

Dr. Xu,

10/18/2017

This letter refers to Ushio America, Inc.'s request to amend exemption distribution license 04-23968-01E which was refiled as "Mail Control No.600109".

In respond to your letter dated August 8th, 2017, we are providing the following items:

1. A copy of our radioactive material possession and use license issued by the State of California reflecting the authorization of thorium.
2. A sample of detailed construction and design of our DXL-65BA2 which contains the electrode material thoriated tungsten. Please note that the thoriated tungsten that is used contains a very small amount of low level radioactive materials to enhance the startability and lifetime performance. This leads to significantly lower electrode temperatures and therefore to much longer life times (attached letter from Ushio Japan). For specialty, short arc lamps it is absolutely necessary to use thorium, otherwise arc instability and extremely short life will occur. Most metal halide lamps use thoriated electrodes as well. As mentioned in the attached letter from Ushio Japan, thorium lamps manufactured in Japan are in line with ISO-9001-certification requirements. This is a manufacturing standard requirement for our lamps that contain thorium.
3. The sample provided is from Japan, where thorium lamps are manufactured. They purchase thoriated tungsten as a finished material. Electrodes are a very essential part of the lamp and are very tightly controlled mechanically and in material consistency. The consistency of the electrodes is extremely important for the function and reliability of the lamps. Please refer to attachment for a sample material inspection sheet. Since the material and the dimensions (aka weight) are very tightly controlled, the thorium amount in the lamp is also very tightly controlled and consistent, as inconsistencies of material or dimensions would have a direct impact on the lamp performance and are therefore easily detectable.

The thoriated tungsten used in Ushio products contains 2 weight % of thorium oxide (ThO₂) and is not subject to Japan's regulatory requirements for low radioactive materials: ("Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors.") This is due to the extremely low-dosage of thorium oxide. Hence, manufactures in Japan do not label lamps containing the small amount of thorium. Ushio America is the U.S. distributor of Ushio products in Cypress and follows DOT requirements. Please note that DOT does not require lamps with such a low thorium content to be labelled. Hence, we have never had to label lamps or containers.

I would also like to inform you that Mr. Martin Brown is no longer with us, can you please direct all your correspondences to me. Martin spoke very highly of you, so I hope to continue that good professional relationship with you.

I very much appreciate your support and input.

Sincerely,



Rez Motamed
Senior Manager, regulatory Compliance
Ushio America, Inc.
5440 Cerritos Ave, Cypress, CA 90630
rmotamed@ushio.com
Tel : 714-229-3137
Cell: 714-718-5385



KAREN L. SMITH, MD, MPH
Director and State Health Officer

State of California—Health and Human Services Agency
California Department of Public Health



EDMUND G. BROWN JR.
Governor

July 25, 2016

Martin Brown
Radiation Safety Officer
Ushio America Inc.
5440 Cerritos Ave.
Cypress, CA 90630

Re: **License No. 7749-30**

Dear Mr. Brown,

Enclosed is **Amendment No. 3** to the referenced license. Please review it carefully.

We have contacted Ms. Shirley Xu with the U.S. Nuclear Regulatory Commission (NRC), regarding the issuance of the enclosed amendment. Ms. Xu is waiting for your application to amend your NRC Exempt Distribution license number 04-23968-01E. Once your NRC license is amended, a copy should be forwarded to the Radiologic Health Branch, Sacramento office (address below) for our record.

As a reminder, license number 7749-30 is a possession only license and does not authorized distribution. Distribution is authorized by the U.S. Nuclear Regulatory Commission Exempt Distribution license number 04-23968-01E.

Thank you. If you have any questions, feel free to call me at (916)449-5658, or email me at Kristina.DeLeon@cdph.ca.gov.

Sincerely,

Kristina De Leon
Health Physicist
Licensing Projects Unit
Radioactive Material Licensing
Radiologic Health Branch



RADIOACTIVE MATERIAL LICENSE

Pursuant to the California Code of Regulations, Division 1, Title 17, Chapter 5, Subchapter 4, Group 2, Licensing of Radioactive Material, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, use, possess, transfer, or dispose of radioactive material listed below; and to use such radioactive material for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules, regulations, and orders of the California Department of Public Health now or hereafter in effect and to any standard or specific condition specified in this license.

1. Licensee: Ushio America, Inc.	3. License Number: 7749-30 Amendment Number: 3
2. Address: 5440 Cerritos Avenue Cypress, CA 90630	4. Expiration date: February 4, 2019 (5)
Attention: Martin Brown Radiation Safety Officer	5. Inspection agency: Radiologic Health Branch South

License Number 7749-30 is hereby amended as follows:

6. Nuclide	7. Form	8. Possession Limit
A. Krypton-85	A. Gas (Sealed sources) (Sankyo Denki, Zhejiang Falcon Lighting Electric, Lumenarc, Venture, Unilam, Narva GLE, or BLV lamps)	A. - B. Not to exceed 1.11 megabecquerels (30 microcuries /tube), total not to exceed 3.7 gigabecquerels (100 millicuries).
B. Thorium-232, Thorium-228, or Thorium-230	B. Thorium tungsten alloy (Radiant Thermal Product, American Cinema Equipment, Microsull Exporter, BLV, Narva GLE, Ushio, Venture, or Lumenarc lamps)	

9. Authorized Use

- A. - B. Possession only. Distribution authorized by U.S. Nuclear Regulatory Commission exempt distribution license number 04-23968-01E.

