

**SUPERIOR UV TECHNOLOGIES**  
**(Solar Elements)**  
17 Centerview Drive  
Shelton, CT 06484

Division of Nuclear Materials Safety  
US Nuclear Regulatory Commission, Region I  
475 Allendale Road  
King of Prussia, PA 19406-1415

Br 2

L 23969

03037784

03214

May 23, 2008

Dear Sir/Madam,

(06-23969-01)

Enclosed is our NRC form 313 application for material license.

We are the initial importers of UV lamps produced by Radium Lampenwerk  
Wipperfurth, Germany who is a subsidiary of Osram Sylvania. Radium produces our  
lamps in Germany under our trade name of Solar Elements. Our lamps are  
registered with the FDA as indicated by our FDA #'s below:

FDA #8720182-16  
FDA #0120351-15  
FDA #9920907-12  
FDA #0220025-05  
FDA #9221134-20  
FDA #0520864-03  
FDA #8520252-05

2008 JUN - 6 PM 3: 03

RECEIVED  
REGION I

We do not alter, modify or repackage any of the UV lamps we import prior to delivery to our customers. We warehouse our lamps in Shelton, CT. Our lamps are individually boxed and then packed in cases of 20 prior to shipment from Radium in Germany. We are a very small operation and sell only to a handful of specific customers. We generally possess 1,000 – 1,500 lamps with an annual sales volume of 10,000 lamps. We do not handle the lamps directly in anyway but merely store them prior to distribution to our customers. We utilize a state of the art purchasing, order processing and inventory tracking system. We account for every lamp that comes in and goes out via our system. We do monthly inventory counts and reconciliation and can provide all necessary reports.

We have also applied for an NRC Exempt Distribution License. Below is some additional information on the lamps we import, store and then distribute:

Details of construction and dimensions of the lamp

Please see attached drawings. I have included drawings of the lamp with socket, the burner and the arc tube. The lamp consist of the burner and socket (fixed with cement) only. There is no lamp body since there is no outer bulb.

REC'D IN LAT JUN 24 2008

142490  
NMSS/RCN1 MATERIALS-002

### Prototype Testing

After the filling process the lamp voltages of all lamps are monitored. A burner which is not inside the specification is regarded as a possible leaker and is discarded. After putting the socket on the burner all lamps are burnt in. A lamp passing this test is considered to be o.k. because a leaking lamp would not start up.

### Labelling

Please see attached copies of the labels used to identify our products. We currently indicate that our lamps contain Kr-85 on the individual box label, the case label and the user instructions included with each lamp. We are in the process of updating the actual lamp etch to include this information as well. Radium expects all future lamps produced as of May 1, 2008 to be etched with Kr-85. The only exception to the etching will be 400watt lamps #100915 and #100916. The ceramic base on these lamps is very small not allowing us the room necessary to add Kr-85.

### Measurements

The filling devices are controlled once a week. This is done by controlling the filling pressure of a burner which is actually being produced. The quantity of Kr-85 in the arc tube is a function of the specific activity of the filling gas and the volume of the arc tube. Each tank of the Argon-Krypton-85-mixture received from the supplier comes with a certification concerning the Krypton-85 concentration. The determining parameter for the volume with a given diameter is the pinching distance. This value is controlled twice every shift for each different type.

### Quality control

After pinching every burner is checked visually. Burners with cracks or channels in the pinch are discarded. After filling every burner is switched on and the lamp voltage is monitored. Burners not inside the specification are being destroyed. After putting the socket on every lamp is burnt in. Lamps failing this test are being destroyed. During continuous production period's life and reliability tests are performed on a regular basis, e.g. 3 lamps per type and day are tested for electrical parameters and UV-output.

### Measurement Certificate from the Kr-85 gas supplier

Attached are two documents from Osram showing a Kr-85 delivery and certificate.

### Amount of Gas in lamps

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.  $3.7 \times 10^{10}$  Bq equals 1 Ci.

