



DEPARTMENT OF TRANSPORTATION
HAZARDOUS MATERIALS REGULATIONS BOARD
WASHINGTON, D.C. 20590

20604

Title 49—TRANSPORTATION

Chapter I—Hazardous Materials Regulations Board, Department of Transportation

[Docket No. HM-76; Amdt. 173-55]

PART 173—SHIPPERS

Compressed Gases in Cylinders

The purpose of this amendment to the Hazardous Materials Regulations of the Department of Transportation is to (1) extend the 5-year hydrostatic retest requirement for certain specification 3A and 3AA cylinders to 10-year periods; (2) authorize visual inspection for specification 4E aluminum cylinders in place of periodic hydrostatic retesting; (3) authorize visual inspection for specification 4B and 4BA cylinders used exclusively in methylamine service; (4) authorize visual inspection for certain cylinders used exclusively in cyclopropane service; (5) apply periodic hydrostatic retesting inspection requirements to specifications 3AX and 3AAX cylinders; (6) remove the service pressure restriction limiting the type of cylinders that may be visually inspected instead of being hydrostatically retested; and (7) provide requalification requirements for cylinders that contained a material classified as a "corrosive liquid" prior to recharging with a compressed gas.

On January 23, 1971, the Hazardous Materials Regulations Board published a notice of proposed rule making, Docket No. HM-76; Notice No. 71-3 (36 F.R. 1153), which proposed this amendment. Interested persons were invited to give their views and several comments were received by the Board. A few of the comments were more of an editorial nature and suggested clarifications of some of the proposed rules. Several suggestions were adopted. Editorial changes were made to § 173.34 (c), (e) table, (e) (11), and (e) (15). Some editorial changes suggested would have resulted in substantial revisions without appropriate rule making process and therefore could not be considered by the Board at this time.

One commenter noted that he had suggested in a petition for rule change, deletion of the last sentence of § 173.34(c) (3) (i) on the basis that this requirement was covered by § 173.34(e) (4). In alternative, the commenter stated that it would be proper to change word "and" to "or" in the subject

text reading " * * * unless they are reheat treated and requalified in accordance with the requirements of this section." The Board has not adopted this change. The Board believes that these texts should remain as presently written since § 173.34(e) (4) provides an option rather than a requirement. The requirement for reheat treatment is to assure uniform heat treatment throughout the cylinder to preclude the existence of localized cold worked areas.

The proposal to amend § 173.301(b) was based on the opinion that a long-term lessee can be considered, for the purposes of the Hazardous Materials Regulations, the same as an owner. The comments received do not substantiate this opinion. Since the Board does not wish to expand the term "owner" outside of persons having ownership-type controls, the proposed change has not been included in this amendment.

Objection was received regarding the Board's proposal to restrict the application of the 10-year retest to a cylinder "not over 35 years old when it is retested." The Board believes it should gather additional retest information on a broader base before it can consider a 10-year retest period applied over a longer time span than was proposed.

Two commenters requested that methane and sulfur hexafluoride be added to the gases listed in § 173.34(e) (15) (ii). It is the Board's opinion that newly introduced matters of this nature must be permitted review through the normal rule-making procedures. As these changes were not included in Notice No. 71-3, they cannot be covered by this amendment but will have to be the subject of future rule making.

Several commenters mentioned possible confusion concerning cylinders used for underwater breathing. The Board did not intend that such cylinders be covered by § 173.34(e) (15). Accordingly, a restriction has been added in that subparagraph. Also, the matter of dryness in cylinders following hydrostatic testing was mentioned as a matter for concern. Therefore, to preclude a possible source of moisture, a requirement that cylinders be dried immediately following testing has been added to § 173.34(e) (15).

In consideration of the foregoing, 49 CFR Part 173 is amended as follows:

(A) In § 173.34, paragraph (a) (1) is amended, (a) (3) is amended and redesignated paragraph (b); paragraph (b) is redesignated (c) (3) (i); the intro-

ductory text of paragraph (c) is amended, (c) (2) is canceled, (c) (3) is redesignated (c) (3) (ii), (c) (4) is redesignated (c) (2), and (c) (5) is canceled; paragraph (e) table and paragraph (e) (8) are amended, (e) (9) is amended by inserting "DOT-4E" following DOT-4BW in the first sentence, "§ 178.68" has been inserted following § 178.61 within the parentheses, and the last sentence has been deleted, (e) (10) table is amended and the last sentence of the paragraph canceled, (e) (11) and (e) (15) are amended, and (e) (16) added as follows:

§ 173.34 Qualification, maintenance and use of cylinders.

(a) * * *

(1) No person may charge or fill a cylinder unless it is as specified in this part and Part 178 of this chapter. A cylinder that leaks, is bulged, has defective valves or safety devices, bears evidence of physical abuse, fire or heat damage, or detrimental rusting or corrosion, must not be used unless it is properly repaired and requalified as prescribed in these regulations.

