

DEPARTMENT OF TRANSPORTATION**Research and Special Programs Administration****49 CFR Parts 171 and 173**

[Docket No. HM-220A, Amdt Nos. 171-143, 173-251]

RIN 2137-AC59

Periodic Inspection and Testing of Cylinders**AGENCY:** Research and Special Programs Administration (RSPA), DOT.**ACTION:** Final rule.

SUMMARY: RSPA is amending the requirements contained in the Hazardous Materials Regulations pertaining to the maintenance and requalification of DOT specification and exemption cylinders used for transportation of compressed gases in commerce. These changes clarify current inspection and retest requirements, incorporate certain regulatory interpretations, and add new provisions. The intent of these changes is to enhance public safety by clarifying the regulations for those persons who perform periodic inspection and testing of cylinders.

DATES: *Effective date:* The effective date of these amendments is October 1, 1996.

Compliance date: Voluntary compliance with the regulations is authorized immediately.

Incorporation by reference date: The incorporation by reference of certain publications listed in these amendments has been approved by the Director of the Federal Register to be effective on October 1, 1996.

FOR FURTHER INFORMATION CONTACT: Theresa Gwynn or Hattie L. Mitchell, telephone (202) 366-4488, Office of Hazardous Materials Standards, Research and Special Programs Administration, Department of Transportation, 400 Seventh Street SW., Washington DC 20590-0001.

SUPPLEMENTARY INFORMATION:**I. Background**

On October 18, 1995, RSPA published a notice of proposed rulemaking (NPRM; Notice No. 95-13; 60 FR 54008) under Docket HM-220A proposing to amend the requirements contained in the Hazardous Materials Regulations pertaining to the maintenance and requalification of DOT specification and exemption cylinders used for transportation of compressed gases in commerce. Comments were due by December 15, 1995. RSPA received several requests to extend the comment

period and, although RSPA did not extend the comment period, it did consider late-filed comments.

RSPA received more than 30 comments, and several commenters filed supplements to their initial comments. These comments represent the views of various trade associations, cylinder manufacturers and owners, compressed gas suppliers, fire safety equipment suppliers, independent hydrostatic retest operators and manufacturers of hydrostatic retest equipment and cylinder relief valves. All of the commenters were in general agreement with the NPRM's clarification goal, but many expressed concerns about specific proposals and suggested that RSPA make additional changes.

A number of commenters requested that RSPA delay this rulemaking and incorporate it into a future rulemaking in which RSPA will propose the revision and reorganization of all cylinder specifications in Part 178 (Docket HM-220, Regulation Identification Number 2137-AA92; See DOT Semiannual Regulatory Agenda, 60 FR 60296, 60434, November 28, 1995). RSPA also intends to propose that all requirements applicable to the inspection, retest, repair and continuing requalification of cylinders be moved from section 173.34 to part 180.

However, RSPA believes that some of the regulatory requirements in section 173.34(e) are not sufficiently clear and, based on safety concerns regarding retest and condemnation procedures, are in need of immediate clarification. Therefore, this final rule is being issued now to address the persistent questions and problems that the regulated community experiences in this area.

Some comments were beyond the scope of this rulemaking and thus, not addressed in this rule; however, RSPA will, where feasible, consider incorporating these comments in the future rulemaking. In addition, the reorganization of section 173.34(e) will require the correction of the section references contained in the Guidelines for Civil Penalties (Appendix A to Subpart D of Part 107). RSPA intends to accomplish this editorial correction in a future rulemaking.

II. Discussion of Comments**Section 173.34(e)****Revision of Retest Table**

A number of commenters noted that the section references contained in the proposed Retest and Inspection of Cylinders table (NPRM, pages 54013-14) were incorrect. The table has been revised to list the correct section references. In addition, RSPA

incorporated two requirements previously found in section 173.34(e) (7) and (12) as footnotes to the retest table.

In the NPRM, RSPA invited comments on whether table entries were needed to specify retest pressure or frequency for any specification, exemption or special permit cylinder. Although most comments supported such a change, RSPA has not included those entries in the table at this time. RSPA is considering, as a part of HM-220, how to provide this information for the specification cylinders to retesters while not expanding the table to an unmanageable size. RSPA agrees with those commenters who recommended that the table contain a generic entry that refers to a copy of the current exemption for the exemption cylinders. This final rule revises the table to include such an entry.

Another commenter suggested that the following note be placed at the end of the retest table: "Foreign acetylene cylinders must be tested in accordance with the same requirements as those of DOT 8, 8AL." This suggestion has not been adopted in this final rule because there has not been an adequate opportunity for the public to comment on this proposed revision. However, RSPA will consider this comment in a future rulemaking.

General Requirements and Retester Authorization

RSPA proposed amending section 173.34(e)(1)(ii) to prohibit the use, for transportation of a hazardous material in commerce, of a DOT specification or exemption cylinder that is required to be periodically inspected or tested unless the cylinder is marked with an inspection or test date indicating that it is qualified for use. Several commenters pointed out what they perceived as an apparent conflict between the language proposed in section 173.34(e)(1)(ii) and the language found in section 173.34(a)(1). Section 173.34(a)(1) prohibits a person from charging or filling a DOT specification cylinder with a hazardous material when the cylinder's retest date has expired, but permits the shipment of an "out-of-test date" cylinder which was charged or filled prior to the test date. The commenters stated that the proposed language represented dramatic change to the current application of the regulations. RSPA did not intend to change the current application of section 173.34(e)(1)(ii), and the proposed language has been reworded to clarify that the prohibition is against charging or filling a DOT specification cylinder after the cylinder's retest date has expired.

A commenter suggested that RSPA add a new paragraph in section 173.34(e) to explicitly recognize that there are certain conditions (e.g., corrosion or dents) that would require a cylinder to be removed from service prior to the scheduled retest date. RSPA has not adopted this comment because this situation is addressed adequately in section 173.34(a)(1), which states: "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 * * *."

Proposed section 173.34(e)(2) sets forth the procedure to obtain retester authorization, in the form of a retester identification number (RIN), and to renew that authorization. A commenter stated that the proposed section does not specify from whom the retester is to obtain a RIN application. RSPA agrees and has revised the regulatory language to include this information.

A commenter requested that RSPA revise section 173.34(e)(2) to specifically prohibit a retester from being authorized to perform retests in mobile operated stations such as vans. RSPA has not incorporated this comment because it is outside the scope of this rulemaking. In addition, RSPA has no information that would demonstrate that a retester could not comply with the applicable requirements of the HMR using a mobile station.

Several commenters requested that RSPA clarify whether persons who only perform visual inspections on DOT specification or exemption cylinders need a RIN. RSPA has revised section 173.34(e)(2)(i) to clarify that a person is not required to obtain a RIN, if the person only performs visual inspections on DOT specification or exemption cylinders.

In sections 173.34(e)(2)(i), (2)(iv) and (2)(v), RSPA proposed three new requirements. First, a retester's authority to mark a cylinder with a RIN and an inspection or test date would be contingent on the retester operating in compliance with the terms of the RIN issuance letter. Second, a retester would be required to inform RSPA in writing of any change in the company's address, cylinder qualification personnel or testing equipment within 20 days. (RSPA now imposes these two requirements under the terms of the RIN issuance letter.) Third, a retester would be required to maintain, at each facility where inspection and retesting is performed, the relevant parts of 49 CFR; copies of the current exemptions for all exemption cylinders inspected, retested

or marked; and all Compressed Gas Association (CGA) pamphlets incorporated by reference in section 171.7 that apply to the retester's activities.

A commenter stated that the requirement in proposed section 173.34(e)(2)(v) that a retester maintain "current copies" of certain CGA publications was confusing. The commenter indicated that it was unclear whether "current" referred to the most recent edition published by the CGA or the edition incorporated in the HMR. A retester must maintain, at each location where it inspects, retests or marks cylinders, the edition of each CGA publication incorporated by reference in section 171.7 that applies to retester's cylinder inspection, retesting and marking activities. To eliminate ambiguity, RSPA has clarified the language of this section.

Another commenter suggested that, instead of referring to a specific CGA publication, RSPA add the language "or a more current edition." RSPA has not adopted this suggestion. Regulations of the Office of the Federal Register require that materials incorporated by reference must be identified by title, date, edition, author, publisher and identification number of the publication (see 1 CFR Part 51).

Visual Inspection

Several commenters requested that additional language be added to section 173.34(e)(3) to clarify that a visual inspection is required each time a cylinder is retested. RSPA agrees with this comment and has inserted additional language to clarify this existing requirement. In addition, RSPA has added language to section 173.34(e)(2)(i) to clarify that a person who only performs a visual inspection and marks the cylinder with the inspection date does not need a RIN. However, CGA petitioned RSPA (P-1090) to add the requirement that such persons obtain a RIN. RSPA will consider this issue in the future rulemaking.

Retesting

RSPA received numerous comments concerning the retest requirements proposed in section 173.34(e)(4). A commenter requested that RSPA revise this section to reflect that expanding the calibrated cylinder to the prescribed level and then checking the pressure gauge provides the most precise indication of test system accuracy and, therefore, is the preferred method. RSPA has not adopted this comment. There are a number of acceptable methods that indicate test system accuracy, and RSPA

believes this choice is best left to the individual retest operator.

Several commenters suggested revisions concerning proposed section 173.34(e)(4)(ii). One commenter stated that it is not feasible to allow a 1 percent accuracy on the pressure-indicating device and a 1 percent accuracy on the expansion-indicating device and achieve a 1 percent accuracy for the total test system. The commenter stated that either the accuracy requirements for the two components of the test system must be reduced or the overall test system accuracy must be increased to account for both components of the test system being at the maximum allowable accuracy limit.