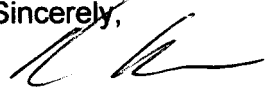
That means, that the Measured "activity" is an absolute number and is measured independent of the mass of the considered element.

In our quartz lamp it means:

In 1 liter of gas we have 50 microcurie. In 30 milliliters of gas we have  
 $30/1000 * 50 \text{ microcurie} = 1.5 \text{ microcurie}$ .

I believe I have enclosed all the necessary information. Should there be any additional information needed I will address it at once. Thank you for your assistance and time.

Sincerely,



Robert Klem  
Member  
Superior UV Technologies  
[robertk@superioruv.com](mailto:robertk@superioruv.com)

## NRC FORM 313

(10-2005)

10 CFR 30, 32, 33,  
34, 35, 36, 39, and 40

## U.S. NUCLEAR REGULATORY COMMISSION

## APPLICATION FOR MATERIALS LICENSE

APPROVED BY OMB: NO. 3150-0120

EXPIRES: 10/31/2008

Estimated burden per response to comply with this mandatory collection request: 4.4 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [infocollect@nrc.gov](mailto:infocollect@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0120), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

**INSTRUCTIONS:** SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY  
OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS  
U.S. NUCLEAR REGULATORY COMMISSION  
WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA,  
KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY,  
NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH  
CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA,  
SEND APPLICATIONS TO:

LICENSING ASSISTANCE TEAM  
DIVISION OF NUCLEAR MATERIALS SAFETY  
U.S. NUCLEAR REGULATORY COMMISSION, REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406-1415

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND  
APPLICATIONS TO:

MATERIALS LICENSING BRANCH  
U.S. NUCLEAR REGULATORY COMMISSION, REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, IL 60532-4352

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS,  
LOUISIANA, MISSISSIPPI, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH  
DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS,  
UTAH, WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING BRANCH  
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TX 76011-4005

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

1. THIS IS AN APPLICATION FOR (Check appropriate item)

- ☒ A. NEW LICENSE  
☐ B. AMENDMENT TO LICENSE NUMBER \_\_\_\_\_  
☐ C. RENEWAL OF LICENSE NUMBER \_\_\_\_\_

2. NAME AND MAILING ADDRESS OF APPLICANT (Include ZIP code)

Superior UV Technologies  
17 Centerview Drive  
Shelton, CT 06484

3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

17 Centerview Drive  
Shelton, CT 06484

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Robert Klem

TELEPHONE NUMBER

(917) 699-8739

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL

a. Element and mass number; b. chemical and/or physical form; and c. maximum amount  
which will be possessed at any one time.

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR  
TRAINING EXPERIENCE.

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.

9. FACILITIES AND EQUIPMENT.

10. RADIATION SAFETY PROGRAM.

11. WASTE MANAGEMENT.

12. LICENSE FEES (See 10 CFR 170 and Section 170.31)

FEE CATEGORY

3B

AMOUNT  
ENCLOSED

\$4,600

13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 38, 39, AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

