U.S. Department of Transportation

Pipeline and Hazardous Materials Safety Administration

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

SEP 2 9 2011

Mr. John Fichera
Manager, Product Safety and Compliance
Government Regulatory Affairs
Osram Sylvania
100 Endicott Street
Danvers, MA 01923

Ref. No. 10-0082

Dear Mr. Fichera:

This is in response to your letter regarding the applicability of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to radioactive manufactured articles. Your questions specifically concern the applicability of the HMR to finished light bulbs and to the tungsten filaments alone normally encapsulated within the finished light bulbs that both contain small amounts of naturally occurring thorium. I apologize for the delay in responding and any inconvenience it may have caused. Your questions are paraphrased and answered as follows:

Q1. Does a finished light bulb meet the definition of a manufactured article under § 173.403?

A1. It would if the radioactive material activity concentration and consignment activity totals are both above the § 173.436 exempt radionuclide limits.

Q2. Does tungsten wire containing thorium that is formed into filaments meet the conditions specified for a manufactured article under § 173.424?

A2. No, it would not. Because the active material is not completely enclosed by non-active components, the filaments you describe in your letter do not meet the criterion for a manufactured article as specified in § 173.424(e).

Q3. What is the basis of the HMR requirements for radioactive materials in transportation, theoretical calculations of radioactivity, or, actual measured radioactivity?

A3. Measured activity forms the basis of the HMR requirements for radioactive materials offered for transportation and transported in commerce. Where direct measurement is not feasible, calculations are normally suitable. Therefore, if the applicable conditions can be met by actual measurement, the manufactured articles you describe in your letter are eligible for the exceptions provided for such articles in § 173.424.

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

Sincerely,

T. Glenn Foster

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

OSRAM SYLVANIA

Mr. Edward Manzullo
Director, Office of Hazardous Materials Standards
Pipeline and Hazardous Materials Safety Administration, US DOT
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Stevens
§173.424
§173.403
RAM
10-0082

Certified Mail: 7005 1160 0004 4206 6406

March 30, 2010

Subject: Interpretation of Hazardous Material Transportation Requirements

Dear Mr. Manzullo:

We are writing to inquire about an interpretation to the Hazardous Material Transportation Requirements specifically section 49 CFR 173.424 "Excepted packages for radioactive instruments and articles."

Historically the lighting industry has incorporated into the design various materials embedded within the tungsten filaments to improve the robustness of the filaments to shock and vibration. Typically these materials have included thorium in very low concentration levels within the structure of the tungsten between 0.7% and 1.0% by weight.

We are seeking clarification of section 49 CFR 173.424 "Excepted packages for radioactive instruments and articles."
173.426 Excepted packages for articles containing natural uranium or thorium.

> A radioactive instrument or article and its packaging *are excepted from requirements in this subchapter for specification packaging, labeling, marking* (except for the UN identification number marking requirement described in Sec. 173.422(a)), and if not a hazardous substance or hazardous waste, shipping papers and the requirements of this subpart if:

Certain electrical components can contain tungsten wire doped with up to 1% thorium. Typically the net amount of thorium is extremely small, dispersed within a solid tungsten matrix, and has measureable radiation levels well below those listed under CFR 173.424 and up to 10^5 to 10^8 times smaller than the reportable quantities listed under section 172.101 for hazardous substances. However, the activity concentration levels can still exceed the values listed for thorium (natural) given in section 173.436.

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Question: If an individual article contains a tungsten wire component that is doped with 1% thorium and formed into a filament that results in an activity concentration exceeding the exempted values listed in section 173.436, does the packaging for the article automatically require special labeling and marking regardless of the amount of thorium actually contained within the individual article?

In summary, our interpretation of 49 CFR 173.403 is that a finished lamp (bulb) would be considered an individual article and therefore exempt for the labeling requirements defined in 49 CFR 173.403. It is also our interpretation that raw tungsten wire material containing thorium (0.7% to 1%) would not fall into this same exempt category. Our specific requests for interpretation are:

1. Would a finished lamp (bulb) be considered an individual article under section 49 CFR 173.403, and therefore need to meet the requirements of section 49 CFR 173.424?
2. Would tungsten wire containing thorium and formed into filaments be considered a raw material, and therefore need to meet the requirements of section 49 CFR 173.424?
3. Are the radioactivity requirements based on theoretical calculations of radioactivity or actual measured radioactivity?

The correct interpretations may affect future design criteria considerations for OSRAM and we want to make sure we have the proper understanding. We appreciate your assistance.

Best regards,

John Fichera
Manager Product Safety and Compliance
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