LICENSE CONDITIONS

10. Radioactive material shall be used only at the following location:

- (a) 5440 Cerritos Avenue, Cypress, CA.

11. This license is subject to an annual fee for sources of radioactive material authorized to be possessed at any one time as specified in Items 6, 7, 8 and 9 of this license. The annual fee for this license is required by and computed in accordance with Title 17, California Code of Regulations, Sections 30230-30232 and is also subject to an annual cost-of-living adjustment pursuant to Section 100425 of the California Health and Safety Code.

12. Radioactive material shall be used by, or under the supervision of the following individuals:

- (a) Martin Brown

13. Except as specifically provided otherwise by this license, the licensee shall possess and store radioactive material described in Items 6, 7, 8 and 9 of this license in accordance with the statements, representations, and procedures contained in the documents listed below. The Department's regulations shall govern unless the statements,

RADIOACTIVE MATERIAL LICENSE

License Number: 7749-30

Amendment Number: 3

representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

- (a) The new application dated September 26, 2008, with attachments, signed by Kenji Hamashima, President and CEO, and the letter with attachments, dated December 10, 2008, signed by Martin Brown, Radiation Safety Officer, regarding additional information.
- (b) Letter dated December 12, 2014, signed by Martin Brown, Radiation Safety Officer, regarding an increase in unit activity of the Kr-85 lamps.
- (c) The letter with attachments dated June 27, 2016, signed by Martin Brown, Radiation Safety Officer, regarding the updated training program, facility maps, Safety Program (Document No.: 14001.12.001, Rev.C.0, dated 05/13/2016), and Safety Program Audit Procedure (Document No.: 14001.11.001, Rev. C.0, dated 05/13/2016).
14. (a) The Radiation Safety Officer in this program shall be Martin Brown.
15. At least 30 days prior to vacating any address of use listed in Condition 10 of this license, the licensee shall provide written notification of intent to vacate to the California Department of Public Health, in accordance with Title 17, California Code of Regulations, Section 30256 (b). Control of all licensed areas must be maintained until such areas are released by the Department for unrestricted use or the license is terminated, in accordance with Title 17, California Code of Regulations, Section 30256 (j).
16. A copy of this license and a copy of all records and documents pertaining to this license shall be maintained available for inspection at 5440 Cerritos Avenue, Cypress, CA.
17. The licensee will provide the Low Level Radioactive Waste (LLRW) reports specified in the California Health and Safety Code section 115000.1(h) to the California Department of Public Health (CDPH) on an annual basis for both shipped and stored LLRW. Alternatively, LLRW shipment information may be provided on a per shipment basis. LLRW shipment information and annual reports shall be mailed to:

Attn: LLRW Tracking Program
California Department of Public Health
Radiologic Health Branch, MS 7610
P.O. Box 997414
Sacramento, CA 95899-7414

Issued for the California Department of Public Health

Date: July 25, 2016

By: 

Ronald Rogus
Senior Health Physicist
Radiologic Health Branch
MS 7610, P.O. Box 997414
Sacramento, CA 95899-7414

October 13, 2017

Re: REQUEST TO AMEND EXEMPT DISTRIBUTION LICENSE 04-23968-01E (Docket No. 030-37966)

To Whom It May Concern:

Ushio Inc. ("Ushio"), a Japanese corporation, is a parent company of Ushio America, Inc., and manufactures and distributes Xenon lamps for industrial application globally. Attachment 1 to this letter contains product specifications and construction of DXL-65BA2, one of our Xenon lamps.

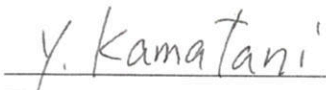
Ushio's Xenon lamps contain an electrode material, thoriated tungsten, that contains a very small amount of radioactive materials to enhance the startability and lifetime performance.

The thoriated tungsten used in Ushio products contains 2 wt% of thorium oxide (ThO_2) and is not subject to the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors, due to low-dosage of thorium oxide. *1)

We purchase thoriated tungsten as a finished material. Please refer to Attachment 2 for a sample material inspection sheet provided by the manufacturer.

Please note that Ushio Xenon lamps are manufactured in an ISO-9001-certified facility.

Very respectfully,



Yoshiharu Kamatani
General Manager
General Affairs and Risk Management Department(CSR)
Human Resources & General Affairs Division
Corporate Headquarters
Ushio Inc.

