

Portable tanks fitted with non-reclosing devices made and in use prior to December 31, 1987, may continue to be used in ethylene oxide service.

(e) In determining outage, consideration must be given to the lading temperature and solubility of inert gas padding in ethylene oxide as well as the partial pressure exerted by the gas padding.

(f) Each tank, loaded or empty, must be padded with dry nitrogen or other suitable inert gas of sufficient quantity to render the vapor space of the tank nonflammable up to 41 °C (105 °F). The gas used for padding must be free of impurities which may cause the ethylene oxide to polymerize, decompose or undergo other violent chemical reaction.

(g) Copper, silver, mercury, magnesium or their alloys may not be used in any part of the tank or appurtenances that are normally in contact with the lading.

(h) Neoprene, natural rubber and asbestos gaskets are prohibited. All packing and gaskets must be made of materials which do not react with or lower the autoignition temperature of the lading.

(i) Each tank must be insulated with cork (at least 10 cm (4 inches) thick), or mineral wool, fiberglass or other suitable insulation material of sufficient thickness so that the thermal conductance at 16 °C (60 °F) is not more than 0.075 Btu per hour per square foot per degree F. temperature differential. Portable tanks made and in use prior to December 31, 1987 equipped with fusible plugs instead of a pressure relief valve or rupture disc, must have sufficient insulation so that the tank as filled for shipment will not rupture in a fire. The insulation on portable tanks or cargo tank motor vehicles must be protected with a steel jacket at least 2.54 mm (0.100 inch) thick, or as required by the specification.

(j) Tank car tanks built after December 30, 1971 must be equipped with a thermometer well.

[Amdt. 173-224, 55 FR 52667, Dec. 21, 1990, as amended at 56 FR 66279, Dec. 20, 1991; Amdt. 173-236, 58 FR 50237, Sept. 24, 1993; Amdt. 173-234, 58 FR 51532, Oct. 1, 1993; Amdt. 173-145, 60 FR 49076, Sept. 21, 1995; 66 FR 45380, 45383, Aug. 28, 2001]

#### § 173.334 Organic phosphates mixed with compressed gas.

Hexaethyl tetraphosphate, parathion, tetraethyl dithio pyrophosphate, tetraethyl pyrophosphate, or other Division 6.1 organic phosphates (including a compound or mixture), may be mixed with a non-flammable compressed gas. This mixture may not contain more than 20 percent by weight of organic phosphate and must be packaged in DOT 3A240, 3AA240, 3B240, 4A240, 4B240, 4BA240, or 4BW240 cylinders meeting all of the following requirements:

(a) Each cylinder may be filled with not more than 5 kg (11.0 lb) of the mixture, to a maximum filling density of not more than 80 percent of the water capacity.

(b) No cylinder may be equipped with an education tube or a fusible plug.

(c) No cylinder may be equipped with any valve unless the valve is a type approved by the Associate Administrator.

(d) Cylinders must be overpacked in a box, crate, or other strong outside packaging conforming to the requirements of §173.25 and arranged to protect each valve or other closing device from damage. Except as provided in paragraph (e) of this section, no more than four cylinders may be packed in a strong outside packaging. Each strong outside packaging with its closing device protection must be sufficiently strong to protect all parts of each cylinder from deformation or leakage if the completed package is dropped 1.8 m (6 feet) onto a non-yielding surface, such as concrete or steel, impacting at the packaging's weakest point.

(e) Cylinders may be packed in strong wooden boxes with valves or other closing devices protected from damage, with not more than twelve cylinders in one outside wooden box. An outer fiberboard box may be used when not more than four such cylinders are to be shipped in one packaging. Valves must be adequately protected. Box and valve protection must be of sufficient strength to protect all parts of inner packagings and valves from deformation or breakage resulting from a drop of at least 1.8 m (6 feet) onto a non-yielding surface, such as concrete or steel, impacting at the weakest point.

[67 FR 51651, Aug. 8, 2002]

### § 173.335

EDITORIAL NOTE: At 67 FR 61014, Sept. 27, 2002, §173.334(f) was amended, however, paragraph (f) does not exist in this section.