In the NPRM, RSPA was attempting to clarify two key concepts: device *accuracy* (i.e., how truthfully the system displays, or records, the actual pressure or expansion being measured) and device *resolution* (i.e., the smallest incremental unit at which a measuring instrument or system must be capable of being read, or recorded, so as to meet or exceed the measurement accuracy requirement). RSPA proposed that a retester compare the pressure- and expansion-indicating devices against a calibrated standard daily to check their accuracy. However, if the scale of the indicating device does not show the proper resolution, the accuracy of the reading is not assured. Thus, section 173.34(e)(4)(ii) in the NPRM proposed resolution standards for both pressure- and expansion-indicating devices, while section 173.34(e)(4)(iii) proposed accuracy standards for both.

The commenter has combined these two concepts and suggested that there must be a larger range for total test system accuracy. RSPA proposed that the pressure-indicating device and the expansion-indicating device each have an accuracy of $\pm 0.5\%$ and the total test system accuracy be $\pm 1.0\%$. In order to achieve a 1% system accuracy, the pressure-indicating device (gauge or digital equivalent) and the expansion-indicating device (burette or load cell) each must be calibrated to $\frac{1}{2}$ of 1% within the usable range. RSPA proposed this accuracy standard because when the system is being tested against a known benchmark (i.e., a calibrated cylinder), the standard is readily achievable and allows the retester to verify the structural integrity of the cylinder.

As previously stated, this accuracy standard is separate and distinct from the resolution standard. In a system using pressure gauges, for example, if a pressure gauge reads only in increments of 50 psi, and the minimum prescribed test pressure for a cylinder to be tested

is 1000 psi, the gauge would show insufficient resolution to determine accuracy. A gauge with a finer scale is needed. To achieve the required resolution, the gauge divisions should permit reading of pressures to within 10 psi, which is 1% of the cylinder's minimum prescribed test pressure (1000 psi). Because mid-point interpolation is permissible and 10 psi is one-half of 20 psi, a gauge of no greater than 20 psi increments can be used for this example. Thus, whether the pressure-indicating device meets the resolution standard is separate from whether the device meets the accuracy standard.

In addition, RSPA proposed at section 173.34(e)(4)(iii)(A) that "[t]he pressure indicating device * * * must permit readings of pressure from 90%–120% of the minimum prescribed test pressure of the cylinder to be tested." Several commenters opposed this requirement and stated that the requirement should specify a range of 90%–110% of test pressure. The commenters maintained that the NPRM's requirement would impose a financial burden on the industry without a safety benefit. The commenter stated that the current industry standard (CGA Pamphlet C–1) prohibits pressurizing a cylinder above 110% of the specified test pressure. In addition, the commenter estimated that there were approximately 1,000 test systems equipped with gauges capable of reading 110% of the specified test pressure. The commenter estimated the cost of replacement at \$450 per gauge and the total cost to industry of complying with this proposal to be in excess of \$500,000. Because the main goal of this rule is clarification, not substantive change, RSPA is revising the proposed requirement and is specifying a 90%–110% range.

RSPA requested comments on whether calibration should be required more or less frequently than the proposed daily calibration, and whether, for example, it is appropriate to require a calibration check at the beginning of each shift (for those facilities operating more than one shift per day), for each change in retest operator, or at some other frequency. Most commenters supported the daily calibration requirement proposed in section 173.34(e)(4)(iii). Two commenters suggested that calibration be required at the beginning of each shift. Another commenter indicated that it is important for each retest operator to have actual knowledge that the retest equipment is accurate. After reviewing the comments, RSPA has decided that the appropriate calibration verification interval is daily and thus, when conducting hydrostatic retests, a retest

operator must verify the calibration of the equipment at least once each 24-hour period.

In addition, one commenter suggested that proposed section 173.34(e)(4)(iv) be revised to read: "The test equipment must be verified to be accurate within $\pm 1\%$ of the calibrated cylinder's pressure * * *." RSPA agrees that this language clarifies the requirement and has incorporated this language into the rule.

RSPA proposed in section 173.34(e)(4)(iii) to allow a retester to use a method other than a calibrated cylinder if the retester receives written authorization from the Associate Administrator for Hazardous Materials Safety. One commenter inquired whether RSPA would grant this authorization to each individual retest facility or whether the authorization could be in the form of a more general notice. A retester who seeks to use a method not specifically recognized by the HMR must request written authorization to use that method. RSPA would review each request and, if it found the method acceptable, grant written authorization only to each specific retest facility requesting approval. If RSPA found that it was receiving and authorizing numerous requests for one particular alternative method, it would initiate a rulemaking to incorporate the alternative method into the HMR.

Proposed section 173.34(e)(4)(v) restates the current requirements for cylinder retesting, including the requirement to hold minimum test pressure for at least 30 seconds and as long as necessary for full cylinder expansion, and the prohibition on pressurizing a cylinder above 90 percent of test pressure before a retest. When the system apparatus fails to hold pressure after test pressure has been reached, retest is authorized at a pressure increased by 10 percent or 100 psi, whichever is less.

The NPRM invited comments on whether RSPA should: (1) Specify the period of time a retest operator must wait, after applying more than 90 percent of test pressure, before a second retest, (2) limit the number of permissible retests after apparatus failure, and (3) specify a standard for condemnation in the event of overpressurization. Most commenters opposed RSPA specifying requirements in any of these areas. They cited a wide range of reasons for opposing these requirements. Among those commenters who supported RSPA establishing standards in these areas, there was no consensus as to what the standards should be. After reviewing the

comments, RSPA believes further evaluation is required and is not adopting any of these standards in this rulemaking.

One commenter asked if there was a time frame between retests that would negate the requirement to increase the retest pressure and if a cylinder would still have to be tested at a higher test pressure if repairs to the retest equipment took several days. At this time, RSPA is unable to cite a specific time frame between retests that would negate the requirement to increase the retest pressure following an equipment failure. However, a brief passage of time, for example, where repairs to the retest equipment take several days, would not negate the requirement to increase the test pressure following an equipment failure.

The commenter also asked how many times a retest could be performed before the cylinder must be condemned due to excessive pressurization. A cylinder must be condemned when the retest results exceed the permanent expansion limit. Thus, once this limit is exceeded, a retester must condemn the cylinder and no further retesting is permitted. This final rule contains language emphasizing that a second retest is authorized only when the testing apparatus has failed to hold test pressure.

One commenter requested that RSPA expand the conditions under which a second retest is permitted. The commenter requested that RSPA add "improper procedure" and "operator error" as conditions under which a retester could repeat a retest at a higher test pressure. The commenter stated that equipment malfunction is not the only potential cause of an invalid test. RSPA has not adopted this comment. Such a revision would allow a retest operator to repeat a test under any condition by simply attributing it to "operator error" and to retest until the desired results were obtained.

In addition, one commenter suggested that, at least every six months, retest operators be required to use a dead weight or master gauge to recalibrate the pressure gauge used for retesting. RSPA did not propose this standard in the NPRM and questions whether a six-month interval is the proper frequency for recalibrating the pressure gauge when compared to the additional costs. Because the proposal exceeds the scope of this rulemaking, and there was no opportunity for public comment on its additional costs, RSPA is not adopting this comment.

One commenter suggested revisions to proposed section 173.34(e)(11) (paragraph (e)(10) in this rule.) The

commenter inquired whether the requirements of pressure gauge accuracy, readability and daily verification were applicable to the "modified hydrostatic test." The commenter stated that because there is only one calibration device in the modified hydrostatic test system, there is no reason to verify the device's accuracy on a daily basis. The fact that the modified hydrostatic test system has only one calibration device increases, not decreases, the need for daily verification. Therefore, RSPA is not adopting this comment.

The commenter also requested that RSPA clarify the system requirements for the modified hydrostatic test. RSPA has added language to clarify that an external visual inspection is part of the modified hydrostatic retest. In addition, as stated in section 173.34(e)(11), the system requirements for the modified hydrostatic retest are the same as the hydrostatic retest with the exception of the water jacket and the determination of the cylinder's total and permanent expansions.

Marking

RSPA proposed several changes to the marking requirements contained in section 173.34(e)(7). RSPA received a number of comments concerning these proposed changes. One commenter stated that, as proposed, the requirement for marking a cylinder with a RIN remains confusing and needs to be rewritten for clarification. RSPA has reviewed the language in proposed section 173.34(e)(7) and has made minor modifications to improve the section's clarity.

One commenter suggested that RSPA require a retester to mark its RIN on a cylinder regardless of the test method used. RSPA has not adopted this comment, because this change in marking procedures was not proposed in the NPRM and there has not been an opportunity to comment on this additional marking burden. In addition, the commenter requested that the marking concepts of DOT Exemption E-11372 be incorporated into this rulemaking. RSPA has not had an opportunity to evaluate all the effects of this comment and therefore, will consider this comment in a future rulemaking.

Cylinder Rejection/Condemnation

RSPA received a number of comments on the proposed requirements, in sections 173.34(e) (5) and (6).

One commenter suggested that RSPA revise the proposed language of section 173.34(e)(5) to stress that a cylinder that has been rejected may be requalified by

repairing the defect (e.g., bad foot ring or damaged collar). RSPA agrees and has revised this section to clarify that a cylinder that has been rejected may be requalified by repairing the defect.

Several commenters noted that the preamble language described the proposed rule as requiring a condemned cylinder to be stamped with a series of X's over the DOT specification number and service pressure or with the word "CONDEMNED" on the shoulder, top head, or neck of the cylinder was inconsistent with the regulatory language requiring a retester to apply both markings. The proposed regulatory language was incorrect and should have tracked the preamble language. RSPA is revising this rule to allow the retester to decide whether to stamp a condemned cylinder with a series of X's or the word "CONDEMNED."

A commenter requested that RSPA revise proposed section 173.34(e)(6)(ii) to shorten the word "CONDEMNED" to "CNDMD." The commenter stated that such a revision would save the retester time and expense. RSPA recognizes that the proposed requirement will require more time than stamping "CNDMD". However, the proposed language is a better method to communicate to the public that the cylinder is not qualified to be used for the transportation of hazardous materials and is a better method to prevent condemned cylinders from being used to transport hazardous materials. Within the general public, there could be confusion concerning the meaning of "CNDMD." In addition, as stated above, the retester has the option of stamping a condemned cylinder with a series of X's over the DOT specification number and service pressure. However, if stamping the word "CONDEMNED" or a series of X's over the DOT specification number and service pressure would create an undue burden on a retester, then under section 173.34(e)(7), the retester can make a written request for a variation to the marking requirement.

