



U.S. Department  
of Transportation

1200 New Jersey Avenue SE  
Washington, DC 20590

**Pipeline and Hazardous  
Materials Safety  
Administration**

FEB 08 2012

Ms. Sarah Gedrich  
Chief, LOGSA Packaging, Storage, and Containerization  
Center (AMXLS-AT-L)  
Department of the Army  
11 Hap Arnold Boulevard  
Tobyhanna, PA 18466-5097

Ref. No. 11-0290

Dear Ms. Gedrich:

This responds to your October 12, 2011 letter requesting clarification of the preparation of composite or combination packaging containing compressed oxygen and other oxidizing gases in cylinders or chemical oxygen generators for testing under the Hazardous Materials Regulations (HMR; 49 CFR Part 171-180). In general terms, these articles are required to be placed in a rigid outer packaging that conforms to the testing provisions in Part 178, Subpart M of the HMR or the performance criteria of Airlines for America (A4A), formerly the Air Transport Association of America, Inc. (ATA), Specification No. 300 for a Category I shipping container. See §§ 173.168(d) and 173.302(f)(3). You specifically request clarification of the preparation of packaging for testing.

Your questions are paraphrased and answered in a single response as follows, however, we note that the guidance offered relative to A4A Specification No. 300 is the opinion of this Office and we recommend that you contact A4A for further guidance:

Q. Should the testing be conducted with the cylinder and chemical oxygen generator empty? If so, how are we to account for the weight of the material in a filled cylinder or chemical oxygen generator?

A. Yes. Additives similar to the instruction provided in § 178.602(c) of the HMR can be used to compensate for the weight of the hazardous contents.

I hope this answers your inquiry. If you need additional assistance, please contact this Office at (202) 366-8553.

Sincerely,

Ben Supko  
Acting Chief, Standards Development Branch  
Standards and Rulemaking Division



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**

USAMC LOGISTICS SUPPORT ACTIVITY  
REDSTONE ARSENAL, ALABAMA 35898-7466

October 12, 2011

Der Kinderen

§171.8

§173.168

§178.602

Chemical Oxygen Generators

11-0290

Logistics Testing and Applications Division

Mr. Charles E. Betts  
Director, Office of Hazardous Materials Standards  
U.S. DOT/PHMSA (PHH-10)  
1200 New Jersey Avenue  
SE East Building, 2nd Floor  
Washington, DC 20590

Dear Mr. Betts:

This letter of inquiry for interpretation is written on behalf of the US Army Materiel Command Logistics Support Activity Packaging, Storage, and Containerization Center (USAMC LOGSA PSCC), Tobyhanna, PA. It is being written for clarification/interpretation of the HM-224B, Hazardous Materials Regulations (HMR): Transportation of Compressed Oxygen, Other Oxidizing Gases and Chemical Oxygen Generators on Aircraft.

The Title 49 Code of Federal Regulations (CFR) §171.8 defines an outer packaging as “the outermost enclosure of a composite or combination packaging together with any absorbent materials, cushioning and any other components necessary to contain and protect inner receptacles or inner packagings.” In order to meet the “integrity standards,” the HM-224B requires that the cylinder or the generator

“must be placed in a rigid outer packaging that –

- (1) Conforms to the requirements of either:
  - (i) Part 178, subparts L and M, of this subchapter at the Packing Group I or II performance level; or
  - (ii) The performance criteria in Air Transport Association (ATA) Specification No. 300 for a Category I shipping container.” (49 CFR §173.168 and §173.304)

As written, subparts L and M do not address the preparation of packagings for testing if one was to designate the cylinder or generator as the inner packaging and the HM-224B specification packaging as the outer packaging. Typically, the package would be required to be closed “in the same manner as if prepared for transportation” (49 CFR §178.602). For the packaging being discussed, this could be 115 cubic feet of oxygen compressed to pressures greater than 3,000 pounds per square inch (psi) (for tests other than the drop and stack tests). The 49 CFR addresses filling procedures for packages subjected to the drop and stack tests, and in relation to liquids and solids only. Compressed gas has a behavior different from either a liquid or a solid, and the safety risks involved with testing pressurized cylinders are extreme.

- Should the cylinder or generator be tested empty? If empty, how do we account for the extra weight once filled (2 lbs to greater than 20 lbs depending on the size of the cylinder)?

ATA Specification No. 300 Category I does not address the preparation for packaging.

- Should the cylinder or generator be tested empty under these requirements as well?

Point of contact for this matter is Miss Sarah R. Gedrich, DSN 795-7649, (570) 615-7649, FAX (570) 615-7823, or e-mail sarah.gedrich@us.army.mil. All correspondence responding to this memorandum should be sent to Chief, LOGSA Packaging, Storage, and Containerization Center (AMXLS-AT-L/Sarah Gedrich), 11 Hap Arnold Boulevard, Tobyhanna, PA 18466-5097.

Sincerely,



Sharon A. Smith  
Chief, Logistics Testing and  
and Applications Division