



U.S. Department  
of Transportation

**Pipeline and  
Hazardous Materials Safety  
Administration**

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

MAY 23 2006

Mr. E.A. Ward Dekker, Jr.  
QA Manager  
Catalina Cylinders  
12452 Monarch Street  
Garden Grove, California 92841

Ref. No. 06-0064

Dear Mr. Dekker:

This responds to your inquiry (facsimile) regarding the manufacture of a DOT 3AL cylinder for oxygen enriched air, air with oxygen content greater than 22-23%, under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180).

Your questions are paraphrased and answered as follows:

Q1. Do aluminum cylinders for oxygen enriched air have to conform to § 173.302(b)?

A1. Gas mixtures with oxygen concentrations greater than 23.5% should be considered to cause or contribute to combustion of other material to a greater extent than air. These gas mixtures must be described as "Compressed gas, oxidizing, n.o.s." and must be classified and labeled with a Division 2.2 (nonflammable gas) primary hazard and a Division 5.1 (oxidizer) subsidiary hazard. If the oxygen concentration is greater than 23.5%, then the conditions specified in § 173.302(b) must be met.

Q2. Must a residual hydrocarbon test be performed?

A2. Yes. The cylinders must conform to the cleanliness standards in Federal Specification RR-C 901C, paragraph 4.4.2.2.

Q3. Must the cylinder be designed to a maximum service pressure of 3000 psi?



060064

173.302(b)

A3. No, the cylinder may have a higher marked service pressure. The pressure in each cylinder may not exceed 3000 psi at a temperature of 21°C (70°F). Also, see § 173.301(a)(8).

I hope this satisfies your inquiry. If we can be of further assistance, please contact us.

Sincerely,



John A. Gale

Chief, Standards Development  
Office of Hazardous Materials Standards

**Drakeford, Carolyn <PHMSA>**

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**From:** Mitchell, Hattie <PHMSA>  
**Sent:** Tuesday, March 14, 2006 7:56 AM  
**To:** Staniszewski, Stanley <PHMSA>; Drakeford, Carolyn <PHMSA>  
**Cc:** Hochman, Charles <PHMSA>  
**Subject:** FW: Oxygen Enriched Air Aluminum SCUBA Cylinders Interpretation Please

Engram  
§173.302(b)  
Cylinders  
06-0064

Stan: Yes, will do.  
Carolyn: please log in as an interp.

Thanks,

Hattie

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**From:** Staniszewski, Stanley <PHMSA>  
**Sent:** Tuesday, March 14, 2006 7:40 AM  
**To:** Mitchell, Hattie <PHMSA>  
**Cc:** Hochman, Charles <PHMSA>; Freeman, Cheryl <PHMSA>; Toughiry, Mark <PHMSA>; Staniszewski, Stanley <PHMSA>  
**Subject:** FW: Oxygen Enriched Air Aluminum SCUBA Cylinders Interpretation Please

Thanks,

Stan

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**From:** Ward Dekker [mailto:wdekker@catalinacylinders.com]  
**Sent:** Mon 3/13/2006 1:56 PM  
**To:** Staniszewski, Stanley <PHMSA>  
**Cc:** John Harris; Tom Newell  
**Subject:** Oxygen Enriched Air Aluminum SCUBA Cylinders Interpretation Please

Stan,

If this inquiry for interpretation should go to someone else, let me know.

As you know Catalina Cylinders manufactures 6061 aluminum cylinders in accordance with 49 CFR178.46.

For oxygen cylinders we manufacture the cylinders in compliance with 49 CFR173.302(b).

We manufacture SCUBA cylinders for air use. In some cases, the cylinders are being charged and used with oxygen enriched air, air with O2 content greater than 22 - 23 %.

Here's my interpretation request.

1. Do aluminum cylinder that are manufactured for oxygen enriched air have to manufactured in accordance with 49CFR173.302(b)?

3/14/2006

Meaning,

- a. Must a residual hydrocarbon test be performed? and
- b. Must the cylinders be designed to a maximum service pressure of 3000 psi?

Regards,

E.A. Ward Dekker, Jr.  
QA Manager  
Catalina Cylinders / Garden Grove Facility  
714 890-0999

3/14/2006