Another commenter inquired as to how to stamp a fully-wrapped cylinder with the word "CONDEMNED" if there is not sufficient space on the neck of the cylinder. If there is not sufficient space to stamp the cylinder with the word "CONDEMNED" then, under this rule, a retester can exercise the option of stamping a series of X's over the DOT specification number and service pressure.

Several commenters suggested that a retester be required to mark its RIN on a condemned cylinder. One commenter stated: "Otherwise, a person wishing to claim a steel cylinder for scrap metal could simply 'X' out the DOT

specifications." RSPA is not aware that such a practice has become a problem, and RSPA does not believe the addition of a RIN would discourage or prevent such a practice. RSPA has not adopted this comment because this additional step would increase the cost of condemnation without any offsetting benefit.

One commenter stated that the CGA pamphlets cited in proposed section 173.34(e)(6)(i)(A) do not provide sufficient information for the retester to make an objective determination as to what would "appreciably weaken" a given cylinder. RSPA has reviewed each of the CGA pamphlets incorporated by reference in section 173.34(e)(6)(i)(A) and finds that they provide a safe minimum standard for condemnation procedures.

RSPA received only one comment opposing the written notification requirement for rejected and condemned cylinders in proposed sections 173.34 (e)(5)(ii) and (e)(6)(ii) (sections 173.34 (e)(5)(iii) and (e)(6)(iii) of this rule). The commenter stated that this requirement "would generate unnecessary paperwork and would not improve the chances that a condemned cylinder will not be refilled." This written requirement gives the cylinder's owner actual notice that the cylinder can no longer be used to transport hazardous materials. In light of the potential civil liability considerations, this additional step will increase the likelihood that the cylinder owner will promptly remove the cylinder from service involving hazardous materials.

Proposed section 173.34(e)(6)(ii) would allow a retester, at the direction of the owner, to render the cylinder incapable of holding pressure in some fashion (e.g., by damaging the cylinder threads or drilling through the cylinder wall). Several commenters suggested that RSPA add regulatory language authorizing the retester, without the permission of the owner, to render a condemned cylinder unserviceable by "drilling a hole in the side or by damaging the threads." These commenters stated that simply marking the cylinders with a series of X's is not sufficient to ensure a condemned cylinder is not returned to service.

RSPA must balance the commenters' concerns against the property interests of the cylinder's owner. Because the cylinder in most cases is not the property of the retester and a condemned cylinder may be used for purposes other than the transportation of hazardous materials in commerce, RSPA is not authorizing the retester to "render the cylinder incapable of holding pressure" unless the cylinder's

owner has given permission to the retester.

One commenter requested that RSPA further clarify the phrase "render the cylinder incapable of holding pressure." The commenter indicated that it knew of instances "in which cylinders that had holes drilled in them by owners or retesters * * * were 'repaired' using auto body filler or similar material." The commenter recommended that the HMR specify three actions a retester could take that would render a condemned cylinder incapable of holding pressure. RSPA has not adopted this comment. There are numerous actions a retester may take that would render a cylinder incapable of holding pressure. RSPA is not mandating any particular action but instead leaves this decision to the discretion of the cylinder's owner or, with the permission of the owner, the retester.

Recordkeeping

RSPA received a number of comments concerning the recordkeeping requirements proposed in section 173.34(e)(8). RSPA proposed that the retest record contain those entries previously required, as well as the cylinder manufacturer's name or symbol, cylinder dimensions and identification of the retest operator. One commenter requested that the language proposed in section 173.34(e)(8)(ii)(B) be revised to indicate that a retester is required to record only the information that is marked on the cylinder. The commenter stated that millions of cylinders are marked with only an owner's mark and are not marked with the manufacturer's name or symbol. Another commenter requested that the regulation allow a retester to use a code or symbol to represent the cylinder's dimensions. The commenter also requested that RSPA add the word "actual" prior to "test pressure" to avoid any confusion as to whether the retest operator should record the actual test pressure or the specified test pressure. Additionally, to clarify the recordkeeping procedures, the commenter requested that RSPA delete the phrase "disposition, with reason for retest" and insert "disposition, with reason for any repeated test." RSPA agrees with each of these comments and has made the appropriate changes.

One commenter was opposed to a requirement that retest operators record a cylinder's dimensions. This rule does not adopt this comment because an entry on dimensions can help distinguish between cylinders that have the same serial numbers and capacities.

Another commenter recommended that RSPA revise the NPRM language

concerning the length of time a retester must maintain its hydrostatic retest records. The commenter noted that RSPA proposed that records be maintained for five years, but some cylinders have retest periods in excess of five years. The commenter recommended retaining the current requirement that requires retention of the records until the expiration of the retest period or until the cylinder is reinspected or retested, whichever occurs first. RSPA agrees with this comment and has retained the current requirement in this final rule.

One commenter requested that RSPA change the word "sheets" in section 173.34(e)(8)(ii)(A) to "log." The relevant proposed language is: "Calibrations must be recorded on the same sheets as, and in chronological order with, retest records for that date;". The commenter stated that the word "sheets" could be interpreted to mean that each time a retester began recording retest information on a new sheet, it must verify the calibration of its retest equipment. RSPA has not adopted this comment because it believes the likelihood of such a misunderstanding is small. The provision does not require a retester to verify calibration each time it begins recording retest information on a new retest sheet.

In addition, RSPA has modified its proposal to reduce the paperwork burden on retest operators. First, as quoted above, RSPA proposed that calibrations be recorded on the same sheets as the retest records for that date. The rule now requires only that the retest operator be able to demonstrate that the results of the daily calibration verification correspond to the hydrostatic retests that were performed on that day.

Second, RSPA proposed that calibration runs be recorded, in chronological order, with the retest records for that day. Several commenters opposed this requirement. One commenter stated that this requirement "would substantially increase our expense due to lost production and would only serve to meet the regulation." Another commenter stated that it maintained its retest records according to the name of each customer and the proposed requirement would drastically alter its filing system.

CGA Pamphlet C-1, which is not incorporated by reference in section 171.7, recommends that retesters record calibrated cylinder expansions used to confirm retest apparatus calibration. Calibration checks must be recorded as a means of demonstrating that the test apparatus was accurate on any given

day. However, RSPA did not intend to significantly increase the recordkeeping burden for retester operators, and therefore, RSPA has not adopted the proposed requirement that a retester maintain its retest records in chronological order. The recordkeeping requirement now requires a retest operator to be able to associate the daily verification(s) of calibration with the hydrostatic retests performed on that date.

One commenter was opposed to the proposed revision of section 173.34(e)(8)(ii)(B) because it interpreted the NPRM as requiring the retest operator to sign the retest sheet each time the retest operator recorded the results of a hydrostatic retest. This section does not require a retest operator to sign the retest sheet each time the retest operator records the results of a hydrostatic retest. RSPA agrees with the commenter that such a requirement would be "a waste of time and paper space." Section 173.34(e)(8)(ii)(B) requires that, for each cylinder retested or visually inspected, the retest record must contain a legible identification of test operator. Thus, if the retest operator performed all the retests recorded on a particular retest sheet, this section requires a retest operator to be legibly identified only once on the retest sheet. There is no requirement that the retest operator sign the sheet each time a retest is completed.

Proposed section 173.34(e)(8)(i) requires each retester to maintain at its facility its RIN issuance letter from RSPA, a copy of its renewal request if the request is pending, copies of notifications to RSPA of changes in its name, address, personnel or equipment which occurred after issuance of the most recent RIN letter, and the most recent certificates of calibration for all calibrated cylinders.

One commenter stated that the requirement "to maintain specific documentation is unnecessary so long as the retester can provide equivalent documentation * * *." RSPA has not adopted this comment because section 173.34(e)(8) provides that a person shall maintain its RIN issuance letter, request for renewal if pending, copies of notifications to RSPA of changes in its name, address, personnel or equipment which occurred after issuance of the most recent RIN letter, and the most recent certificates of calibration for all calibrated cylinders in paper form "or in a form from which a paper copy can be produced on request." Thus, a person can maintain this documentation in an electronic medium (e.g., computer records) provided the person can produce a paper copy upon request. In

addition, it is unclear what specific items would serve as the "equivalent documentation." This phrase is subject to broad interpretation and lacks definition. RSPA's retester inspections indicate that maintenance of these documents is standard retester operating practice because of the requirement presently found in the RIN issuance letter. Furthermore, this requirement facilitates a prompt determination whether the retester is complying with the HMR.

DOT 4-series Cylinders

One commenter recommended three revisions to proposed section 173.34(e)(10). First, the commenter requested a revision to clarify that all DOT 4L cylinders are excluded from the requirements of this paragraph because these cylinders are excluded from requalification requirements. RSPA agrees and has adopted this comment. The revised language now appears in section 173.34(e)(9) of this rule.

Second, the commenter recommended that RSPA add a sentence to proposed paragraph (e)(10) that would prohibit the removal of a DOT 4L cylinder's original stamped tare weight. The commenter stated that if the original stamped tare weight is removed and then there is a series of tare weight changes, it is difficult to determine if the cylinder has lost 10 percent of its original weight (rejection criterion for DOT-4 series cylinders). This was not suggested in the NPRM and is not adopted in this rulemaking because RSPA requires additional time to study the merits of the proposal. RSPA will consider this proposal in a future rulemaking.

Third, this commenter suggested that for inspection of DOT 4L cylinders, a more appropriate CGA reference for proposed paragraph (e)(10) is CGA Pamphlet C-6.3 and not C-6.1 as proposed in the NPRM. RSPA agrees and has revised the CGA reference which now appears in section 173.34(e)(9) of this rule.

