraph a cylinder or aerosol container may be assumed to meet the definition of a Division 2.1 or 2.2 material, respectively, even if the exact pressure is unknown.

(n) *Receptacles, small, containing gas or gas cartridges for recycling or disposal.* Receptacles, small, containing gas *or* gas cartridges not exceeding 1.0 L (0.3 gallons) capacity may be offered for transportation for the purposes of recycling or disposal. Receptacles, small, containing gas *or* gas cartridges are not required to be protected against shifting and inadvertent discharge if measures to prevent dangerous build-up of pressure and dangerous atmospheres are addressed and are excepted from the specification packaging requirements of this subchapter when packaged and offered in accordance with this paragraph (n).

(1) Receptacles, small, containing gas *or* gas cartridges for recycling or disposal, other than those that are leaking or severely deformed, must be packaged as follows:

(i) The receptacles, small, containing gas *or* gas cartridges must be packaged in a strong outer packaging. The strong outer packaging and its contents must not exceed a gross weight of 55 kg (121 pounds) for fiberboard packagings or 125 kg (275 pounds) for other packagings; and

(ii) Packagings must be adequately ventilated to prevent the creation of dangerous atmospheres and build-up of pressure.

(2) Rigid large packagings are authorized conforming to the packing group II performance level made of:

(i) Steel (50A); Aluminum (50B); Metal other than steel or aluminum (50N); Rigid plastics (50H); Natural wood (50C); Plywood (50D); Reconstituted wood (50F); Rigid fiberboard (50G).

(ii) Large packagings must be designed and constructed to prevent dangerous shifting and inadvertent discharge during normal conditions of transport;

(iii) Large packagings must be adequately ventilated to prevent the creation of dangerous atmospheres and the build-up of pressure; and

(iv) Leaking or severely deformed containers must be transported in salvage cylinders or salvage packagings provided adequate measures are taken to prevent a dangerous build-up of pressure.

(3) Receptacles, small, containing gas *or* gas cartridges for recycling or disposal must not be transported in closed freight containers.

(4) Receptacles, small, containing gas *or* gas cartridges for recycling or disposal that were filled with Division 2.2 gases and have been pierced are not

subject to the requirements of this subchapter.

[Amdt. 173–94, 41 FR 16079, Apr. 15, 1976]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 173.306, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.govinfo.gov*.

§ 173.307 Exceptions for compressed gases.

(a) The following materials are not subject to the requirements of this subchapter:

(1) Carbonated beverages.

(2) Tires when inflated to pressures not greater than their rated inflation pressures. For transportation by air, tires and tire assemblies must meet the conditions in § 175.8(b)(4) of this subchapter.

(3) Balls used for sports.

(4) Refrigerating machines, including dehumidifiers and air conditioners, and components thereof, such as precharged tubing containing:

(i) 12 kg (25 pounds) or less of a nonflammable, non-toxic gas;

(ii) 12 L (3 gallons) or less of ammonia solution (UN2672);

(iii) Except when offered or transported by air, 12 kg (25 pounds) or less of a flammable, non-toxic gas;

(iv) Except when offered or transported by air or vessel, 20 kg (44 pounds) or less of a Group A1 refrigerant specified in ANSI/ASHRAE Standard 15 (IBR, see § 171.7 of this subchapter); or

(v) 100 g (4 ounces) or less of a flammable, non-toxic liquefied gas.

(5) Manufactured articles or apparatuses, other than light bulbs each containing not more than 100 mg (0.0035 ounce) of inert gas and packaged so that the quantity of inert gas per package does not exceed 1 g (0.035 ounce).

(6) Light bulbs (lamps) conforming to the requirements of § 173.11.

(b) [Reserved]

[Amdt. 173–94, 41 FR 16081, Apr. 15, 1976, as amended by Amdt. 173–135, 45 FR 13090, Feb. 28, 1980; 65 FR 50462, Aug. 18, 2000; 68 FR 45038, July 31, 2003; 68 FR 75745, Dec. 31, 2003; 69 FR 76174, Dec. 20, 2004; 71 FR 14604, Mar. 22, 2006; 74 FR 2266, Jan. 14, 2009; 76 FR 3380, Jan. 19, 2011; 80 FR 1162, Jan. 8, 2015; 85 FR 83400, Dec. 21, 2020]

§ 173.308 Lighters.

(a) *General requirements.* No person may offer for transportation or transport a lighter (see § 171.8 of this subchapter) containing a Division 2.1 (flammable gas) material except under the following conditions:

(1) The lighter must contain a fuel reservoir not exceeding 4 fluid ounces capacity (7.22 cubic inches), and must contain not more than 10 grams (0.35 ounce) of flammable gas.

(2) The maximum filling density may not exceed 85 percent of the volumetric capacity of each fluid reservoir at 15 °C (59 °F).

(3) Each lighter design, including closures, must be capable of withstanding, without leakage or rupture, an internal pressure of at least two times the pressure of the flammable gas at 55 °C (131 °F).

(4) Each appropriate lighter design must be examined and successfully tested by a person or agency (authorized testing agency) who is authorized by the Associate Administrator to perform such examination and testing under the provisions of subpart E of part 107 of this chapter and who—

(i) Has the equipment necessary to perform the testing required to the level of accuracy required;

(ii) Is able to demonstrate, upon request, the knowledge of the testing procedures and requirements of the HMR relative to lighters;

(iii) Does not manufacture or market lighters, is not financially dependent or owned in whole or in part, by any entity that manufactures or markets lighters;

(iv) Is a resident of the United States; and

(v) Performs all examination and testing in accordance with the requirements of paragraph (b)(3) and (4) of this section.

(5) The Associate Administrator will assign an identification code to each person who is authorized to examine and test lighters. This identification code must be incorporated into a unique test report identifier for each successfully tested lighter design.

(b) *Examination and testing of lighter design types*—(1) *Lighter design type definition.* A new lighter design is one that has never been examined and tested or