CERTIFYING OFFICER - TYPED/PRINTED NAME AND TITLE

Robert Klem, Member

SIGNATURE



DATE

5/23/08

## FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
			\$		
APPROVED BY				DATE	

NRC FORM 313  
QUESTIONS 5-11  
Superior UV Technologies

5.     a) Krypton 85  
       b) Gaseous in sealed sources  
       c) Max amount per lamp: 4 440Bq (=0.120 Microcurie)  
           No more then 3000 lamps
6.     Gas filling of UV Tanning lamps to be sold and distributed.
7.     Robert Klem  
       I have been to Radium in Germany to learn first hand about the proper handling, packaging and storage of the lamps.
8.     We are a very small company and do not have or ever expect to have any employees.
9.     Our facilities consist of a basement with work benches to store the lamps. Our inventory consists of 1,000 to 2,000 pieces. They are individually boxed and stored in cases of 20 on a wooden work bench. Our total inventory at any given time can fit on a 3' deep and 10' long workbench. We utilize no specific equipment besides a tape gun to over-pack our lamps prior to shipment.
10.    We do not have a formal Radiation Safety Program. We do not handle the lamps directly. They are individually packaged and then packed in cases in our factory Radium in Germany prior to shipment to the US. We do not repackage the individual lamps or handle them directly in anyway. We process an average of two orders a day which consists of taking the pre packaged lamps and placing them in a UPS approved shipping box along with proper packaging material.
11.    We do not generate any waste besides some cardboard boxes which are recycled. We do receive approximately ten lamps back annually from customers consisting of lamps that did not light. These lamps are collected and stored in their original packaging until they are returned back to Germany. We have contacted Northeast Lamp Recycling out of East Windsor, CT if the need arises for lamp disposal. They are licensed to recycle HID (mercury vapor – high pressure) lamps.

**Superior UV Technologies**  
**Inventory Unit Activity Report**  
**For the Period From May 1, 2008 to May 31, 2008**

Filter Criteria includes: 1) IDs from BSEQ1000W/230V/PI to BSEQ800W/230V/CI; 2) Active Items; 3) Stock/Assembly. Report order is by ID. Report is printed with Truncated Long Descriptions.

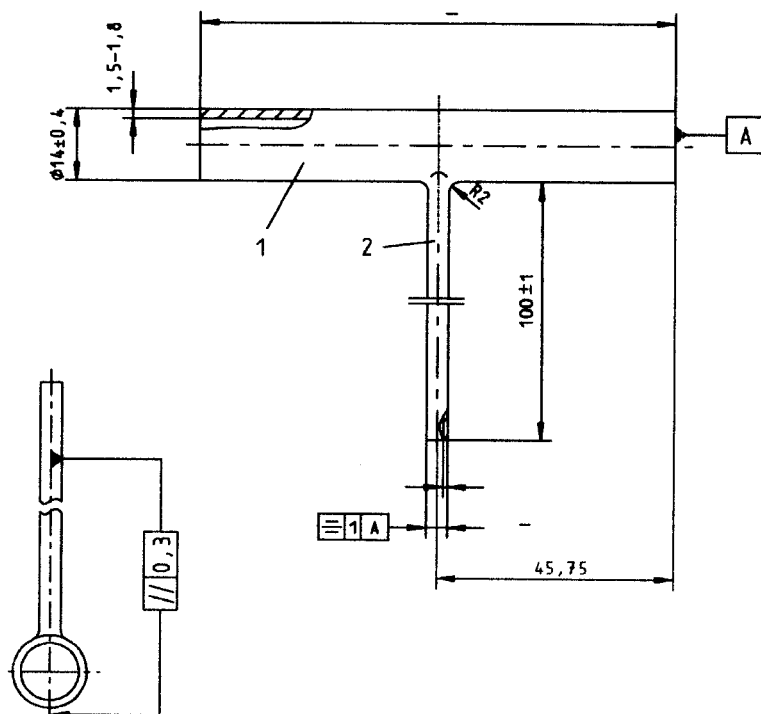
Item ID Item Description	UPC / SK	Beg Qty	Units Sol	Units Purc	Qty on Han
BSEQ1000W/230V/PI SEQ 800-1000WATT PLUG-IN	100925	49.00	82.00	74.00	41.00
BSEQ1000W/230V/SB SEQ 1000WATT STEP BASE	100928	1.00	2.00	50.00	49.00
BSEQ1000W/230V/WL SEQ 800-1000WATT WIRE LEA	100926	23.00	28.00	25.00	20.00
BSEQ1000W/380V/WL SEQ 1000WATT WIRE LEAD	100927	64.00		50.00	114.00
BSEQ1510W/230V/BL SEQ 1510WATT BLADE	100929	15.00	2.00		13.00
BSEQ1530W/230V/PN SEQ 1530WATT PIN	100930	20.00	7.00		13.00
BSEQ2000W/230V/WL SEQ 2000WATT 230V WIRE LEA	100931	5.00			5.00
BSEQ2000W/380V/WL SEQ 2000WATT 380VOLT WIRE	100932a	21.00			21.00
BSEQ2000W/380V/XL SEQ 1000WATT XL WIRE LEAD	100932b	10.00			10.00
BSEQ400-500W/230V/CI SEQ 400-500WATT CLIP-IN	100915	112.00	3.00		109.00
BSEQ400-500W/230V/WL SEQ 400-500WATT WIRELEAD	100916	37.00	7.00		30.00
BSEQ500W/230V/PI SEQ 300-500WATT PLUG-IN	100917	78.00	33.00		45.00
BSEQ600W/230V/WL SEQ 600WATT 230V WIRE LEA	100922a	12.01			12.01
BSEQ610W/230V/BL SEQ 610WATT BLADE	100918	35.00	16.00		19.00
BSEQ620W/230V/SB SEQ 620WATT STEP BASE	100920	4.00		40.00	44.00
BSEQ630W/230V/PN SEQ 630WATT PIN	100919	15.00	33.00	20.00	2.00
BSEQ650W/230V/PI SEQ 650WATT PLUG-IN	100921	40.00	1.00	20.00	59.00
BSEQ650W/230V/WL SEQ 650WATT WIRE LEAD	100922b	20.00	20.00		
BSEQ700W/230V/PI SEQ 700WATT 230V PLUG-IN	100923	13.00			13.00
BSEQ800W/230V/CI SEQ 800WATT 230V CLIP-IN	100924	6.00	6.00		
			<b>240.00</b>	<b>279.00</b>	