Another commenter suggested that a number of hazardous materials be added to the materials listed in proposed paragraphs (e) (12) and (13). This was not suggested in the NPRM and is not adopted in this rulemaking because RSPA requires additional time to study the merits of the proposal.

Two commenters stated that the proposed language in section 173.34(e)(18)(iv) provides a "loophole" wherein certain cylinders that exceed the wall stress limitation in section 173.302(c)(3), but subsequently confined to a specified noncorrosive gas service, would be allowed a ten year

requalification. RSPA agrees and this result was not the intent of the proposed rule. Thus, RSPA has revised the rule to clarify that, in addition to other requirements, a cylinder that is not used exclusively in specific noncorrosive gas services must be retested and examined in accordance with the requirements of section 173.302(c) (2), (3) and (4), before the periodic retest interval can be extended from five to ten years. In addition, the tested cylinder must be confined to specified noncorrosive gas services in order to qualify for the ten year retest cycle. The revised language now appears in section 173.34(e)(16) of this rule.

Section 173.301

Foreign Cylinders for Export

Several commenters suggested that markings on foreign cylinders contain the RIN. RSPA has not adopted this comment because the marking of a RIN on these cylinders could lead to confusion between these foreign cylinders and those authorized for use in domestic hazardous materials transportation.

One commenter requested that RSPA revise the language proposed in section 173.301(j)(2) to require that the bill of lading or other shipping paper, "when possible," identify the cylinder. RSPA has not adopted this comment, because it would create a loophole that would allow a person to ship cylinders for export without the cylinders being identified on an accompanying shipping paper. This lack of documentation would make it difficult to determine whether the shipment of cylinders complied with the HMR export requirements. In addition, such a provision would render the certification that the cylinders were retested and refilled in accordance with the HMR requirements meaningless. A person could simply state that "it was not possible" to identify a particular cylinder on the shipping paper and thus, the certification could not be associated with the particular cylinder.

The commenter also requested that RSPA revise section 173.301(j) to allow cylinders currently retested, but not marked, to continue in service without being returned for re-marking.

According to the commenter, without this revision, cylinders meeting the other requirements in this section, but not marked, would not be allowed to continue in service. RSPA recognizes that this rule would require some cylinders previously tested to be retested. This requirement may cause practical problems for certain members of the regulated community. Therefore,

RSPA has revised the proposed language. If the previous testing can be verified, then the person can utilize the language in section 173.301(j)(1)(i) which allows, on a case-by-case basis, for authorization of an alternative method of qualification by Associate Administrator for Hazardous Materials Safety.

Section 173.302

Computing Wall Stress for Overfill Authorization

RSPA proposed requiring a retester to compute both a cylinder's average and maximum wall stress prior to overfilling the cylinder. Several commenters opposed the proposed change stating that there is no need to make both calculations and that one calculation, as presently required, is sufficient. RSPA agrees with the commenters and is not adopting this change.

In the NPRM, RSPA invited comments on whether other methods not presently authorized by paragraph (c)(3) may be used to compute accurately the average or maximum wall stress (60 FR 54011). One commenter requested that language be added to paragraph (c)(3) to permit the person computing the wall stress to rely, if present, on the Rejection Elastic Expansion (REE) values stamped on the cylinder. The commenter stated: "It is now common practice for manufacturers to include stamped REE values on new cylinders * * *." RSPA has not had an opportunity to consider all the possible effects that might result from the adoption of this proposal. Therefore, RSPA will consider this comment in a future rulemaking.

Section 173.309

Retest Requirements for Fire Extinguishers

Current section 173.309 prescribes DOT specification cylinders authorized for transportation under the description "Fire extinguishers containing compressed or liquefied gas, 2.2, UN1044" when certain conditions are met. Section 173.309(b)(1) states that the cylinder must be used exclusively for fire extinguishing agents such as ammonium phosphate, sodium bicarbonate, potassium bicarbonate, potassium imido dicarboxamide and bromochlorodifluoromethane or bromotrifluoromethane, which are commercially free from corroding components. In the NPRM, RSPA proposed to move section 173.309(b)(1) to section 173.34(e)(21). The proposed change was in response to a petition for rulemaking (P-1216) submitted by the Fire Equipment Manufacturers'

Association, Inc. (FEMAI) requesting that RSPA move the retest conditions to section 173.34(e). FEMAI stated this change would clarify that fire extinguishers charged with carbon dioxide only do not qualify for the special retest provisions in current section 173.34(e)(18). RSPA also proposed to remove from section 173.309(b)(2) a limitation on the dew point for propellant gases.

In this final rule, RSPA has removed section 173.309(b)(4), containing a reference to the retest provisions in section 173.34, but is not adopting the other proposed changes to section 173.309(b). The conditions identifying the contents authorized for fire extinguishers are shipper requirements rather than retest requirements and, therefore, are retained in section 173.309(b). However, paragraph (b)(1) is revised to permit the use of any fire extinguishing medium that is non-flammable, non-poisonous, and commercially free from corroding components. Any fire extinguisher containing a fire extinguishing medium or propellant gas not meeting the requirements in paragraphs (b) (1) and (2) may not be shipped under these provisions.

Several commenters to the NPRM noted that proposed section 173.34(e)(21) does not allow a 12-year retest period for cylinders having a water capacity of 12 lbs. or less regardless of the retest method. The commenters requested that RSPA revise the paragraph to add this provision. RSPA inadvertently omitted the language from the NPRM. In this final rule, RSPA has added the 12-year retest period and moved the fire extinguisher retest provisions to section 173.34(e)(19).

In the NPRM, reference to DOT 3A, 3AA and 3AL cylinders were not included in the fire extinguisher retest provisions in proposed section 173.34(e)(21). RSPA has added the retest provision for these cylinders in section 173.34(e)(19)(ii) of this final rule. These cylinders may be hydrostatically retested using the water jacket method at 12-year intervals.

Miscellaneous Technical Revisions to Part 173

The NPRM proposed a provision encouraging voluntary compliance with CGA Pamphlet S-1.1.1, paragraph 9.1.1.1, which specifies the replacement or requalification of pressure relief valves, on certain DOT cylinders every 10 years. The National Propane Gas Association (NPGA) submitted comments stating that the propane industry has experienced no problems

with these pressure relief valves and that RSPA should not "encourage" the replacement of these pressure relief valves. In addition, NPGA opposed this proposal, despite its permissive nature, because NPGA believes that State and local enforcement officials would attempt to enforce this permissive standard and this result along with liability costs would make this a "de facto mandate." NPGA also stated that its analysis indicates that the periodic replacement of these pressure relief valves would cost the industry in excess of \$60 million per year.

RSPA proposed this permissive standard in order to encourage the periodic replacement of pressure relief valves. One commenter agreed with RSPA's efforts to encourage the practice and suggested RSPA make it a mandatory requirement. The commenter cited a Canadian standard as precedent. RSPA believes a number of pressure relief valves deteriorate over time-in-service and that most members of the regulated community recognize the need for periodic replacement of these valves. RSPA does not believe that State and local enforcement officials would attempt to enforce this permissive standard. However, based on NPGA's concerns about the effect this permissive standard would have on the issue of liability, the amount of time required to gather and analyze incident data and the time required to verify NPGA's cost estimates, RSPA is deleting the permissive reference to CGA Pamphlet S-1.1.1, paragraph 9.1.1.1. RSPA will consider this issue in a future rulemaking.

In addition, one commenter proposed that throughout section 173.34(d) the phrase "safety relief devices" be revised to read "pressure relief devices." The commenter stated: "The use of the word 'pressure' in lieu of the word 'safety' is preferred because 'pressure relief' describes the function of the device." RSPA agrees with this editorial amendment and has made the appropriate changes. In addition, the commenter suggested adding the metric equivalents to the English measurements in the paragraph. RSPA will consider this comment in a future rulemaking.

The same commenter also suggested several amendments that in RSPA's view were more than editorial comments and thus, beyond the scope of the present rulemaking. These include suggestions that RSPA add a sentence to section 173.34(d) that would require that selection of pressure relief devices for cylinders containing compressed gas mixtures be made in accordance with CGA Pamphlet S-7;

add "flammable, liquefied compressed gases" to section 173.34(d)(7), and add a new paragraph allowing Classes 3 or 8 materials to be transported in cylinders that are not under pressure and not equipped with pressure relief devices. CGA Pamphlet S-7 has not been incorporated by reference and RSPA is uncertain of the impact of such an amendment. In addition, RSPA needs additional time to review those materials in Classes 3 and 8 which have a high vapor pressure at temperatures normally related to transportation and therefore, may require a pressure relief device. Moreover, these proposals were not suggested in the NPRM and are not adopted in this rulemaking because there has been no opportunity for public comment on them.

Another commenter stated that "[a]n effort should be made to use the same terminology between the DOT regulations and the CGA Pamphlets referenced therein." RSPA agrees and has made an effort to harmonize the terminology.

III. Rulemaking Analyses and Notices

1. Executive Order 12866 and DOT Regulatory Policies and Procedures

This rule is not considered a significant regulatory action under section 3(f) of Executive Order 12866 and was not reviewed by the Office of Management and Budget. The rule is not considered significant under the Regulatory Policies and Procedures of the Department of Transportation (44 FR 11034). The economic impact of this rule is minimal to the extent that preparation of a regulatory evaluation is not warranted.

2. Executive Order 12612

This rule has been analyzed in accordance with the principles and criteria contained in Executive Order 12612 ("Federalism"). Federal law expressly preempts State, local, and Indian tribe requirements applicable to the transportation of hazardous material that cover certain subjects and are not "substantively the same" as the Federal requirements. 49 U.S.C. 5125(b)(1). These covered subjects are:

(A) the designation, description, and classification of hazardous material;

(B) the packing, repacking, handling, labeling, marking, and placarding of hazardous material;

(C) the preparation, execution, and use of shipping documents related to hazardous material and requirements respecting the number, contents, and placement of those documents;

(D) the written notification, recording, and reporting of the unintentional

release in transportation of hazardous material; and

(E) the design, manufacturing, fabricating, marking, maintenance, reconditioning, repairing, or testing of a packaging or a container which is represented, marked, certified, or sold as qualified for use in transporting hazardous material.