(b) *Grandfather clause.* A cylinder in domestic use previous to the date upon which the specification therefor was first made effective in these regulations may be used if the cylinder has been properly tested and otherwise complies with the requirements applicable for the gas with which it is charged.

(c) *Cylinder marking.* Each required marking on a cylinder must be maintained so that it is legible. Retest markings and original markings which are becoming illegible may be reproduced by stamping on a metal plate which must be permanently secured to the cylinder.

(2) When the space originally provided for dates of subsequent retests becomes filled, the stamping of additional test dates into the external surface of the footing of a cylinder is authorized.

(3) A cylinder marking may not be changed except as follows:

(i) Marked service pressure may be changed only upon application to the Bureau of Explosives and receipt of written instructions as to the procedure to be followed. Such a change is not authorized for a cylinder which has failed to pass the prescribed periodic hydrostatic retest unless it is reheat treated and requalified in accordance with the requirements of this section.

(ii) Changes may be made in serial numbers and in the identification symbols by the owners. Identification symbols must be registered and approved by the Bureau of Explosives. Serial numbers and identification symbols may be changed only by the owner upon his receipt of written approval from the Bureau of Explosives. The request for ap-

proval must identify the existing markings (including serial numbers) that correspond with the proposed new markings.

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(5) [Canceled]

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(e) * * *

(11) A cylinder made in compliance with specification DOT-3A, DOT-3A 480X, or DOT-4AA480 used exclusively for anhydrous ammonia, commercially free from corroding components, and protected externally by suitable corrosion resisting coatings (such as painting, etc.) may be retested every 10 years instead of every 5 years.

Specification under which cylinder was made	Minimum retest pressure (p.s.i.)	Retest period (years)
DOT-3	3,000 p.s.i.	5.
DOT-3A, 3AA	5/3 times service pressure, except noncorrosive service (see § 173.34 (e)(10)).	5 or 10 (see § 173.34 (e)(11), (e)(14), and (e)(15)).
DOT-3AX, 3AAX	5/3 times service pressure	5.
3B, 3BN	2 times service pressure (see § 173.34 (e)(10)).	5 or 10 (see § 173.34(e)(14)).
3C	Retest not required.	
3D	5/3 times service pressure	5.
3E	Retest not required.	
3HT	5/3 times service pressure	3 (see § 173.34(e)(13)).
4	700 p.s.i.	10.
4A	5/3 times service pressure (see § 173.34(e)(10)).	5 or 10 (see § 173.34(e)(14)).
4AA480	2 times service pressure (see § 173.34 (e)(10)).	5 or 10 (see § 173.34(e)(11)).
4B, 4BA, 4BW, 4B-240ET	2 times service pressure, except noncorrosive service (see § 173.34(e)(10)).	5 or 10 (see § 173.34 (e)(9) and (e)(14)).
4C	Retest not required.	
4D, 4DA, 4DS	2 times service pressure	5.
DOT-4E	2 times service pressure, except noncorrosive service (see § 173.34(e)(10)).	5.
4L	Retest not required.	
7	do	
7-150 for liquefied petroleum gas	300 p.s.i.	5.
8, 8AL	Retest not required.	
DOT-9	400 p.s.i. (maximum 600 p.s.i.)	5.
25	500 p.s.i.	5.
26 for filling at over 450 p.s.i.	5/3 times service pressure	5.
26 for filling at 450 p.s.i. and below	2 times service pressure, except noncorrosive service (see § 173.34(e)(10)).	5 or 10 (see § 173.34(e)(9)).
33	800 p.s.i.	5.
38	500 p.s.i.	5.
Any cylinder with marked test pressure.	Retest at marked test pressure.	5.
Foreign cylinder charged for export	As marked on the cylinder, but not less than 5/3 of any service or working pressure marking.	See § 173.301(j).

(6) Each cylinder passing reinspection and retest must be marked with the date (month and year), plainly and permanently stamped into the metal of the cylinder or on a metal plate which must be permanently secured to the cylinder. For example, "4-70" for April 1970. The

dash between the month and year figures may be replaced by the mark of the testing or inspecting agency. Stamping must be in accordance with marking requirements of the specification. Date of the previous tests must not be obliterated.

