



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue, SE
Washington, D.C. 20590

JUN 29 2016

Mr. Takashi Hashimoto
Chief Operating Officer
Japan Aero Pressure Co., Ltd.
2-1-8 Kokaba Iwatsuki-ku
Saitama-City Saitama
339-0072 Japan

Reference No. 15-0174

Dear Mr. Hashimoto:

This letter is in response to your email requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to the marking of cylinders. Specifically, you ask whether chemical etching is an acceptable cylinder requalification marking method under § 180.213(c).

The answer is yes. Requalification markings must conform to requirements in § 180.213, including minimal wall thickness and specifications for the marking size and location. Further, each cylinder must be plainly and permanently marked on the metal of the cylinder as permitted by the applicable specification. Provided all applicable conditions are met, the HMR permit the chemical etching of requalification markings on cylinders.

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,

T. Glenn Foster
Chief, Regulatory Review and Reinvention Branch
Standards and Rulemaking Division

Stevens
180.213
Markings
15-0174

Goodall, Shante CTR (PHMSA)

From: Geller, Shelby CTR (PHMSA)
Sent: Monday, August 17, 2015 4:41 PM
To: Goodall, Shante CTR (PHMSA)
Subject: RE: Fire extinguisher PN 473951-1 hydrostatic marking by chemical-etching (C977)

Hi Shante,

I was just following up on the letter of interpretation, because I have not seen it in the database.

Please let me know if more information is needed from the requestor.

Thanks,
Shelby

From: Geller, Shelby CTR (PHMSA)
Sent: Thursday, August 06, 2015 2:39 PM
To: Goodall, Shante CTR (PHMSA)
Subject: RE: Fire extinguisher PN 473951-1 hydrostatic marking by chemical-etching (C977)

Hi Shante,

It looks like Takashi Hashimoto requested the letter in the attachment and email. His address is:

Japan Aero Pressure Co., Ltd.
2-1-8 Kokaba Iwatsuki-ku
Saitama-city Saitama

I believe that Jon Davignon is the designated agent for Mr. Hashimoto. If we cannot send interpretations internationally, I would be happy to find Mr. Davignon's address in the U.S. to complete the interpretation request.

Please let me know if you need any more information.

Thanks,
Shelby

From: Goodall, Shante CTR (PHMSA)
Sent: Thursday, August 06, 2015 2:30 PM
To: Geller, Shelby CTR (PHMSA)
Subject: RE: Fire extinguisher PN 473951-1 hydrostatic marking by chemical-etching (C977)

Hi Shelby,

Should this letter be address to Jon Davignon or Takashi Hashimoto, if so can you please forward the address.

From: Geller, Shelby CTR (PHMSA)
Sent: Tuesday, August 04, 2015 12:18 PM

To: Hazmat Interps
Subject: FW: Fire extinguisher PN 473951-1 hydrostatic marking by chemical-etching (C977)

Dear Shante and Alice,

Attached is a formal request for a letter of interpretation. Mr. Davignon spoke with Adam in the HMIC.

Thanks,
Shelby

From: Takashi Hashimoto [<mailto:t.hashimoto@japco.co.jp>]
Sent: Tuesday, August 04, 2015 3:07 AM
To: Cassidy, Duane (PHMSA)
Cc: INFOCNTR (PHMSA)
Subject: Fire extinguisher PN 473951-1 hydrostatic marking by chemical-etching (C977)

Dear Mr. Duane Cassidy:

Our US agent, Mr. Jon Davington called DOT for us on this matter as described below. This is a letter to request interpretation to clarify the chemical-etching on the fire extinguishers. Attached are our letter and relevant documents.

We would be very thankful for your quick response.