This rulemaking addresses the maintenance and testing of a packaging represented as qualified for use in the transportation of hazardous material. Therefore, the rule preempts State, local and Indian tribe requirements that are not "substantively the same" as Federal requirements on these subjects. Section 5125(b)(2) of Title 49 U.S.C. provides that when DOT issues a regulation concerning any of the covered subjects after November 16, 1990, DOT must determine and publish in the Federal Register the effective date of Federal preemption. The effective date may not be earlier than the 90th day following the date of issuance of the final rule and no later than two years after the date of issuance. RSPA has determined that the effective date of Federal preemption of this final rule is October 1, 1996. Because RSPA lacks discretion in this area, preparation of a federalism assessment is not warranted.

3. Regulatory Flexibility Act

I certify that this rule will not have a significant economic impact on a substantial number of small entities. This rule applies to persons who inspect, retest and certify cylinders used

to transport hazardous materials. These persons include a number of small businesses; however, the economic impact on any small business affected by the rule is expected to be minimal. There are no direct or indirect adverse economic impacts for small units of government or other organizations.

4. Paperwork Reduction Act

This final rule changes information collection requirements in section 173.34 pertaining to testing, inspecting and marking of cylinders which were previously approved by the Office of Management and Budget under OMB control number 2137-0022. RSPA is requesting reinstatement and revision of this approval from OMB and will display the control number, through publication in the Federal Register, when it is approved by OMB. Public comment on this request was invited through publication of a Federal Register notice on March 5, 1996 (61 FR 8706). Under the Paperwork Reduction Act of 1995, no person is generally required to respond to a requirement for collection of information unless the requirement displays a valid OMB control number.

5. Regulation Identifier Number

A regulation identifier number is assigned to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. The regulation identifier number contained in the heading of this

document can be used to cross-reference this action with the Unified Agenda.

List of Subjects

49 CFR Part 171

Exports, Hazardous materials transportation, Hazardous waste, Imports, Incorporation by reference, Reporting and recordkeeping requirements.

49 CFR Part 173

Hazardous materials transportation, Packaging and containers, Radioactive materials, Reporting and recordkeeping requirements, Uranium.

In consideration of the foregoing, 49 CFR parts 171 and 173 are amended as follows:

PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

1. The authority citation for part 171 continues to read as follows:

Authority: 49 U.S.C. 5101-5127; 49 CFR 1.53.

2. In § 171.7, in the Table in paragraph (a)(3), under the entry *Compressed Gas Association, Inc.*, the entries for CGA Pamphlets C-6, C-13, and S-1.1 are revised and four new entries are added in alpha-numerical order, to read as follows:

§ 171.7 Reference material.

(a) * * *

(3) *Table of material incorporated by reference.* * * *

Source and name of material						49 CFR reference
*	*	*	*	*	*	
<i>Compressed Gas Association, Inc.,</i>						
*	*	*	*	*	*	
CGA Pamphlet C-5, Cylinder Service Life—Seamless Steel High Pressure Cylinders, 1991						173.302
CGA Pamphlet C-6, Standards for Visual Inspection of Steel Compressed Gas Cylinders, 1993						173.34; 180.519
CGA Pamphlet C-6.1, Standards for Visual Inspection of High Pressure Aluminum Compressed Gas Cylinders, 1995						173.34
CGA Pamphlet C-6.2, Guidelines for Visual Inspection and Requalification of Fiber Reinforced High Pressure Cylinders, 1988.						173.34
CGA Pamphlet C-6.3, Guidelines for Visual Inspection and Requalification of Low Pressure Aluminum Compressed Gas Cylinders, 1991.						173.34
*	*	*	*	*	*	
CGA Pamphlet C-13, Guidelines for Periodic Visual Inspection and Requalification of Acetylene Cylinders, 1992						173.34; 173.303
*	*	*	*	*	*	
CGA Pamphlet S-1.1., Pressure Relief Device Standards—Part 1—Cylinders for Compressed Gases, 1994 (with the exception of paragraph 9.1.1.1).						173.34
*	*	*	*	*	*	

* * * * *

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

3. The authority citation for Part 173 continues to read as follows:

Authority: 49 U.S.C. 5101–5127; 49 CFR 1.53.

4. In § 173.23, paragraphs (c), (d), and (e) are revised to read as follows:

§ 173.23 Previously authorized packaging.

* * * * *

(c) After July 2, 1982, a seamless aluminum cylinder manufactured in conformance with and for use under DOT special permit (SP) or exemption (E) 6498, 7042, 8107, 8364 or 8422 may be continued in use if marked before or at the time of the next retest with either the specification identification “3AL” immediately above the special permit or exemption number, or the DOT mark (e.g., DOT 3AL 1800) in proximity to the special permit or exemption marking.

(d) Cylinders (spheres) manufactured and marked under DOT special permit (SP) or exemption (E) 6616 prior to January 1, 1983, may be continued in use if marked before or at the time of the next retest with the specification identification “4BA” near the special permit or exemption marking.

(e) After October 1, 1984, cylinders manufactured for use under special permit (SP) or exemption (E) 6668 or 8404 may be continued in use, and must be marked “DOT-4LXXXXYY” (XXX to be replaced by the service pressure, YY to be replaced by the letters “AL”, if

applicable) in compliance with Specification 4L (§ 178.57 of this subchapter) on or before January 1, 1986. The “DOT-4LXXXXYY” must appear in proximity to other required special permit or exemption markings.

* * * * *

5. In § 173.34, paragraph (d)(7) is removed, the first sentence of the introductory text of paragraph (d), paragraphs (d)(1) through (d)(5) and paragraph (e) are revised, and paragraph (d)(6) is added to read as follows:

§ 173.34 Qualification, maintenance and use of cylinders.

* * * * *

(d) *Pressure relief device systems.* No person may offer a cylinder charged with a compressed gas for transportation in commerce unless the cylinder is equipped with one or more pressure relief devices sized and selected as to type, location, and quantity and tested in accordance with CGA Pamphlet S-1.1 (compliance with paragraph 9.1.1.1 of CGA Pamphlet S-1.1 is not required).

* * *

(1) Except as provided in paragraphs (d)(1) (i) through (iii) of this section, a pressure relief device is not required on a cylinder 12 inches or less in length, exclusive of neck, and 4½ inches or less in outside diameter.

(i) A pressure relief device is required on a specification 9, 39 (§ 178.65 of this subchapter), 40, or 41 cylinder. A metal pressure relief valve is required on a specification 39 cylinder used for a liquefied flammable gas. A fusible pressure relief device is not authorized

on a specification 39 cylinder containing a liquefied compressed gas.

(ii) A pressure relief device is required on a cylinder charged with a liquefied gas for which this part requires a service pressure of 1800 psi or higher.

(iii) A pressure relief device is required on a cylinder charged with a nonliquefied gas to a pressure of 1,800 psi or higher at 70 °F.

(2) Except for a specification 39 cylinder and a cylinder used for acetylene in solution, a pressure relief device is not required on a cylinder charged with a nonliquefied gas under pressure of 300 psi or less at 70 °F.

(3) A pressure relief device is prohibited on a cylinder charged with a Division 2.3 or Division 6.1 material in Hazard Zone A.

(4) A pressure relief device is prohibited on a cylinder charged with fluorine.

(5) A pressure relief device is not required on a cylinder charged with methyl mercaptan; with mono-, di-, or trimethylamine, anhydrous; with not over 10 pounds of nitrosyl chloride; or with less than 165 pounds of anhydrous ammonia.

(6) Pressure relief devices, if used, must be in the vapor space of cylinders containing pyroforic liquids, inorganic or organic, n.o.s., covered by § 173.124.

(e) *Periodic qualification and marking of cylinders.* Each cylinder that becomes due for periodic retest as specified in the following table must be retested and marked in conformance with the requirements of this paragraph (e):

RETEST AND INSPECTION OF CYLINDERS ¹

Specification under which cylinder was made ²	Minimum retest pressure (p.s.i.) ³	Retest period (years)
DOT-3	3,000 p.s.i.	5.
DOT-3A, 3AA	5/3 times service pressure, except non-corrosive service (see § 173.34(e)(13))	5, 10, or 12 (see § 173.34 (e)(14), (e)(12), (e)(16), and (e)(19)).
DOT-3AL	5/3 times service pressure	5 or 12 (see (e)(19)).
DOT-3AX, 3AAX	5/3 times service pressure	5.
3B, 3BN	2 times service pressure (see § 173.34(e)(13))	5 or 10 (see § 173.34(e)(12)).
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)(15)).
3T	5/3 times service pressure	5.
4	700 p.s.i.	10.
4A	5/3 times service pressure (see § 173.34(e)(13))	5 or 10 (see § 173.34(e)(12)).
4AA480	2 times service pressure (see § 173.34(e)(13))	5 or 10 (see § 173.34(e)(14)).
4B, 4BA, 4BW, 4B-240ET	2 times service pressure, except non-corrosive service (see § 173.34(e)(13)) ...	5, 10 or 12 (see § 173.34 (e)(11), (e)(12) and (e)(19)).
4C	Retest not required.	
4D, 4DA, 4DS	2 times service pressure	5.
DOT-4E	2 times service pressure, except non-corrosive service (see § 173.34(e)(13)) ...	5.
4L	Retest not required.	
8, 8AL	10 or 20 (see § 173.34(e)(18)).
DOT-9	400 p.s.i. (maximum 600 p.s.i.)	5.