#### § 173.335 Gas generator assemblies.

Gas generator assemblies (aircraft) containing liquefied non-flammable, non-toxic gas and a solid propellant cartridge must be packaged as follows:

(a) The gas must be packaged in specification steel cylinders authorized for any compressed gas except acetylene not exceeding 10.5 L (2.8 gallons) internal volume and having a minimum design burst pressure of 19,700 kPa (2,857 psig);

(b) Fittings must be protected against damage under conditions normal incident to transport, any trigger must be fitted with a safety locking pin, and a non-propulsive plug must be installed on the discharge tube; and

(c) Each complete unit must be individually and tightly packed to prevent movement in wooden boxes (4C1 or 4C2), plywood boxes (4D), reconstituted wood boxes (4F), fiberboard boxes (4G), or plastic boxes, (4H1 and 4H2) of Packing Group II performance level, or in the original manufacturer's transit box.

[Amdt. 173-224, 55 FR 52669, Dec. 21, 1990, as amended at 66 FR 45380, Aug. 28, 2001]

#### § 173.336 Nitrogen dioxide, liquefied, or dinitrogen tetroxide, liquefied.

Nitrogen dioxide, liquefied, or dinitrogen tetroxide, liquefied, must be packaged in specification cylinders as prescribed in §173.192. Specification cylinders prescribed in §173.192 with valve removed are authorized. Each valve opening must be closed by means of a solid metal plug with tapered thread properly luted to prevent leakage. Transportation in DOT 3AL cylinders is authorized only by highway or rail. Each cylinder must be cleaned in compliance with the requirements of Federal Specification RR-C-901C, paragraphs 3.3.1 and 3.3.2 (incorporated by reference; see §171.7 of this subchapter). Cleaning agents equivalent to those specified in RR-C-901C may be used; however, any cleaning agent must not be capable of reacting with oxygen. One cylinder selected at random from a group of 200 or fewer and cleaned at the same time must be test-

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ed for oil contamination in accordance with Specification RR-C-901C, paragraphs 4.4.2.2 (incorporated by reference; see §171.7 of this subchapter) and meet the standard of cleanliness specified therein.

[67 FR 51651, Aug. 8, 2002]

#### § 173.337 Nitric oxide.

Nitric oxide must be packed in DOT 3A1800, 3AA1800, 3E1800, or 3AL1800 cylinders conforming to the requirements of §173.40. Cylinders must be equipped with a stainless steel valve and valve seat that will not deteriorate if in contact with nitric oxide or nitrogen dioxide. Cylinders or valves may not be equipped with pressure relief devices of any type. In addition—

(a) Transportation in DOT 3AL or 3ALM cylinders is authorized only by highway or rail.

(b) Each cylinder must be cleaned in compliance with the requirements of Federal Specification RR-C-901C, paragraphs 3.3.1 and 3.3.2 (incorporated by reference; see §171.7 of this subchapter). Cleaning agents equivalent to those specified in Federal Specification RR-C-901C may be used; however, any cleaning agent must not be capable of reacting with oxygen. One cylinder selected at random from a group of 200 or fewer and cleaned at the same time must be tested for oil contamination in accordance with Federal Specification RR-C-901C paragraph 4.4.2.2 (incorporated by reference; see §171.7 of this subchapter) and meet the standard of cleanliness specified therein.

[67 FR 51651, Aug. 8, 2002]

EDITORIAL NOTE: At 67 FR 61014, Sept. 27, 2002, §173.337(a) and (b) were amended, however, the amendment could not be incorporated because text does not exist.

#### § 173.338 Tungsten hexafluoride.

Tungsten hexafluoride must be packed in specification 3A, 3AA, 3BN, or 3E (§§178.36, 178.37, 178.39, 178.42 of this subchapter) cylinders. Cylinders must be equipped with a valve protection cap or be packed in a strong outside container complying with the provisions of §173.40. Outlets of any valves must be capped or plugged. As an alternative, the cylinder opening may be