



U.S. Department  
of Transportation

**Pipeline and  
Hazardous Materials Safety  
Administration**

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

FEB - 3 2006

Mr. Clinton M. Giannetti  
EHS Manager  
Venture Lighting International, Inc.  
32000 Aurora Road  
Solon, Ohio 44139

Ref. No. 05-0047

Dear Mr. Giannetti:

This responds to your March 4, 2005 letter requesting clarification on empty cylinders which previously contained radioactive material under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically, you ask if the requirements for empty packages contained in §§ 173.29 or 173.428 apply. In addition, you ask if the internal contamination levels as specified in § 173.443 apply to your purged empty cylinders containing a noble gas or similar material that is not likely to leave contamination.

According to your letter, your company uses Type A packages (cylinders) containing an argon gas mixed with a small fraction of Krypton-85. Full cylinders are classified as a Class 7 material with a subsidiary Division 2.2 hazard under UN 2915. After the gas is removed from these cylinders, the spent cylinders are purged/flushed with nitrogen gas multiple times, and the internal pressure is relieved. The cylinders contain a pressure less than 15 psi at 20° C, and no radioactivity above background levels can be detected at the cylinder surface. You also state that the hazardous material previously contained in the cylinder no longer meets the definition of a Class 7 material in §173.403 since it does not exceed the activity concentration limits in § 173.436. In addition, the hazardous material previously contained in the purged cylinders does not meet the definition for a Division 2.2 material as specified in §173.115(b).



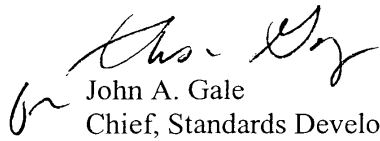
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173.29(b)  
173.428

Based on the information provided, the spent cylinders are not subject to the HMR if the activity limits specified in the §173.436 are not exceeded, or the internal and external contamination limits do not exceed those specified in § 173.403.

I hope this answers your inquiry.

Sincerely,

  
John A. Gale  
Chief, Standards Development  
Office of Hazardous Materials Standards



Booche  
§ 173.29(b)  
§ 173.428  
Empty Cylinders

32000 Aurora Road  
Solon, Ohio 44139  
440-248-3510  
Fax 800-451-2605

# 05-0047

Mr. Edward T. Mazzullo  
Director, Office of Hazardous Materials Standards  
U.S. DOT/RSPA (DHM-10)  
400 7th Street S.W.  
Washington, D.C. 20590-0001

Venture Lighting International Inc. is requesting clarification regarding the shipment of empty cylinders which previously contained a radioactive noble gas mixture.

In our process we use type A cylinders containing an Argon gas mixed with a small fraction of Krypton-85. Full cylinders are classified as a Class 7 radioactive material and a Division 2.2 non-flammable gas, under the UN number 2915. After the gas is removed from these cylinders, the spent cylinders are purged/flushed with nitrogen gas multiple times and the internal pressure is relieved.

The resultant cylinder contains a pressure  $< 15$  psi at  $20^{\circ}$  C, and no radioactivity above background levels can be detected at the cylinder surface. In addition, since it is a noble gas it is unlikely that any contamination is present on the interior surfaces of the cylinder. This cylinder is to be sent back to the vendor for re-use.

Calculations of any possible radioactive material inside the cylinder are well below the specified values in 49 CFR 173.436 for the Krypton 85. Looking at the definition of Radioactive Material in 173.403, the cylinder described above no longer appears to meet this definition as it does not exceed the activity concentration limits in 173.436. In addition, the purged cylinders do not appear to meet the definition for a Division 2.2 material as specified in 173.115(b).

As it relates to these purged cylinders;

- 1). Is it true that a material which does not meet the definition of a "Radioactive Material" in 173.403 is not subject to the HMR requirements for Class 7 materials?
- 2). Would 173.29 (b) apply to the purged cylinders described above?
- 3). Would the cylinders as described above, be subject to the requirements of 173.428 instead of the requirements of 173.29(b)?
- 4). Do the limits for internal contamination specified in 173.443 apply to a cylinder that contained a noble gas or similar material which is not likely to leave contamination?

Your assistance in providing clarification on these matters is very much appreciated.

Sincerely,

Clinton M Giannetti  
EHS Manager  
Venture Lighting International, Inc.