//qte//

I have called the DOT center and spoke with Adam. He conferred with Duane Cassidy and they did not have a definitive answer. They indicated you should submit a letter of interpretation to clarify the chemical etching on the fire extinguishers. You could email to the same place. infocntr@dot.gov

Best Regards,

Jon Davignon
Marketing Manager,
New Equipment Sales
www.qaliso.com

//unqte//

=====
Takashi Hashimoto
COO
Japan Aero Pressure Co., Ltd.
=====



JAPAN AERO PRESSURE CO., LTD.

2-1-8 KOKABA IWATSUKI-KU

SAITAMA-CITY SAITAMA

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FAX +81-48-794-3975

August 4, 2015

Mr. Duane Cassidy
Chief, Pressure Vessels
PHMSA Office of Hazardous Materials Standards

Dear Mr. Cassidy:

//Subject//

Fire extinguisher PN 473951-1 hydrostatic marking by chemical-etching (C977)

Ref /A/ Fire Extinguisher manufactured by Kidde Aerospace PN 473951-1

Ref /B/ CMM 26-21-70 page 1010 (attached)

Ref /C/ 49 CFR 180.213 (attached)

Ref /D/ HST (Hydrostatic test) marking made by chemical-etching at RIN C977 (JAPCO) (photo attached)

// Request//

This is to ask you to accept fire extinguishers marked by chemical-etching in the past for continued use.

Our agent in the US, a manager of Galiso called Adam on 28/July for us on this matter but he indicated us to submit a letter of interpretation to clarify the chemical-etching on the fire extinguishers.

//Background//

As for Ref /A/ Fire extinguisher, JAPCO used chemical-etching for the hydrostatic test marking (See Ref /D/ photo) before the vendor specified the marking method in Ref /B/ CMM. In Jan/2013 Ref /B/ CMM was revised to specify rubber stamp and ink as the marking method, then JAPCO has followed the method. Marking method JAPCO used in the past differed from the method specified Ref /B/ CMM.

JAPCO would like DOT to accept fire extinguishers marked by chemical-etching in the past for continued use.

//The reason for asking DOT//

The vendor expressed no concern with using chemical-etching, but they recommended us to contact DOT and ensure that DOT accepts.

When JAPCO contacted DOT, on 1st July Mr. Jordan suggested we should review your web site. We reviewed but found no information was posted to solve our issue. We asked Galiso to call DOT about this and Adam indicated on 28 July that we should submit a letter. Thus this is the letter.



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Sincerely,

Takashi Hashimoto

Chief Operating Officer

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KIDDE AEROSPACE & DEFENSE
COMPONENT MAINTENANCE MANUAL
PART NUMBER 473951

- (3) Pressurize the container to 1800 psig (12411 kPa).
- (4) Do the hydrostatic test as specified by 49 CFR 180.205. Use the Water Jacket Volumetric Expansion Method in CGA Pamphlet C-1. Do not do the hammer test. Test persons must know the contents of CGA Pamphlet C-1 to make a correct analysis of the results.

WARNING: BE CAREFUL WHEN YOU DO THE HYDROSTATIC TEST. CALCULATE THE TOTAL, PERMANENT, AND PERCENT OF PERMANENT EXPANSION OF THE WELDMENT WITH PRECISION. DISCARD THE WELDMENT IF THE WALL DIMENSION IS LESS THAN SPECIFIED IN DESCRIPTION AND OPERATION, LEADING PARTICULARS. DO NOT DISCARD THE WELDMENT IF THE WALL THICKNESS IS CORRECT.

- (5) The test gives the total and permanent expansion of the weldment at a specified pressure. Total expansion minus the permanent expansion is the elastic expansion. Elastic expansion at a specified pressure is a definite measure of the average thickness of the weldment wall.
- (6) Divide the permanent expansion by the total expansion and multiply by 100 to calculate the percent of permanent expansion. If the total permanent volumetric expansion is more than 10 percent, discard the weldment.
- (7) Too much permanent expansion shows that the weldment wall is too thin or was in conditions that changed its dimensions. An increase in the elastic expansion shows a decrease in the average wall thickness.