* * * * *

(10) * * *

Cylinders made in compliance with—	Used exclusively for—
DOT-4, DOT-3A, DOT-3AA, DOT-3A480X, DOT-4A, DOT-4AA480.	Anhydrous ammonia of at least 99.95% purity.
DOT-3A, DOT-3AA, DOT-3A480X, DOT-3B, DOT-4B, DOT-4BA, DOT-4BW, ICC-26-240, ¹ ICC-26-300. ¹	Butadiene, inhibited, which is commercially free from corroding components.
DOT-3A, DOT-3A480X, DOT-3AA, DOT-3B, DOT-4A, DOT-4AA480, DOT-4B, DOT-4BA, DOT-4BW.	Cyclopropane which is commercially free from corroding components.
DOT-3A, DOT-3AA, DOT-3A480X, DOT-4B, DOT-4BA, DOT-4BW, DOT-4E.	Fluorinated hydrocarbons and mixtures thereof which are commercially free from corroding components.
DOT-3A, DOT-3AA, DOT-3A480X, DOT-3B, DOT-4B, DOT-4BA, DOT-4BW, DOT-4E, ICC-26-240, ¹ ICC-26-300. ¹	Liquefied hydrocarbon gas which is commercially free from corroding components.
DOT-3A, DOT-3AA, DOT-3A480X, DOT-3B, DOT-4B, DOT-4BA, DOT-4BW, DOT-4E, ICC-26-240, ¹ ICC-26-300. ¹	Liquefied petroleum gas which is commercially free from corroding components.
DOT-3A, DOT-3AA, DOT-3B, DOT-4B, DOT-4BA, DOT-4BW, DOT-4E.	Methylacetylene-propadiene, stabilized, which is commercially free from corroding components.
DOT-3A, DOT-3AA, DOT-3B, DOT-4B, DOT-4BA, DOT-4BW.	Anhydrous mono, di, trimethylamines which are commercially free from corroding components.

¹ Use of existing cylinders authorized, but new construction not authorized.

(15) A cylinder made in compliance with specification DOT-3A or 3AA, not exceeding 125 pounds water capacity and removed from any cluster, bank, group, rack, or vehicle each time it is filled, may be retested every 10 years instead of every 5 years, provided the cylinder complies with all of the following:

(i) The cylinder is not over 35 years old when it is retested.

(ii) The cylinder is used exclusively for: Air, argon, cyclopropane, ethylene, helium, hydrogen, krypton, neon, nitrogen, nitrous oxide, oxygen, xenon, and permitted mixtures thereof (see § 173.301(a)) and permitted mixtures of these gases with up to 30 percent by volume of carbon dioxide. These commodities must have a dewpoint at or below minus 52° F. at 1 atmosphere.

(iii) Prior to each refill, the cylinder is subjected to, and passes the hammer test specified in CGA Pamphlet C-6.

(iv) A cylinder currently in compliance with subdivisions (i), (ii), and (iii) of this subparagraph but which has not been confined to the exclusive use service specified since the last required hydrostatic retest is retested and examined in accordance with the requirements of § 173.302(c) (2), (3), and (4) before the periodic retest interval is extended to 10 years.

(v) Each cylinder less than 35 years old is stamped with a five pointed star at least one-fourth of an inch high following the test date. If at any time a cylinder marked with the star is used other than as specified in this paragraph, the star following the most recent test date is obliterated and subsequent tests are made every 5 years.

(vi) The cylinder is dried immediately following hydrostatic testing to remove all traces of free water.

(vii) The cylinder is not used for underwater breathing.

(16) A cylinder that previously contained a commodity classified as a "corrosive liquid" must not be used for the transportation of any compressed gas unless the following requirements are complied with before the subsequent initial filling with the compressed gas.

(i) The cylinder must be visually inspected, internally and externally, in accordance with the CGA Pamphlet C-6.

(ii) Regardless of the previous test retest date, the cylinder must be tested by interior hydrostatic pressure and must meet the acceptance criteria as specified in subparagraphs (1), (2), (3), and (4) of this paragraph.

(iii) In addition to the record prescribed in subparagraph (5) of this paragraph, the record of the inspection and

test shall include the date (month and year) of the inspection and test; the cylinder identification (including ICC or DOT specification number, registered symbol, serial number, date of manufacture, and ownership symbol); the conditions checked (leakage, corrosion, gouges, dents, or digs in shell or heads, broken or damaged footrings, or fire damage) and the disposition of the cylinder (returned to service, returned to the manufacturer for repairs, or scrapped).

(iv) A cylinder requalified for compressed gas service in accordance with this subparagraph may have its next retest and inspection scheduled from the date of the inspection and retest prescribed herein.

(v) A cylinder that contained any corrosive liquid, for which decontamination methods cannot remove all significant residue or impregnation by the former corrosive content must not be used for

the transportation of any compressed gas.

* * * * *

(B) In § 173.301, paragraph (a) is amended as follows:

§ 173.301 General requirements for shipment of compressed gas in cylinders.

(a) *Gases capable of combining chemically.* A cylinder charged with compressed gas must not contain gases or materials that are capable of combining chemically with each other or with the cylinder material so as to endanger its serviceability. See § 173.34(e)(16) regarding the requalification of a cylinder that previously contained a corrosive liquid.

* * * * *

This amendment is effective December 31, 1971. However, compliance with

the regulations as amended herein is authorized immediately.

(Secs. 831-835 of title 18, United States Code; section 9, Department of Transportation Act, 49 U.S.C. 1657, title VI, section 902(h), Federal Aviation Act of 1958, 49 U.S.C. 1421-1430, 1472(h))

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