



U.S. Department of Transportation  
**Pipeline and Hazardous Materials  
Safety Administration**

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

**DEC 22 2010**

Mr. Joesph Contino  
AVOX Systems Inc.  
225 Erie Street  
Lancaster, PA 14086

Reference No.: 10-0253

Dear Mr. Contino:

This responds to your November 24, 2010 email regarding the requirements for the examination, testing and approval of Chemical Oxygen Generators under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Your questions are paraphrased and answered as follows:

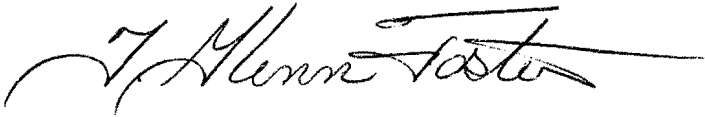
- Q1. Does the requirement to have chemical oxygen generators examined in accordance with § 173.56, include the rigid outer packaging specified in § 173.168(d)?
- A1: The answer is no. In accordance with § 173.168(a), a “chemical oxygen generator that is shipped with an explosive or non-explosive means of initiation attached must be classed and approved by the Associate Administrator in accordance with the procedures specified in § 173.56 of this subchapter.” The requirements in § 173.56 apply to the chemical oxygen generator itself; not the packaging referenced in § 173.168(d). In accordance with § 173.168(d), a chemical oxygen generator and a chemical oxygen generator installed in equipment, (e.g., a Protective Breathing Equipment), when transported by cargo-aircraft only, must be placed in a rigid outer packaging that is capable of successfully passing the Flame Penetration Resistance Test specified in Appendix E and the Thermal Resistance Test specified in Appendix D to part 178 of this subchapter. These tests are performance oriented tests and are independent of the examination of the chemical oxygen generator required by § 173.56.
- Q2. If the rigid outer packaging does require this testing, does the testing have to be performed by a competent authority laboratory?
- A2. The answer is no. The rigid outer packaging must be able to successfully pass the Flame Penetration Resistance Test specified in Appendix E and the Thermal Resistance Test specified in Appendix D to part 178 of this subchapter. However, there is no requirement for an approved laboratory to perform these tests.

Q3 If the answer to Q2 is yes: Are the various packaging providers which advertise, test, mark and certify their packagings as HM-224B compliant for chemical oxygen generators, without sending or referring the product and package to an approved lab, doing so in compliance or in violation on § 173.168?

A3. See A2.

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

Sincerely,

A handwritten signature in black ink, reading "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

**Drakeford, Carolyn (PHMSA)**

Benedict  
\$173.56  
\$173.168

**From:** INFOCNTR (PHMSA)  
**Sent:** Wednesday, November 24, 2010 2:44 PM  
**To:** Drakeford, Carolyn (PHMSA)  
**Subject:** FW: Hazmat Information Center Feedback: Interpretations (Letters) Issued by PHMSA

Chemical Oxygen Generators  
10-0253

Hi Carolyn,

Joseph Contino would like to submit the below request for a formal letter of interpretation. He has spoken with HMIC staff previously, and was referred to the June 2009 advisory alert on chemical oxygen generator packaging.

Thanks,

Victoria Lehman  
202-366-1035

-----Original Message-----

**From:** PHMSA-Feedback [mailto:PHMSA-Feedback]  
**Sent:** Tuesday, November 23, 2010 3:18 PM  
**To:** PHMSA HM InfoCenter; PHMSA Webmaster  
**Subject:** Hazmat Information Center Feedback: Interpretations (Letters) Issued by PHMSA

#### BACKGROUND

AVOX Systems Inc., formerly known as Scott Aviation, has been manufacturing Chemical Oxygen Generators (COG) products for the aviation industry for more than thirty years. AVOX has previously received classification for these products as, oxygen generator, chemical, UN 3356, and UN classification code of 5.1. This classification bears reference number EX1997080041 per RSPA letter dated September 23, 2004. We are currently shipping these products per 49 CFR 173.168 in DOT31FP compliant containers in accordance with the new rule HM224B.

We have made some minor changes and identified these new configurations with new part numbers. The new series generators differ only in minor details of appearance and the external fittings which interface with the aircraft they are intended to be installed in.

Improvements were also made to the chemical formulation that included the elimination of Barium (BaO<sub>2</sub>) as required by current industry standards. The new series generators contain the same basic chemicals however they were reformulated to replace the Barium (BaO<sub>2</sub>) with MnO<sub>2</sub>, KMnO<sub>4</sub>, and KOH and different inert binders and reaction moderators (SiO<sub>2</sub>, Mica, MgO, and Talc) that improve the overall COG performance.

We are having these new generators classed in accordance with 49 CFR 173.56 including testing performed at an approved DOT test lab. Subsequent to the lab proposal and completing all of the tests, the lab informed us that they had to perform additional testing per appendix D and E of 173.168. We advised that we already had qualified packaging to meet this requirement and provided copies of the test reports to the DOT approved lab. They informed me that they could not accept the data because the lab that performed the testing was not a competent authority lab. They said this even though there is no requirement for a competent authority lab to qualify to meet 173.168 appendix D and E.

#### QUESTIONS:

1. Does the requirement to have the COG examined per 173.56, include the packaging testing and certifying specified in 173.168 appendices D and E?

2. If it does require this testing, does the testing have to be performed by a competent authority lab?

3. If the answer is yes: Are the various packaging providers which advertise, test, mark and certify their packages as HM224B compliant for COG's, without sending or referring the product and package to an approved lab, doing so in compliance or in violation of 173.168?

A written response is requested.

Sincerely,

Joseph Contino  
Director of Technology & Market Developmen AVOX SYSTEM INC.  
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[Joseph.Contino@zodiacaerospace.com](mailto:Joseph.Contino@zodiacaerospace.com)

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