



September 13, 2022

ATTN: Document Control Desk / Exempt Distribution
Director, Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

REF: Request for Additional Information
Venture Lighting International, Inc.
6675 Parkland Blvd., #100
Solon, OH 44139
Distribution License Number: 34-26659-03E
Docket No. 030-38541

1. A copy of your current State of Ohio Radioactive Materials License.

Attached separately.

2. Confirm that you are requesting to distribute halide lamps equipped with arc tubes containing less than 30 microcuries of Krypton-85 (Kr-85) to persons who are exempt from the requirements under 10 CFR 30.15(a)(8).

We confirm that each halide lamp is equipped with arc tubes containing less than 30 microcuries of Krypton-85 (Kr-85).

3. 10 CFR 32.16 requires the applicant submit annual transfer reports. Please provide transfer reports for 2019, 2020, and 2021.

Reports for 2019, 2020, and 2021 are attached separately.

4. 10 CFR 32.14(b)(2) requires the applicant to submit details of construction and design of each product.

(a) Arc tube

The arc tube is a formed quartz body. An exhaust tube is fused to the side of the body. One electrode is inserted into each end, and the two ends are then sealed by a heating and pinching operation. The arc tube is flushed twice with Argon gas. Next the arc tube is filled with a Krypton - Argon gas mixture, which contains up to a maximum of 0.1 μ Ci of Krypton-85. Finally, the exhaust tube is pinched, sealing the arc tube.

(b) Lamp

The lamp consists basically of an arc tube, a glass sheath around the arc tube, a base, a mount which holds the arc tube, and a glass envelope. The mount is sealed into the glass envelope and held in place at the top by means of a loop that sits over a dimple in the envelope. The base is then affixed to the bottom of the sealed envelope, and the two wires are attached to the base for electrical contact.

5. 10 CFR 32.14(b)(3) requires the applicant to submit the method of containment or binding of the byproduct material in the product. Please describe the method by which Kr-85 gas is introduced and the glass tube is sealed.

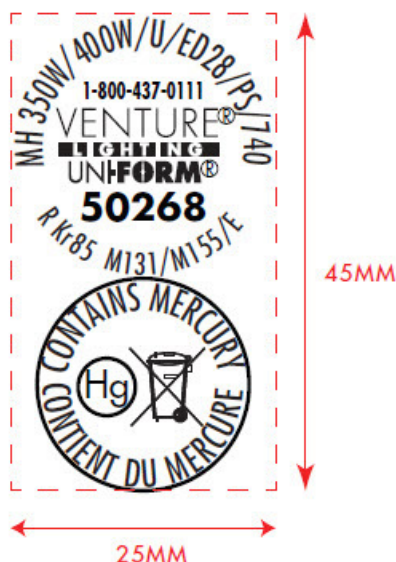
The Krypton-85 gas mixture is double-contained inside the metal halide lamp. It is first sealed in a quartz arc tube. Then the arc tube, surrounded by its glass sheath, is sealed inside the lamp envelope.

Fill gas for selected products is Argon mixed with a low concentration of Kr-85 gas. Fill gas tank is covered with a lead shield and stored in a cabinet allocated for this purpose. Fill gas tank is connected to the exhaust head with an isolation valve.

The metal halide pills, and in some cases, scandium are dispensed into the pinched body and gently melted under a cover gas of pure argon. The pinched body is cooled and then mercury is dispensed into it. The exhaust tube is connected to a special chuck and sealed to the pump/flush exhaust system. The exhaust system pumps out most of the gases in the pinched body and refills it with pure argon. This pump/flush operation is repeated several times. Then the fill gas (Argon-Kr85 mixture) flows into the pinched body and the correct fill gas pressure is established. The operator uses a hand torch to seal the exhaust tube very close to the surface of the body.

6. 10 CFR 32.14(b)(6) requires the applicant to submit the proposed method of labeling or marking each unit and its container with the identification of the manufacturer or initial transferor of the product and the byproduct material in the product.