WARNING: INK IS CORROSIVE TO HUMAN TISSUE. DO NOT BREATHE VAPORS. USE IN WELL-VENTILATED AREA. PUT ON CHEMICAL-RESISTANT CLOTHING, GLOVES, SPLASH GOGGLES, AND FACE SHIELD. IN CASE OF EYE OR SKIN CONTACT, FLUSH WITH WATER FOR 15 MINUTES AND SEEK MEDICAL ATTENTION.

- (8) Use a rubber stamp and black ink to mark the date of the hydrostatic test on the weldment (90). Let the ink become dry.
- (9) Apply a thin layer of acrylic lacquer over the stamped data.

SUBTASK 26-21-70-750-002-A01

E. Weight Test

NOTE: The item numbers in parenthesis refer to IPL Figure 1.

- (1) Refer to Kidde Aerospace Service Information Letter (SIL) 96-2 for recommendations for the weight check interval. The paragraphs that follow give the necessary instructions. Refer to Table 1, Leading Particulars Data for the permitted cumulative weight-loss-limit.

2009
7707

§ 180.215

49 CFR Ch. I (10-1-11 Edition)

permanently secured to the cylinder in accordance with paragraph (b) of this section. An example of the markings prescribed in this paragraph (d) is as follows:

A1			
9	06	X	
32			

Where:

- “9” is the month of requalification
- “A123” is the RIN
- “06” is the year of requalification, and
- “X” represents the symbols described in paragraphs (f)(2) through (f)(8) of this section.

(1) Upon written request, variation from the marking requirement may be approved by the Associate Administrator.

(2) Exception. A cylinder subject to the requirements of §171.23(a)(4) of this subchapter may not be marked with a RIN.

(e) *Size of markings.* The size of the markings must be at least 6.35 mm (¼ in.) high, except RIN characters must be at least 3.18 mm (¼ in.) high.

(f) *Marking illustrations.* Examples of required requalification markings for DOT specification and special permit cylinders are illustrated as follows:

(1) For designation of the 5-year volumetric expansion test, 10-year volumetric expansion test for UN cylinders and cylinders conforming to §180.209(f) and (h), or 12-year volumetric expansion test for fire extinguishers conforming to §173.309(b) of this subchapter and cylinders conforming to §180.209(e) and 180.209(g), the marking is as illustrated in paragraph (d) of this section.

(2) For designation of the 10-year volumetric expansion test for cylinders conforming to §180.209(b), the marking is as illustrated in paragraph (d) of this section, except that the “X” is replaced with a five-point star.

(3) For designation of special filling limits up to 10% in excess of the marked service pressure for cylinders conforming to §173.302a(b) of this subchapter, the marking is as illustrated in paragraph (d) of this section, except that the “X” is replaced with a plus sign “+”.

(4) For designation of the proof pressure test, the marking is as illustrated in paragraph (d) of this section, except that the “X” is replaced with the letter “S”.

(5) For designation of the 5-year external visual inspection for cylinders conforming to §180.209(g), the marking is as illustrated in paragraph (d) of this section, except that the “X” is replaced with the letter “E”.

(6) For designation of DOT 8 series cylinder shell requalification only, the marking is as illustrated in paragraph (d) of this section, except that the “X” is replaced with the letter “S”.

(7) For designation of DOT 8 series and UN cylinder shell and porous filler requalification, the marking is as illustrated in paragraph (d) of this section, except that the “X” is replaced with the letters “FS.”

(8) For designation of a non-destructive examination combined with a visual inspection, the marking is as illustrated in paragraph (d) of this section, except that the “X” is replaced with the type of test performed, for example the letters “AE” for acoustic emission or “UE” for ultrasonic examination.

(9) For designation of the eddy current examination combined with a visual inspection, the marking is as illustrated in paragraph (d) of this section, except the “X” is replaced with the letters “VE.”