RETEST AND INSPECTION OF CYLINDERS ¹—Continued

Specification under which cylinder was made ²	Minimum retest pressure (p.s.i.) ³	Retest period (years)
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 non-corrosive service (see § 173.34(e)(13)) ...	5 or 10 (see § 173.34(e)(11)).
33	800 p.s.i.	5.
38	500 p.s.i.	5.
Exemption cylinder	See current exemption	See current exemption.
Foreign cylinder (see § 173.301(j) for restrictions on use).	As marked on the cylinder, but not less than 5/3 of any service or working pressure marking.	5.

¹ Any cylinder not exceeding two inches outside diameter and less than two feet in length is excepted from hydrostatic retest.

² A cylinder in chlorine or sulfur dioxide service made before April 20, 1915, must be retested at 500 psi.

³ For cylinders not marked with a service pressure, see § 173.301(e)(1).

(1) *General requirements.* (i) Each cylinder bearing a DOT specification marking (including a cylinder remarked in conformance with § 173.23) must be inspected, retested and marked in conformance with this section, at the frequency specified in the Retest and Inspection of Cylinders Table in this paragraph (e). Each cylinder bearing a DOT exemption number must be inspected, retested and marked in conformance with this section and the terms of the applicable exemption, at the frequency specified in the exemption.

(ii) No cylinder required to be retested by paragraph (e)(1)(i) of this section may be charged or filled with a hazardous material and transported in commerce unless that cylinder has been inspected and retested in accordance with this section and the retester has marked the cylinder by stamping the date of retest, the cylinder retester identification number unless excepted under this section, and any other marking required by this section. No person may mark a test date or a retester identification number on a DOT specification or exemption cylinder unless all applicable requirements of this section have been met.

(2) *Retester authorization.* (i) No person may mark a cylinder with a test date or retester identification number, or otherwise represent that a DOT specification or exemption cylinder has been retested under this section, unless that person holds a current retester identification number issued by the Associate Administrator for Hazardous Material Safety and operates in compliance with the terms of the retester identification number issuance letter. With the exception of visual inspections, all functions under this section must be performed or supervised by an individual named as qualified in the retester identification number application or a notification

pursuant to paragraph (e)(2)(iv) of this section. A person is not required to obtain a retester identification number, if the person only performs visual inspections on DOT specification or exemption cylinders.

(ii) Any person seeking approval as a cylinder retester shall arrange for an independent inspection agency, approved by the Associate Administrator for Hazardous Material Safety pursuant to § 173.300a, to inspect its retest facility. The person seeking approval shall bear the cost of the inspection. Independent inspection agencies are not RSPA agents or representatives. A list of approved independent inspection agencies is available from the Associate Administrator for Hazardous Materials Safety, Office of Hazardous Materials Exemptions and Approvals (DHM-32), Research and Special Programs Administration, U.S. Department of Transportation, Washington, DC 20590-0001. Assistance in obtaining an approval may be requested from the same address.

(A) After the inspection, the person seeking approval must submit a letter of recommendation and inspection report from the independent inspection agency and a completed request for approval to the Associate Administrator for Hazardous Materials Safety at the address listed in this paragraph (e)(2)(ii). An applicant must include the following information: company name; facility location; mailing address (if different from location of facility); business telephone number; name of facility manager; the DOT specification/exemption cylinders that will be tested at the facility; a certification that the facility will operate in compliance with the applicable requirements of this subchapter, the date and an authorized signature.

(B) The Associate Administrator for Hazardous Materials Safety reviews the

application, the inspection report and recommendation submitted by the independent inspection agency, and other available information. The Associate Administrator for Hazardous Materials Safety issues a retester identification number upon a finding that the applicant's facility and qualifications are adequate to properly inspect, test and mark cylinders under this section. Unless otherwise provided in the retester identification number issuance letter, a retester identification number expires five years from the date of issuance.

(iii) An approved retester shall apply for retester identification number renewal in a timely manner. A new inspection report and recommendation of an independent inspection agency are required for each renewal. If the Associate Administrator for Hazardous Materials Safety receives a renewal application with the accompanying inspection report and recommendation at least 50 days before expiration of the retester identification number, the retester identification number remains in effect until the Associate Administrator for Hazardous Materials Safety issues a renewal or notifies the retester that its request for renewal of the retester identification number is denied. The Associate Administrator for Hazardous Materials Safety considers renewal of a retester identification number in accordance with the standard in paragraph (e)(2)(ii)(B) of this section.

(iv) The retester identification number holder shall report in writing any change in its name, address, ownership, testing equipment, or management or personnel performing any function under this section, to the Associate Administrator for Hazardous Materials Safety (DHM-32) within 20 days of the change. A retester identification number remains valid only if the retester's facility and qualifications are maintained at or above the level

observed at the time of inspection by the independent inspection agency.

(v) A retester shall maintain, at each location at which it inspects, retests or marks cylinders under this section:

(A) Current copies of those portions of this subchapter that apply to its cylinder inspection, retesting and marking activities at that location.

(B) Current copies of all exemptions governing exemption cylinders inspected, retested or marked by the retester at that location.

(C) Copies of each CGA pamphlet incorporated by reference in § 171.7 of this subchapter that applies to the retester's cylinder inspection, retesting and marking activities at that location. The publication maintained must be the edition incorporated by reference in § 171.7 of this subchapter.

(3) *Visual inspection.* Except as otherwise provided in this section, each time a cylinder is retested, it must be visually inspected, internally and externally, in accordance with CGA Pamphlets C-6, C-6.1, C-6.2, or C-6.3, as applicable. The cylinder must be approved, rejected or condemned according to the criteria in the applicable CGA pamphlet. Internal inspection may be omitted for cylinders of the type and in the service described under paragraph (e)(13) of this section. DOT 3BN cylinders must be inspected in accordance with CGA Pamphlet C-6.

(4) *Pressure retest.* (i) Unless otherwise provided, each cylinder required to be retested under this section must be retested by means suitable for measuring the expansion of the cylinder under pressure. Bands and other removable attachments must be loosened or removed before testing so that the cylinder is free to expand in all directions.

(ii) The pressure-indicating device of the testing apparatus must permit reading of pressures to within 1% of the minimum prescribed test pressure of each cylinder tested, except that for an analog device, interpolation to 1/2 of the marked gauge divisions is acceptable. The expansion-indicating device of the testing apparatus must also permit incremental reading of the cylinder expansion to 1% of the total expansion of each cylinder tested or 0.1 cubic centimeter, whichever is larger. Midpoint visual interpolation is permitted.

(iii) Each day before retesting, the retester shall confirm, by using a calibrated cylinder or other method authorized in writing by the Associate Administrator for Hazardous Materials Safety that:

(A) The pressure-indicating device, as part of the retest apparatus, is accurate

within $\pm 1.0\%$ of the prescribed test pressure of any cylinder tested that day. The pressure indicating device, itself, must be certified as having an accuracy of $\pm 0.5\%$, or better, of its full range, and must permit readings of pressure from 90%–110% of the minimum prescribed test pressure of the cylinder to be tested. The accuracy of the pressure indicating device within the test system can be demonstrated at any point within 500 psi of the actual test pressure for test pressures at or above 3000 psi, or 10% of the actual test pressure for test pressures below 3000 psi; and

(B) The expansion-indicating device, as part of the retest apparatus, gives a stable reading of expansion and is accurate to $\pm 1.0\%$ of the total expansion of any cylinder tested or 0.1 cubic centimeter, whichever is larger. The expansion-indicating device itself must have an accuracy of $\pm 0.5\%$, or better, of its full scale.

(iv) The test equipment must be verified to be accurate within $\pm 1.0\%$ of the calibrated cylinder's pressure and corresponding expansion values. This may be accomplished by bringing the pressure to a value shown on the calibration certificate for the calibrated cylinder used and verifying that the resulting total expansion is within $\pm 1.0\%$ of the total expansion shown on the calibration certificate. Alternatively, calibration may be demonstrated by bringing the total expansion to a known value on the calibration certificate for the calibrated cylinder used and verifying that the resulting pressure is within $\pm 1.0\%$ of the pressure shown on the calibration certificate. The calibrated cylinder must show no permanent expansion. The retester shall demonstrate calibration in conformance with this paragraph (e)(4) to an authorized inspector on any day that it retests cylinders. A retester shall maintain calibrated cylinder certificates in conformance with paragraph (e)(8)(iii) of this section.

(v) Minimum test pressure must be maintained for at least 30 seconds, and as long as necessary for complete expansion of the cylinder. A system check may be performed at or below 90% of test pressure prior to the retest. In the case of a malfunction of the test equipment, the test may be repeated at a pressure increased by 10 percent or 100 psi, whichever is less. This paragraph (e)(4) does not authorize retest of a cylinder otherwise required to be condemned under paragraph (e)(6) of this section.

(5) *Cylinder rejection.* (i) A retester shall reject a cylinder when on visual inspection, it meets a rejection standard

in CGA Pamphlets C-6, C-6.1, C-6.2, or C-6.3, as applicable.

(ii) Except as provided in paragraph (e)(5)(iv) of this section, a cylinder that is rejected may not be marked as meeting the requirements of this section.

(iii) When a cylinder is rejected, the retester shall notify the cylinder owner, in writing, that the cylinder has been rejected and, unless requalified as provided in paragraph (e)(5)(iv) of this section, may not be filled with a hazardous material for transportation in commerce where use of a specification packaging is required.

(iv) A rejected cylinder with a service pressure of less than 900 psig may be requalified and marked if the cylinder is repaired or rebuilt and subsequently reinspected and retested in conformance with—

(A) CGA Pamphlets C-6, C-6.1, C-6.2, or C-6.3, as applicable;

(B) Parts 173 and 178 of this subchapter;

(C) Any exemption specific to that cylinder; and

(D) Any approval required under paragraphs (i) and (l) of this section.

