



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

110-04

OCT 14 1999

Mr. Chuck Wilson
Quality Gas Products
10172 Mammoth Avenue
Baton Rouge, LA 70814

Ref. No. 99-0034

Dear Mr. Wilson:

This is in response to your letter dated February 3, 1999, requesting clarification of the cylinder marking requirements under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). You state that it is your understanding the only markings required to be placed on a cylinder consist of a "DOT stamping" and a hydrostatic test date and that no other markings are required, such as the cylinder/serial number.

Your understanding is not correct. The required specification markings that must be stamped on a DOT specification cylinder at the time of manufacture are prescribed in §178.35(f). See enclosure. Unless otherwise specified in the applicable specification, all markings on a cylinder must be stamped plainly and permanently on the shoulder, top head, or neck. Certain additional marking requirements unique to the individual cylinder specifications may be found in §§ 178.36 through 178.68.

Requalification marking requirements are prescribed in §173.34(e)(7). Depending on the cylinder's specification and the type of exclusive product service use, most cylinders must be periodically requalified varying from 3, 5, 10, 12, or 20 years from the date of manufacture.

All required specification and requalification markings must be legible and, with certain exceptions, may not be covered or removed. See § 173.34(c). For your information, the HMR are



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173.34

accessible on the internet through the Hazardous Materials Safety homepage at "<http://hazmat.dot.gov>."

I trust this satisfies your inquiry. Please contact us if we can be of more assistance.

Sincerely,

A handwritten signature in cursive script that reads "Hattie L. Mitchell". The signature is written in dark ink and is positioned below the word "Sincerely,".

Hattie L. Mitchell
Chief, Regulatory Review and Reinvention
Office of Hazardous Materials Standards

Enclosure

5 General requirements for certification cylinders.

Compliance with the requirements of this subpart is required in all details.

Inspections and analyses. Chemical tests and tests as specified must be within the United States unless otherwise approved in writing by the late Administrator, in accordance with §178.300b of this subchapter. Inspections and verifications must be made by—

An independent inspection agency or in writing by the Associate Administrator, in accordance with the requirements of this subchapter; or For DOT Specifications 3B, 3BN, 3, 4BA, 4D (water capacity less than 1,100 cubic inches), 4B340ERT, 4, 4L, 8, 8AL, 4BW, 39 (marked with a pressure 900 p.s.i.g. or lower) as manufactured in the United States, a competent Inspector of the following:

Duties of Inspector. The Inspector determines that each cylinder is in conformance with the applicable specification. Except as otherwise specified in the applicable specification, the Inspector shall perform the following:

Inspect all material and reject material not meeting applicable requirements. For cylinders made by the balling process, billets must be inspected and shown to be free from pipe, excessive segregation and other defects after parting or, when available, after hot and cold break.

Verify the material of construction meets the requirements of the applicable specification by—
Making a chemical analysis of heat of material;

Obtaining a certified chemical analysis from the material manufacturer for each heat of material (a ladle analysis is acceptable); or
If an analysis is not provided for heat of material by the material manufacturer, by making a check analysis of a sample from each coil, sheet, or plate.

Verify compliance of cylinders with applicable specification by—
Verifying identification of material proper;

(ii) Inspecting the inside of the cylinder before closing in ends;

(iii) Verifying that the heat treatment is proper;

(iv) Obtaining samples for all tests and check chemical analyses;

(v) Witnessing all tests;

(vi) Verifying threads by gauge;

(vii) Reporting volumetric capacity and tare weight (see report form) and minimum thickness of wall noted; and

(viii) Verifying that each cylinder is marked in accordance with the applicable specification.

(4) Furnish complete test reports required by this subpart to the maker of the cylinder and, upon request, to the purchaser. The test report must be retained by the Inspector for fifteen years from the original test date of the cylinder.

(d) **Defects.** A cylinder may not be constructed of material with seams, cracks, laminations, or other injurious defects.

(e) **Safety devices.** Safety devices and protection for valves, safety devices, and other connections, if applied, must be as required or authorized by the appropriate specification, and as required in §§178.34 and 178.301 of this subchapter.

(3) **Markings.** Markings on a DOT Specification cylinder must conform to applicable requirements.

(1) Each cylinder must be marked with the following information:

(i) The DOT specification marking must appear first, followed immediately by the service pressure. For example, DOT-3AL1800.

(ii) The serial number must be placed just below or immediately following the DOT specification marking.