*1): In Japan, 10wt% or less in solid volume of ThO_2 contained in thoriated tungsten is not subject to the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors. The thoriated tungsten we use is not subject to this law because it contains 2wt% of ThO_2 .

TO USHIO INC.
 納入先 ウシオ電機株式会社 殿

Structure.

Inspection sheet (Chemical composition, ThO₂ Particle size,
 検査成績書(化学成分・組織・ThO₂粒径・分散) Dispersion)

product name
 品名 W5660S-6.0MX14.7
 粉末ロット番号 W56-437A
 powder Lot #

inspection date
 検査年月日 2017年 8月 29日



材料部品製造部
 品質保証担当

Materials & Components Manufacturing Dept.
 Quality assurance

Chemical composition
 【化学成分】

Specification

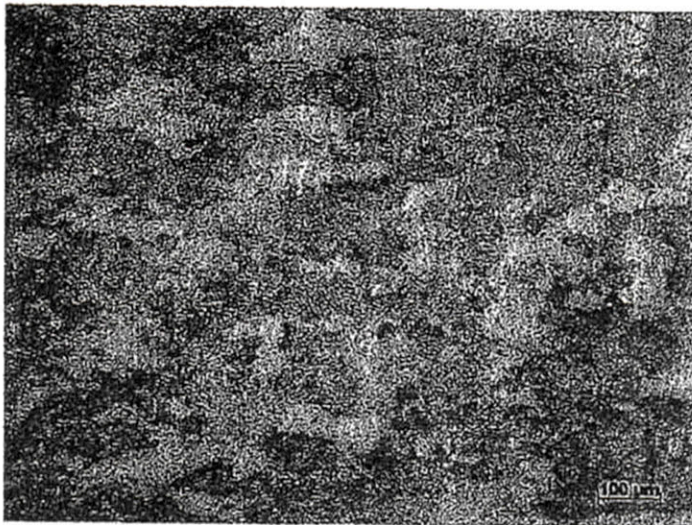
製造ロット番号	Lot #	MAX	ThO ₂	Fe	Mo	K	C	Si	Ni	Ti
規格	上限値		2.1	0.005	0.005	0.001	0.003	0.002	0.002	0.002
	下限値		1.6							
	M.W.		1.95	0.0014	<0.0005	<0.0005	0.001	0.0012	0.0005	<0.0005

UNIT
 【単位 : wt%】

Structure
 【組織】 CCD : 50倍



< ThO₂ Particle size, Dispersion > Metallurgical microscope
 【ThO₂粒径・分散】 金属顕微鏡 : 1,000倍

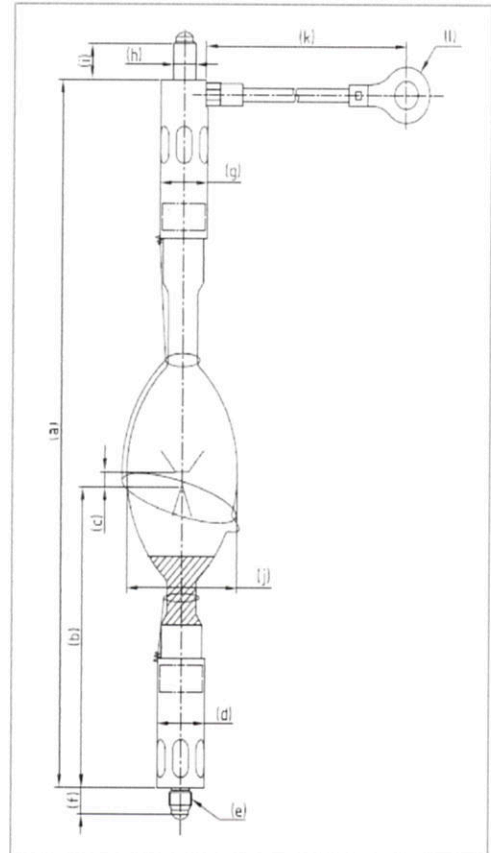


Xenon Lamps for BARCO Digital Cinema Projector

DXL-65BA2

Technical Data

Input Power	W	-	6500
Voltage	V	-	39.5
Current	A	-	165
Operating Range	W/A	-	110-178(A)
Lamp Length	mm	a	375.5
LCL	mm	b	158.5
Cold Arc Gap	mm	c	8
Cathode	Base Diameter	mm (Φ)	d
	Pin Diameter	mm (Φ)	e
Anode	Pin Diameter	mm (Φ)	h
	Pin Length	mm	i
Cathode	Pin Length	mm	f
	Base Diameter	mm (Φ)	g
Anode	Pin Diameter	mm (Φ)	h
	Pin Length	mm	i
Bulb diameter	mm (Φ)	j	70
Cable length	mm	k	156
Crimping terminal	mm	l	22-14



Warranty Hours

DXL-65BA2	500
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Cross Reference

Lamp Type	Projector Model
DXL-65BA2	DP2K-32B DP4K-32B