Anthony Kirkwood - FW: NRC question on gas quantity in Supra Lamps

From: "leif vasstrom" <lvasstrom@covad.net>
To: "'Anthony Kirkwood'" <ASK@nrc.gov>
Date: 10/30/2007 11:51 AM
Subject: FW: NRC question on gas quantity in Supra Lamps

Dear Mr. Kirkwood,

This is Dr. Roth's explanation received today:

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Our definition of activity in agreement to the scientific standard is:

Activity: radioactive decay (the phenomenon of natural and artificial radioactivity) is defined as one transformation (or decay) per second.
The SI unit is Becquerel. 3.7 exp(10) Bq equals 1 Ci.

That means, that the Measured "activity" is an **absolute number** and is measured independent of the mass of the considered element.

In the case of the quartz lamps supplied to you under the Supra, Radiance and SunX2 this means:

One liter of gas contains 50 microcourie. In 30milli liter of gas we have 30/1000 * 50 microcourie = 1.5 microcourie.

I hope this may clarify the issue for the agency.

Leif, you can also find this definition in: http://en.wikipedia.org/wiki/Radioactive_decay

Mit freundlichen Grüßen / Best Regards

Dr. Markus Roth
Technical Director

Osram GmbH
Business Unit UV/IR
Dr.-Eugen-Kersting-Str. 6
51688 Wipperfürth
Phone: +49 2267 81-201
E-mail: m.roth@osram.de
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OSRAM Gesellschaft mit beschränkter Haftung
Vorsitzender des Aufsichtsrats: Jürgen Radomski;
Geschäftsführung: Martin Goetzeler (Vorsitzender), Kurt Gerl, Johannes Närger, Claus Regitz;
Sitz der Gesellschaft: München; Registergericht: München, HRB 4151; WEEE-Reg.-Nr. DE 71568000

Von: leif vasstrom [mailto:lvasstrom@covad.net]
Gesendet: Montag, 29. Oktober 2007 16:07
An: Kalmbach, Uwe; Roth, Markus
Betreff: FW: Query: NRC question on gas quantity in Supra Lamps

Uwe?

Best Regards,

Leif Vasstrom
Supra Brands Group Ltd.

Direct: 415 725 6666 (U.S.) - 358 (0)40 856 0124 (EU)
Fax: 415 520 5318
Toll free: 800 959 1255
e-mail: lvasstrom@supratechnologies.com
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From: Anthony Kirkwood [mailto:ASK@nrc.gov]
Sent: Monday, October 29, 2007 7:11 AM
To: leif vasstrom
Cc: Duncan White; Joseph DeCicco; Richard Struckmeyer; Sami Sherbini
Subject: Query: NRC question on gas quantity in Supra Lamps

Mr. Vasstrom,

I've checked with a fellow staff member to verify what Mr. Kalmbach has said. All things being equal, we don't see why the activity would decrease only because of filling the smaller volume lamp from the larger volume gas container. Can you explain further, or mathematically show how the activity goes from 50 microcuries/liter to less than 30 microcuries/30 milliliter lamp.

Sincerely, Anthony Kirkwood

>>> "leif vasstrom" <lvasstrom@covad.net> 10/29/2007 7:14 AM >>>

Dear Mr. Kirkwood,

Please find the answer to your question below from Radium's Mr. Uwe Kalmbach.

Please let me know if this meets with your expectations.

Best Regards,

Leif Vasstrom
Supra Brands Group Ltd.

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From: Kalmbach, Uwe [mailto:U.Kalmbach@osram.de]
Sent: Monday, October 29, 2007 12:48 AM
To: leif vasstrom
Subject: AW: Remaining NRC question on gas quantity in Supra Lamps

Dear Leif,

What we receive from OSRAM is a mixture of Krypton-85 in Argon gas. The activity in this bottle is 50 microcuries **per liter of the gas mixture**.

The volumes of the burners are lower than 30 mililiters. The total activity of each lamp is therefore below 30 microcuries per lamp.

Best regards

Uwe Kalmbach

Radium Lampenwerk GmbH

Development UV/IR
Dr.-Eugen-Kersting-Straße 6
51688 Wipperfürth
Telefon: +49 2267-81-209
Telefax: +49 2267-81-465
E-Mail: U.Kalmbach@radium.de
Internet: www.radium.de

Radium Lampenwerk GmbH, Sitz: Wipperfürth
Geschäftsführer: Andreas Steinert
Vorsitzender des Aufsichtsrates: Christoph Schneider
Registergericht: Köln HRB 37474, WEEE-Reg-Nr. DE 36655118

Von: leif vasstrom [mailto:lvasstrom@covad.net]
Gesendet: Freitag, 26. Oktober 2007 18:18
An: Kalmbach, Uwe; Schwarz, Markus; Roth, Markus
Cc: Steinert, Andreas
Betreff: FW: Remaining NRC question on gas quantity in Supra Lamps
Wichtigkeit: Hoch

Gentlemen,

The statement below is from the NRC based on the two pages I received from you Uwe on Tuesday. I think I know the answer, but please respond in order.