For each lamp containing Krypton-85, the glass envelope will be labeled with the model number, lamp description, and Kr-85 on the monogram. The lamp sleeve and outer carton label indicates the manufacturer and “Kr85”. An example of a monogram is below.



Lamp Monogram

7. 10 CFR 32.14(b)(7) requires the applicant to submit the radiation level and the method of measurement for products for which limits on levels of radiation are specified in Section 30.15. Section 30.15(a)(8)(iv) specifies that each electron tube containing byproduct material does not exceed 30 microcuries of Kr-85. And provided further, That the levels of radiation from each electron tube containing byproduct material do not exceed 1 millirad per hour at 1 centimeter from any surface when measured through 7 milligrams per square centimeter of absorber.

We confirm that each electron tube containing byproduct material does not exceed 30 microcuries of Kr-85.

We confirm that the levels of radiation from each electron tube containing byproduct material do not exceed 1 millirad per hour at 1 centimeter from any surface when measured through 7 milligrams per square centimeter of absorber.

8. Please confirm that your products do not contain any thorium.

Some lamps contain Thorium as a small percentage of the lamp electrode.

OHIO DEPARTMENT OF HEALTH

LICENSE FOR RADIOACTIVE MATERIAL

Pursuant to Chapter 3748 of the Ohio Revised Code, and in reliance on statements and representations made by the licensee, a license is hereby issued authorizing the licensee named herein to receive, acquire, possess, and transfer radioactive material as designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the applications of Chapter 3748 of the Ohio Revised Code and all applicable rules promulgated thereunder. This license is subject to all applicable rules, regulations and orders of the Ohio Department of Health now or hereinafter in effect and to any conditions specified below.

LICENSEE		LICENSE NUMBER
1. Venture Lighting International, Inc.		3. 03214180000
		EXPIRATION DATE
2. 6675 Parkland Blvd. Suite 100 Solon, Ohio 44139		4. August 1, 2026
		FILE NUMBER / ID NUMBER
		5. 500950 -17425
6. RADIOACTIVE MATERIAL	7. CHEMICAL AND/OR PHYSICAL FORM	8. MAXIMUM QUANTITY THAT LICENSEE MAY POSSESS AT ANY ONE TIME UNDER THIS LICENSE
A. Krypton-85	A. Gas	A. 80 GBq (2.16 Ci)
9. Authorized Use		
A. Contained in arc tubes previously installed into metal halide lamps incident to exempt distribution.		

CONDITIONS

10. Radioactive materials are licensed for possession only incident to exempt distribution at the licensee's facilities located at: **6680 Parkland Blvd., Solon, Ohio 44139**
11. The Radiation Safety Officer for this license is: **Brian Glazer.**
12. Licensed material shall be used by, or under the supervision of the RSO or individuals who have completed the training described in renewal application dated April 21, 2021. The licensee shall maintain training records of individuals designated as authorized users for five years.
13. The licensee shall conduct a physical inventory every six months. Records of inventories shall be maintained for three years from the date of each inventory and shall include the quantities and kinds of licensed material, location of the material, and the date of the inventory.
14. This license does not authorize commercial distribution of licensed material.
15. The licensee is authorized to transport licensed material only in accordance with the provisions of OAC 3701: 1-50.
16. The licensee shall not dispose of any item as non-radioactive, including filtration media and fluids having the potential to come into contact with licensed materials, until each item has been surveyed or sampled to assure it does not contain radioactive material.
17. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The Ohio Department of Health's statutes, rules, and orders shall govern unless statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.
 - A. Renewal application dated April 21, 2021; Amendment 15 renews license number 03214180000 in its entirety.
 - B. Correspondence dated October 20, 2022 and November 4, 2022 (Amendment 16).

For the Ohio Department of Health

DATE: November 21, 2022

BY:

W. Gene Phillips,
REHSDigitally signed by W. Gene
Phillips, REHS
Date: 2022.11.21 11:35:32 -05'00'

W. Gene Phillips, MBA, REHS
Chief, Bureau of Environmental Health and Radiation Protection
on behalf of the Director of Health