(6) *Cylinder condemnation.* (i) A cylinder must be condemned when—

(A) On inspection, it meets a condition for condemnation in CGA Pamphlets C-6, C-6.1, C-6.2, or C-6.3, as applicable;

(B) The cylinder leaks through its wall;

(C) Evidence of cracking exists to the extent that the cylinder is likely to be weakened appreciably;

(D) For a DOT specification cylinder other than a DOT 4E aluminum cylinder, permanent expansion exceeds 10 percent of total expansion;

(E) For a DOT 4E aluminum cylinder, permanent expansion exceeds 12 percent of total expansion;

(F) For a DOT exemption cylinder, permanent expansion exceeds the limit in the applicable exemption, or the cylinder meets another criterion for condemnation in the applicable exemption; or

(G) For a DOT specification 3HT cylinder, elastic expansion exceeds the marked rejection elastic expansion.

(ii) When a cylinder is required to be condemned, the retester shall stamp a series of X's over the DOT specification number and the marked service pressure or stamp "CONDEMNED" on the shoulder, top head, or neck using a steel stamp. Alternatively, at the direction of the owner, the retester may render the cylinder incapable of holding pressure.

(iii) When a cylinder is required to be condemned, the retester shall notify the cylinder owner, in writing, that the

cylinder is condemned and may not be filled with hazardous material for transportation in commerce where use of a specification packaging is required.

(iv) A cylinder that is condemned may not be filled with hazardous material for transportation in commerce where use of a specification packaging is required and may not be marked as meeting the requirements of this section or any DOT exemption. No person may remove or obliterate the "CONDEMNED" marking.

(7) *Retester markings.* (i) Each cylinder passing retest must be marked with the retester's identification number set in a square pattern, between the month and year of the retest date, in characters not less than 1/8-inch high. The first character of the retester identification number must appear in the upper left corner of the square pattern; the second in the upper right; the third in the lower right, and the fourth in the lower left. Example: A cylinder retested in May 1994, and approved by a person who has been issued retester identification number "A123", would be marked plainly and permanently into the metal of the cylinder in accordance with location requirements of the cylinder specification or on a metal plate permanently secured to the cylinder in accordance with paragraph (c) of this section:

	A	1	
5			94
	3	2	

(ii) Markings of previous tests may not be obliterated. A cylinder that is subject to the requirements of paragraph (e) (10), (11) (modified hydrostatic test only), (13) or (14) of this section is not required to be marked with a retester identification number. A cylinder requalified by the modified hydrostatic test method or external inspection must be marked after a retest or an inspection by stamping the date of retest or reinspection on the cylinder followed by the symbol "E" (external inspection) or "S" (modified hydrostatic test method) as appropriate. However, a cylinder subject to the requirements of § 173.301(j) may not be marked with a retester identification number. Variation from the marking requirement may be approved on written request to the Associate Administrator for Hazardous Materials Safety.

(8) *Recordkeeping.* A retester shall maintain the following records at the retesting location, on paper or in a form from which a paper copy can be produced on request.

(i) Records of authority to inspect, retest and mark must be maintained, as follows:

(A) Current retester identification number issuance letter;

(B) If the retester identification number has expired and renewal is pending, a copy of the renewal request; and

(C) Copies of notifications to Associate Administrator for Hazardous Materials Safety required under paragraph (e)(2)(iv) of this section.

(ii) Daily records of visual inspection and hydrostatic retest must be maintained until either the expiration of the retest period or until the cylinder is again reinspected or retested, whichever occurs first. A single date may be used for each retest sheet, provided each retest on the sheet was conducted on that date. Ditto marks or a solid vertical line may be used to indicate repetition of the preceding entry for the following entries: date; actual dimensions or a symbol; if present, manufacturer's name or symbol; if present, owner's name or symbol and retest operator. Blank spaces may not be used to indicate repetition of a prior entry. Records must include—

(A) For each test to demonstrate calibration, the date; serial number of the calibrated cylinder; calibration test pressure; total, elastic and permanent expansions; and legible identification of retest operator. The retest operator must be able to demonstrate that the results of the daily calibration verification correspond to the hydrostatic retests that were performed on that day. The daily verification of calibration(s) may be recorded on the same sheets as, and with, retest records for that date;

(B) For each cylinder retested or visually inspected, records containing the date; serial number; ICC/DOT specification or exemption number; service pressure; actual dimensions or a symbol; if present, manufacturer's name or symbol; if present, owner's name or symbol; result of visual inspection; actual test pressure; total, elastic and permanent expansions; percent permanent expansion; disposition, with reason for any repeated retest, rejection or condemnation; and legible identification of test operator. For each cylinder marked pursuant to § 173.302(c)(5), the retest sheet must indicate the method by which any average or maximum wall stress was computed. Records must be kept for all completed retests, as well as unsuccessful retests under paragraph (e)(4)(v) of this section. The entry for a later retest under paragraph (e)(4)(v) of this section after a failure to hold test pressure, or retest of a cylinder

requalified after rejection, must indicate the date of the earlier inspection or retest; and

(C) Calculations of average and maximum wall stress pursuant to § 173.302(c)(3), if performed.

(iii) The most recent certificate of calibration must be maintained for each calibrated cylinder used by the retester.

(9) *DOT 4-series cylinders.* A DOT 4-series cylinder, except 4L cylinders, that at any time shows evidence of a leak or of internal or external corrosion, denting, bulging or rough usage to the extent that it is likely to be weakened appreciably; or that has lost five percent or more of its official tare weight must be retested before being recharged and shipped. (Refer to CGA Pamphlet C-6 or C-6.3, as applicable, regarding cylinder weakening.) After retest, the actual tare weight must be recorded as the new tare weight.

(10) *Cylinders 12 pounds or less with service pressures of 300 psi or less.* A cylinder of 12 pounds or less water capacity authorized for service pressure of 300 psi or less must be given a complete external visual inspection at the time periodic retest becomes due. External visual inspection must be in accordance with CGA Pamphlet C-6 or C-6.1. The cylinder may be hydrostatically retested without a water jacket and without determining total and permanent expansions. The retest is successful if the cylinder, when examined under test pressure, does not display a defect described in paragraph (e)(6)(i) (B) or (C) of this section.

(11) *Modified hydrostatic retest.* A cylinder made in compliance with specification DOT 4B, DOT 4BA, DOT 4BW, DOT 4E or ICC-26-300² (§§ 178.50, 178.51, 178.61, 178.68 of this subchapter) that is used exclusively for anhydrous dimethylamine; anhydrous methylamine; anhydrous trimethylamine; methyl chloride; liquefied petroleum gas; methylacetylene-propadiene stabilized; or dichlorodifluoromethane, difluoroethane, difluorochloroethane, chlorodifluoromethane, chlorotetrafluoroethane, trifluorochloroethylene, or mixture thereof, or mixtures of one or more with trichlorofluoromethane; and that is commercially free from corroding components and protected externally by a suitable corrosion-resistant coating (such as galvanizing or painting) may be given a hydrostatic retest every 12 years instead of every five years. Alternatively, the cylinder may be

² For filling at 450 p.s.i. and below. Use of existing cylinders authorized; new construction not authorized.

subjected to internal hydrostatic pressure of at least two times the marked service pressure without determination of expansions, but this latter type of test must be repeated every seven years after expiration of the first 12-year period. When subjected to the latter test, the cylinder must be carefully examined under test pressure and removed from service if a leak or other harmful defect exists. A cylinder requalified by the modified hydrostatic test method must be marked after a retest or an inspection by stamping the date of retest or reinspection on the cylinder followed by a "S".

(12) A cylinder made in conformance with specification DOT-3A, DOT-3AA, DOT-3B, DOT-4BA or DOT-4BW (§§ 178.36, 178.37, 178.38, 178.51, 178.61 of this subchapter) having a service pressure of 300 psi or less that is used exclusively for methyl bromide, liquid; mixtures of methyl bromide and ethylene dibromide, liquid; mixtures of methyl bromide and chlorpicrin, liquid; mixtures of methyl bromide and petroleum solvents, liquid; or methyl bromide and nonflammable,

nonliquefied compressed gas mixtures, liquid; that is commercially free of corroding components, and that is protected externally by a suitable corrosion resistant coating (such as galvanizing or painting) and internally by a suitable corrosion resistant lining (such as galvanizing) may be tested every 10 years instead of every five years, provided that a visual internal and external examination of the cylinder is conducted every five years in accordance with CGA Pamphlet C-6. The cylinder must be examined at each filling, and rejected if a dent, corroded area, leak or other condition indicates possible weakness.

(13) A cylinder made in conformance with a specification listed in the table in this paragraph (e)(13) and used exclusively in the service indicated may, instead of a periodic hydrostatic retest, be given a complete external visual inspection at the time periodic retest becomes due. External visual inspection must be in accordance with CGA Pamphlets C-6 or C-6.1. When this inspection is used instead of hydrostatic retesting, subsequent

inspections are required at five-year intervals after the first inspection. Inspections must be made only by competent persons and the results recorded and maintained in accordance with paragraph (e)(8) of this section. Records shall include: date of inspection (month and year); DOT specification number; cylinder identification (registered symbol and serial number, date of manufacture, and owner); type of cylinder protective coating (including statement as to need of refinishing or recoating); conditions checked (e.g., leakage, corrosion, gouges, dents or digs in shell or heads, broken or damaged footing or protective ring or fire damage); disposition of cylinder (returned to service, returned to cylinder manufacturer for repairs or scrapped). A cylinder that passes inspection shall be marked with the date in accordance with paragraph (e)(7) of this section. An "E" after the date indicates requalification by the external inspection method. Specification cylinders must be in exclusive service as follows:

Cylinders made in compliance with—	Used exclusively for—
DOT-4, DOT-3A, DOT-3AA, DOT-3A480X, DOT-4A, DOT-4AA480, DOT-3A, DOT-3AA, DOT-3A480X, DOT-3B, DOT-4B, DOT-4BA, DOT-4BW, ICC-26-240, ¹ ICC-26-300 ¹ .	Anhydrous ammonia of at least 99.95% purity. Butadiene, inhibited, which is commercially free from corroding components. Cyclopropane 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.	
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-26-3001.	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-26-2401, ICC-26-3001.	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.
DOT-4B240, DOT-4BW240	Ethyleneimine, inhibited.