[87 FR 51660, Aug. 8, 2002, as amended at 70 FR 73166, Dec. 9, 2005; 71 FR 33896, June 12, 2006; 71 FR 51128, Aug. 29, 2006; 71 FR 78635, Dec. 29, 2006; 75 FR 53597, Sept. 1, 2010]

§ 180.215 Reporting and record retention requirements.

(a) *Facility records.* A person who requalifies, repairs or rebuilds cylinders must maintain the following records where the requalification is performed:

- (1) Current RIN issuance letter;
- (2) If the RIN has expired and renewal is pending, a copy of the renewal request;
- (3) Copies of notifications to Associate Administrator required under §107.805 of this chapter;
- (4) Current copies of those portions of this subchapter applicable to its cylinder requalification and marking activities at that location;

Pipeline and Hazardous Materials Safety Admin., DOT

§ 180.213

(2) External re-threading of DOT 3AX, 3AAX or 3T specification cylinders or a UN pressure receptacle mounted in a MEGC; or the internal re-threading of a DOT-3 series cylinder or a seamless UN pressure receptacle when performed by a cylinder manufacturer of these types of cylinders. The repair work must be performed under the supervision of an independent inspection agency. Upon completion of the re-threading, the threads must be gauged in accordance with Federal Standard H-28 or an equivalent standard containing the same specification limits. The re-threaded cylinder must be stamped clearly and legibly with the words "RETHREAD" on the shoulder, top head, or neck. No DOT specification cylinder or UN cylinder may be re-threaded more than one time without approval of the Associate Administrator.

[71 FR 33895, June 12, 2006, as amended at 71 FR 54398, Sept. 14, 2006; 72 FR 55697, Oct. 1, 2007]

§ 180.213 **Requalification markings.**

(a) *General.* Each cylinder or UN pressure receptacle requalified in accordance with this subpart with acceptable results must be marked as specified in this section. Required specification markings may not be altered or removed.

(b) *Placement of markings.* Each cylinder must be plainly and permanently marked on the metal of the cylinder as permitted by the applicable specification. Unless authorized by the cylinder specification, marking on the cylinder sidewall is prohibited.

(1) Requalification and required specification markings must be legible so as to be readily visible at all times. Illegible specification markings may be remarked on the cylinder as provided by the original specification. Requalification markings may be placed on any portion of the upper end of the cylinder excluding the sidewall, as provided in this section. Requalification and required specification markings that are illegible may be reproduced on a metal plate and attached as provided by the original specification.

(2) Previous requalification markings may not be obliterated, except that, when the space originally provided for

requalification dates becomes filled, additional dates may be added as follows:

(1) All preceding requalification dates may be removed by peening provided that—

(A) Permission is obtained from the cylinder owner;

(B) The minimum wall thickness is maintained in accordance with manufacturing specifications for the cylinder; and

(C) The original manufacturing test date is not removed.

(i) When the cylinder is fitted with a footing, additional dates may be marked on the external surface of the footing:

(c) *Requalification marking method.* The depth of requalification markings may not be greater than specified in the applicable specification. The markings must be made by stamping, engraving, scribing, or other method that produces a legible, durable mark:

(1) A cylinder used as a fire extinguisher (§180.209(j)) may be marked by using a pressure sensitive label.

(2) For a DOT 3HT cylinder, the test date and RIN must be applied by low-stress steel stamps to a depth no greater than that prescribed at the time of manufacture. Stamping on the sidewall is not authorized.

(3) For a composite cylinder, the requalification markings must be applied on a pressure sensitive label, securely affixed in a manner prescribed by the cylinder manufacturer, near the original manufacturer's label. Stamping of the composite surface is not authorized.

(d) *Requalification markings.* Each cylinder successfully passing requalification must be marked with the RIN set in a square pattern, between the month and year of the requalification date. The first character of the RIN 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 requalified in September 2006, and approved by a person who has been issued RIN "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