



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

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

APR 02 2012

Mr. Fred Nachman
Thunderbird Cylinder
4209 E. University Drive
Phoenix, AZ 85034-7315

Reference No.: 11-0278

Dear Mr. Nachman:

This responds to your letter requesting clarification of Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to the requalification and condemnation requirements for compressed gas cylinders. Specifically, you ask for clarification and direction from the Department of Transportation (DOT) regarding foreign manufactured aluminum medical home oxygen cylinders, some of which have shown an identifiable release of hazardous materials to the environment during their usage.

In your incoming letter, you describe a scenario in which your company (Thunderbird) was advised by the sales representative of a foreign manufacturer of medical home oxygen cylinders that there were numerous incidents of leakage upon the initial shipments of this foreign manufacturer's cylinders five-six years ago, due to defects in both the cylinders and the valves. During your most recent requalification operations, Thunderbird requalified and reinstalled the existing valves back into the above referenced cylinders, of which many were, subsequently, returned by users as defective and leaking. During an investigation by Thunderbird and DOT officials, it was verified that the leaking of the cylinders was caused by one or more of the following reasons: 1) rough and shallow cutting of neck threads by the manufacturer, 2) initial over-torqueing of valves after manufacture, 3) burrs, 4) thread damage from handling, 5) oversized diameter and depth of the counter bore, and 6) possible non-specification aluminum used for construction. You seek guidance regarding the disposition of these cylinders.

Section 180.205 provides the general requirements for requalification of specification cylinders, including the requirements for cylinder condemnation. In accordance with § 180.205(i)(1)(i), a cylinder must be condemned when the cylinder meets a condition for condemnation under the visual inspection requirements of § 180.205(f). As specified in § 180.205(f)(3) each cylinder subject to a visual inspection must be approved, rejected or condemned according to the criteria in the applicable Compressed Gas Association (CGA) pamphlet, in this case CGA-6.1, 2002 edition. CGA-6.1 specifies in 5.9, that a cylinder must be rejected when the neck threads are materially reduced so that a gas tight seal cannot

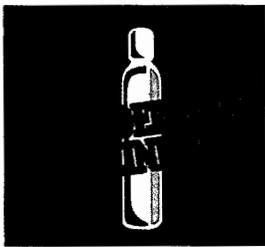
be obtained by reasonable valving methods. Therefore, the cylinders you describe in your incoming letter must be rejected as they are not in compliance with the applicable CGA pamphlet as required by § 180.205(f)(3). Furthermore, it should be noted that § 171.2(e) forbids offering for transportation a damaged packaging containing a hazardous material.

I hope this satisfies your inquiry. Please contact us if we can be of further assistance.

Sincerely,

A handwritten signature in black ink, appearing to read "T. Glenn Foster". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

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



Benedict
\$173.24
\$180.205
Cylinders
11-0278

October 31, 2011

Mr. Charles Betts
Office of Hazardous Materials Standards
US Department of Transportation East Building
1200 New Jersey Avenue, SE
Washington, DC 20590-0001

Via Email: Charles.betts@dot.gov; Vincent.mercandante@dot.gov; Mark.toughiry@dot.gov;
Ryan.posten@dot.gov

Subject: M0306 QingPu and M0305 Shanghai HP Chinese Cylinders

Mr. Vincent Mercadante of DOT performed a cylinder investigation today at Thunderbird and requested five (5) out of 61 Chinese manufactured medical aluminum cylinders and valves be shipped to the attention of Scott Simmons at DOT for further technical inspection and evaluation.

The Issue: Thunderbird has been advised by the manufacturer's sales representative that there were numerous incidents of leakage upon the initial shipments of this new product into the industry 5-6 years ago, due to defects in both the cylinders and valves. During our most recent requalification operations five years later, i.e., this month, Thunderbird requalified and reinstalled the existing valves back into 120+ of the above referenced cylinders, 61 of which were, subsequently, returned as leakers from our clients. These cylinders are utilized for medical home oxygen. Our review and Mr. Mercadante's investigation verified that the leaking was caused for one or more of the following reasons: rough and shallow cutting of neck threads at manufacturer, initial over-torquing of valves after manufacture, burrs, thread damage from handling, oversized diameter and depth of the counter bore, possible non-spec aluminum, etc.. It should be noted that the IIA- Arrowhead verified its marking and the serial numbers of these cylinders. Accordingly, these cylinders were **not** from the counterfeit producer who marked "." - the topic of the **Safety Alert** in the *Federal Register Vol. 76, No. 109 of June 7, 2011*. It should also be noted that the O-rings used after requalification were within the manufacturing tolerance. Thunderbird and its clients look forward to DOT's determination of the actual cause of these leaks and their direction of what should be done with the cylinders.

Request for Clarification: Thunderbird has requalified and marked the above referenced cylinders according to the 49CFR regs. It has also revalved them for its customer. Thunderbird has no authority or cause to condemn these cylinders with the exception of the now egregiously damaged ones. Our clients must abide by **49CFR173.24(b)(1)**...*there will be no identifiable release of hazardous materials to the environment*. Perhaps, it would preclude leakage if Thunderbird, at their client's direction, or the client themselves were to again over-torque the valves. This would prevent leakage, at least, for 5 years, and, possibly more thereafter, if they were retorqued even more at their next requalification. This is obviously not a best practice. We request Clarification and Direction from DOT. Is Thunderbird authorized to condemn cylinders that pass requalification? Should we requalify and, then, advise the customer not to use them? Should these cylinders and others from that same population be

recalled? Overtorqued? Should a Safety Alert be issued by DOT? Thunderbird thanks you for your review and direction.

Respectfully,

A handwritten signature in cursive script that reads "Fred".

Fred A. Nachman
President

(ClarificationLetterChineseCylinders_103111.doc)

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