¹ Use of existing cylinders authorized; new construction not authorized.

(14) *Cylinders containing anhydrous ammonia.* 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 a suitable corrosion-resistant coating (such as painting) may be retested every 10 years instead of every five years.

(15) *3HT cylinders.* (i) In addition to the other requirements of this section, a cylinder marked DOT-3HT must be requalified in accordance with CGA Pamphlet C-8.

(ii) The cylinder must be condemned:

(A) If elastic expansion exceeds the marked rejection elastic expansion. A cylinder made before January 17, 1978,

and not marked with a rejection elastic expansion in cubic centimeters near the marked original elastic expansion must be so marked before the next retest date. The rejection elastic expansion for a cylinder is 1.05 times its original elastic expansion.

(B) If there is evidence of denting or bulging.

(C) Twenty-four years after the date of the original test or after 4,380 pressurizations, whichever occurs first. If a cylinder is recharged, on average, more than once every other day, an accurate record of the number of rechargings must be maintained by the cylinder owner or his/her agent.

(iii) The retest date and retester identification number must be applied

by low-stress steel stamp to a depth no greater than that of the marking at the time of manufacture. Stamping on the sidewall is not authorized.

(16) *DOT-3A or 3AA cylinders.* (i) A cylinder made in conformance with specification DOT-3A or 3AA with a water capacity of 125 pounds or less that is removed from any cluster, bank, group, rack or vehicle each time it is filled, may be retested every ten years instead of every five years, provided the cylinder complies with all of the following—

(A) The cylinder was manufactured after December 31, 1945;

(B) The cylinder is used exclusively for air, argon, cyclopropane, ethylene, helium, hydrogen, krypton, neon,

nitrogen, nitrous oxide, oxygen, sulfur hexafluoride, xenon, permitted mixtures of these gases (see § 173.301(a)) and permitted mixtures of these gases with up to 30 percent by volume of carbon dioxide, provided that the gas has a dew point at or below minus 52° F at 1 atmosphere;

(C) Before each refill, the cylinder passes the hammer test specified in CGA Pamphlet C-6;

(D) The cylinder is dried immediately after hydrostatic testing to remove all traces of free water;

(E) The cylinder is not used for underwater breathing; and

(F) Each cylinder is stamped with a five-point star at least one-fourth of an inch high immediately following the test date.

(ii) If, since the last required hydrostatic retest, a cylinder has not been used exclusively as specified in paragraph (e)(16)(i)(B) of this section, but currently conforms with all other provisions of paragraph (e)(16)(i) of this section, it may be retested every 10 years instead of every five years, provided it is first retested and

examined as prescribed by § 173.302(c)(2), (3) and (4).

(iii) Except as specified in paragraph (e)(16)(ii) of this section, if a cylinder marked with a star is charged with a compressed gas other than as specified in this paragraph (e)(16), the star following the most recent test date must be obliterated. The cylinder must be retested five years from the marked retest date, or prior to the first charging with a compressed gas, if the required five-year retest period has passed.

(17) *Cylinders containing corrosive materials.* (i) A cylinder that previously contained a Class 8 (corrosive) material may not be used to transport a compressed gas in commerce unless the following requirements are met—

(A) The cylinder is visually inspected, internally and externally, in accordance with CGA Pamphlet C-6;

(B) Regardless of the date of previous retest, the cylinder is subjected to and passes inspection and hydrostatic retest in accordance with this section; and

(C) The record prescribed in paragraph (e)(8) of this section includes: the month and year of inspection and test; the cylinder identification

(including ICC or DOT specification number, registered symbol, serial number, date of manufacture and owner); the conditions checked (e.g., leakage, corrosion, gouges, dents, or digs in shell or heads, broken or damaged footings, fire damage) and the disposition of the cylinder (returned to service, returned to the manufacturer for repairs, or scrapped).

(ii) A cylinder requualified for compressed gas service in accordance with this paragraph (e)(17) may have its next retest and inspection scheduled from the date of the inspection and retest prescribed in this paragraph (e). If decontamination cannot remove all significant residue or impregnation by the Class 8 material, the cylinder may not be used to transport compressed gas in commerce.

(18) *DOT 8 and 8AL cylinders.* (i) Each owner of a DOT 8 or 8AL cylinder used to transport acetylene must have the cylinder shell and the porous filler requualified in accordance with CGA Pamphlet C-13. Requualification must be performed in accordance with the following schedule:

Date of cylinder manufacture	Shell (visual inspection) requualification		Porous filler requualification	
	Initial	Subsequent	Initial	Subsequent
Before January 1, 1991	Before January 1, 2001	10 yrs	Before January 1, 2001	Not required.
On or after January 1, 1991	10 yrs ¹	10 yrs	3 to 30 yrs ²	Not required.

¹ Years from date of cylinder manufacture.

² For a cylinder manufactured on or after January 1, 1991, requualification of the porous filler must be performed no sooner than 3 years, and no later than 20 years, from the date of manufacture.

(ii) Unless requualified and marked in accordance with CGA Pamphlet C-13 before October 1, 1994, an acetylene cylinder must be requualified by a person who holds a valid retester identification number. Each cylinder successfully passing a shell or filler requualification must be marked with the retester's identification number in accordance with paragraph (e)(7) of this section. In addition, the cylinder must be marked to identify the type of requualification performed in accordance with paragraph 5.6 of CGA Pamphlet C-13. For example, the letter "S" must be used for a shell requualification and the letter "F" for a porous filler requualification.

(iii) If a cylinder valve is replaced, a cylinder valve of the same weight must be used or the tare weight of the cylinder must be adjusted to compensate for valve weight differential.

(19) *Cylinders used as a fire extinguisher.* A DOT specification cylinder used as a fire extinguisher in compliance with § 173.309 may be

retested in accordance with this paragraph (e)(19).

(i) A DOT specification 4B, 4BA, 4B240ET or 4BW (§§ 178.50, 178.51, 178.55 and 178.61 of this subchapter) cylinder may be retested as follows:

(A) For a cylinder with a water capacity of 12 pounds or less by hydrostatic test using the water jacket method or by hydrostatic test without determination of expansion (modified hydrostatic test method). A retest must be performed 12 years after the original test date and at 12-year intervals thereafter.

(B) For a cylinder having a water capacity over 12 pounds—

(1) By hydrostatic test without determination of expansion (modified hydrostatic test method). A retest must be performed 12 years after the original test date and at 7-year intervals;

(2) By hydrostatic test using the water jacket method. A retest must be performed 12 years after the original test date and at 12-year intervals thereafter.

(ii) A DOT specification 3A, 3AA, or 3AL (§§ 173.36, 178.37 and 178.46 of

this subchapter) cylinder may be retested by hydrostatic test using the water jacket method. A retest must be performed 12 years after the original test date and at 12-year intervals thereafter.

* * * * *

§ 173.163 [Amended]

6. In § 173.163, the reference "§ 173.34(e)(5)" is revised to read "§ 173.34(e)(8)".

7. In § 173.301, the section heading and paragraph (j) are revised to read as follows:

§ 173.301 General requirements for shipment of compressed gases in cylinders and spherical pressure vessels.

* * * * *

(j) *Charging of foreign cylinders for export.* (1) A cylinder manufactured outside the United States that has not been manufactured, inspected, tested and marked in accordance with part 178 of this subchapter may be charged with compressed gas in the United States, and shipped solely for export if it meets

the following requirements, in addition to other requirements of the subchapter:

(i) It has been inspected, tested and marked (with only the month and year of retest) in conformance with the procedures and requirements of § 173.34(e) or the Associate Administrator for Hazardous Materials Safety has authorized the charging company to fill foreign cylinders under an alternative method of qualification; and

(ii) It meets the maximum filling density and service pressure requirements of this part.

(2) The bill of lading or other shipping paper must identify the cylinder and carry the following certification: "This cylinder has [These cylinders have] been retested and refilled in accordance with DOT requirements for export."

* * * * *

§ 173.301 [Amended]

8. In addition, in § 173.301, in paragraph (a), the reference to "§ 173.34(e)(16)" is revised to read "§ 173.34(e)(17)".

9. In § 173.302, in paragraph (c)(3), the text preceding the table and the value for "K" in Note 1 following the

table are revised, and Note 3 is added after Note 2, to read as follows:

§ 173.302 Charging of cylinders with non-liquefied compressed gases.

* * * * *

(c) * * *

(3) That either the average wall stress or the maximum wall stress does not exceed the wall stress limitation shown in the following table (see Notes 1, 2 and 3):

* * * * *

Note 1: * * *

* * * * *

K=factor $\times 10^{-7}$, experimentally determined for the particular type of cylinder being tested, or derived in accordance with CGA Pamphlet C-5;

* * * * *

Note 3: Compliance with average wall stress limitation may be determined through computation of the elastic expansion rejection limit in accordance with CGA Pamphlet C-5.

* * * * *

10. In § 173.309, paragraph (b) is revised to read as follows:

§ 173.309 Fire extinguishers.

* * * * *

(b) Specification 3A, 3AA, 3E, 3AL, 4B, 4BA, 4B240ET or 4BW (§§ 178.36, 178.37, 178.42, 178.46, 178.50, 178.51, 178.55 and 178.61 of this subchapter) cylinders are authorized for use as fire extinguishers subject to the following conditions:

(1) Each fire extinguisher may only have extinguishing contents that are nonflammable, non-poisonous, non-corrosive and commercially free from corroding components.

(2) Each fire extinguisher must be charged with a nonflammable, non-poisonous, dry gas that has a dew-point at or below minus 46.7 °C (minus 52 °F) at 101 kPa (1 atmosphere) and is free of corroding components, to not more than the service pressure of the cylinder.

(3) Each fire extinguisher must be protected externally by suitable corrosion-resisting coating.

Issued in Washington, DC on May 16, 1996, under authority delegated in 49 CFR part 1.

Rose A. McMurray,
Acting Deputy Administrator, Research and Special Programs Administration.

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