Best Regards,

Leif Vasstrom
Supra Brands Group Ltd.

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From: Anthony Kirkwood [mailto:ASK@nrc.gov]
Sent: Friday, October 26, 2007 9:07 AM
To: leif vasstrom
Subject: Re: Remaining NRC question on gas quantity in Supra Lamps

Mr. Vasstrom,

Just realized that the gas certificate from Osram indicates 0.05 mCi (50 microcuries) of krypton-85 gas. This quantity exceeds the exempt limit of 30 microcuries for krypton-85 electron tubes (lamps) in 10 CFR 30.15(a)(8)(iv). Please explain how the gas in your lamps will not exceed the NRC limit of 30 microcuries since the gas apparently use to fill the lamps has an activity of 50 microcuries.

Sincerely, Anthony Kirkwood

Anthony S. Kirkwood, Health Physicist
NRC/FSME/MSSA/SAIS
MS: T8E24, RM: T8F16
(301) 415-6140 (Voice), (301) 415-5370 (Fax)
E-mail: ask@nrc.gov

>>> "leif vasstrom" <lvasstrom@covad.net> 10/24/2007 12:04 PM >>>

Dear Mr. Kirkwood,

1. The 400 watt lamp, models 4500SI and 4500WL with the R7s ceramic base, does not have sufficient space for further etching on one side. These lamps are produced in an automatic machine and the etching of the other side would prove cost prohibitive.

2. I have enclosed two PDF files from Osram, depicting a KR 85 delivery and certificate. I can fax these to you as well if needed, at which time I could provide some translation if needed.

Please let me know if this meets with your approval. The best number to reach me is 415 725 6666.

Best Regards,

Leif Vasstrom

Supra Brands Group Ltd.

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From: Anthony Kirkwood [mailto:ASK@nrc.gov]
Sent: Monday, October 22, 2007 8:18 AM
To: leif vasstrom
Subject: Action: Need response from Supra on remaining NRC questions in10/17, e-mail

Mr. Vasstrom,

I received your Fedex letter dated October 16, 2007, however, I don't see where you have responded to two of the questions in my e-mail sent to you on October 17, 2007, which asked in part, as follows:

". . . Your letter may already include the responses to my 10/15/07, questions (example drawing of lamp etching showing location and the Kr-85 symbol, the date when the lamp etching will be added, and **explanation why 400 watt lamp cannot be labeled with Kr-85**) and **also the response to my telephone request for an example of a measurement certificate from the krypton-85 gas supplier**, but I just wanted to remind you of these remaining questions. . . "

Please respond to the two bold and underlined questions above. An e-mail response with an attached sample of a gas measurement certificate would be sufficient so that I may complete the review of your application.

Sincerely,

Anthony S. Kirkwood, Health Physicist
NRC/FSME/MSSA/SAIS
MS: T8E24, RM: T8F16
(301) 415-6140 (Voice), (301) 415-5370 (Fax)
E-mail: ask@nrc.gov

Mail Envelope Properties (472752EB.4E4 : 23 : 9444)

Subject: FW: NRC question on gas quantity in Supra Lamps
Creation Date 10/30/2007 11:50:26 AM
From: "leif vasstrom" <lvasstrom@covad.net>

Created By: lvasstrom@covad.net

Recipients
nrc.gov
OWGWPO04.HQGWDO01
ASK (Anthony Kirkwood)

Post Office	**Route**
OWGWPO04.HQGWDO01	nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	9559	10/30/2007 11:50:26 AM
TEXT.htm	40533	
Mime.822	55453	

Options

Expiration Date:	None
Priority:	Standard
ReplyRequested:	No
Return Notification:	None
Concealed Subject:	No
Security:	Standard

Junk Mail Handling Evaluation Results
Message is eligible for Junk Mail handling
This message was not classified as Junk Mail

Junk Mail settings when this message was delivered
Junk Mail handling disabled by User
Junk Mail handling disabled by Administrator
Junk List is not enabled
Junk Mail using personal address books is not enabled
Block List is not enabled