(iii) A symbol (letters) must be placed just below, immediately before or following the serial number. Other variations in sequence of markings are authorized only when necessitated by a lack of space. The symbol and numbers must be those of the manufacturer. The symbol must be registered with the Associate Administrator; duplications are not authorized.

(iv) The Inspector's official mark and date of test (such as 5-96 for May 1995) must be placed near the serial number. This information must be placed so that dates of subsequent tests can be

easily added. An example of the markings prescribed in this paragraph (3)(i) is as follows:

DOT-3AL1800
1234
XY
AE-5-95

OR:
DOT-3AL1800-1234-XY

AE-5-95

where:
DOT-3A = specification number

1800 = service pressure

1234 = serial number

XY = symbol of manufacturer
AE = Inspector's mark
5-95 = date of test

(2) Additional required marking must be applied to the cylinder as follows:

(i) The word "spun" or "pung" must be placed near the DOT specification marking when an end closure in the finished cylinder has been welded by the spinning process, or effected by plugging.

(ii) As prescribed in specification 3HT (§178.44) or 3T (§178.45), if applicable.

(3) **Marking exceptions.**
(i) A DOT 3E cylinder is not required to be marked with the Inspector mark.

(ii) An identifying lot number may be marked on the cylinder in place of a serial number for cylinders not over 2 inches outside diameter or for cylinders with a volumetric capacity not exceeding 60 cubic inches. Each lot shall not have over 500 cylinders.

(4) Unless otherwise specified in the applicable specification, the markings on each cylinder must be stamped plainly and permanently on the shoulder, top head, or neck.

(5) The size of each marking must be at least 0.25 inch or as space permits.

(6) Other markings are authorized provided they are made in low stress areas other than the side wall and are not of a size and depth that will create harmful stress concentrations. Such marks may not conflict with any DOT required markings.

(7) **Inspector's report.** Each Inspector shall prepare a report containing, at a minimum, the applicable information listed in CGA Pamphlet C-11 or, until October 1, 1997, in accordance with the applicable test report requirements of this subchapter in effect on September 30, 1996. Any additional information or

markings that are required by the applicable specification must be shown on the test report. The signature of the Inspector on the reports certifies that the processes of manufacture and heat treatment of cylinders were observed and found satisfactory.

(8) **Report retention.** The manufacturer of the cylinders shall retain the reports required by this subpart for 15 years from the original test date of the cylinder.

§178.36 Specification 3A and 3AX seamless steel cylinders.

(a) **Type size and service pressure.** In addition to the requirements of §178.35, cylinders must conform to the following:

(1) A DOT-3A cylinder is a seamless steel cylinder with a water capacity (nominal) not over 1,000 pounds and a service pressure of at least 150 pounds per square inch.

(2) A DOT-3AX is a seamless stainless steel cylinder with a water capacity not less than 1,000 pounds and a service pressure of at least 500 pounds per square inch, conforming to the following requirements:

(i) Assuming the cylinder is to be supported horizontally at its two ends only and to be uniformly loaded over its entire length consisting of the weight per unit of length of the straight cylindrical portion filled with water and compressed to the specified test pressure; the sum of two times the maximum tensile stress in the bottom fibers due to bending, plus that in the same fibers (longitudinal stress), due to hydrostatic test may not exceed 80 percent of the minimum yield strength of the steel at such maximum stress. Wall thickness must be increased when necessary to meet the requirement.

(ii) To calculate the maximum longitudinal tensile stress due to bending, the following formula must be used:

$$S = Mc/I$$

(iii) To calculate the maximum longitudinal tensile stress due to hydrostatic test pressure, the following formula must be used:

$$S = A_1 P/A_2$$

where:

S = tensile stress—p.s.i.;
M = bending moment—inch pounds—(wt²)/B;

Quality Gas Products

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Baton Rouge, La. 70814
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Stevens
\$173.34
99-0034

To: Department of Transportation
202-366-4488 Fax 202-366-3012
Attn: Edward Mazzullo or Dianne LaValle

2-3-99

From: Quality Gas Products
Chuck Wilson

Re: Cylinder Number or Serial Number on Compressed Gas Cylinders

This brief letter is in response to my conversation this morning with Ms. LaValle. I want to be assured that the marking's on a DOT required cylinder for Filling and Shipping is that there be a DOT Stamping as well as a Hydrostatic Test Date in Test, and that no other markings need be stamped into the Container, such as Cylinder/Serial number, Owner Etc.

Fax Me back at the 225-923-0432 with this info.

Thank You for your assistance.

Sincerely:



Chuck Wilson