*Sample  
Report*

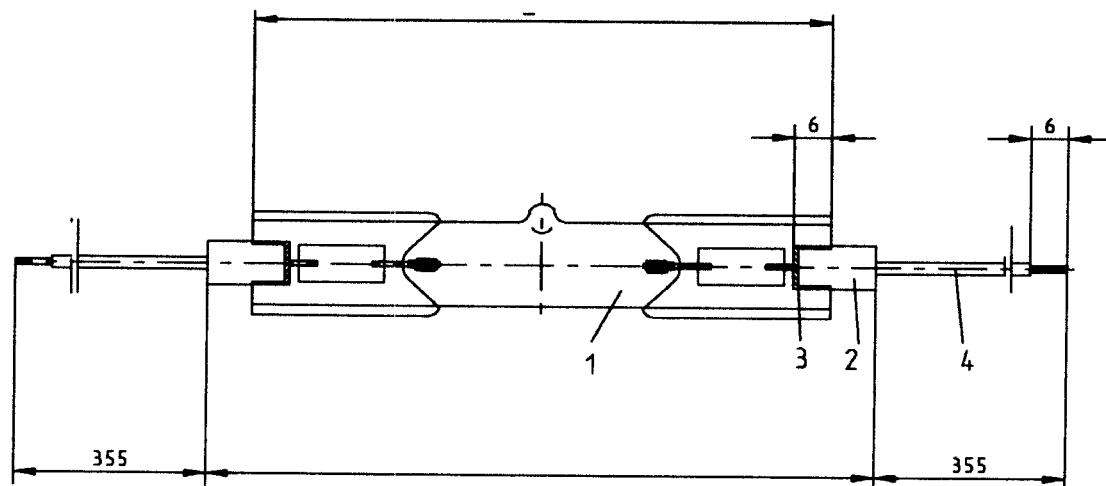
## Solar Elements #100915 & #100916

# Radium

The diagrams below represent a typical arc tube, quartz burner and lamp with socket. The lamp depicted is Solar Elements model #100915 (R7s sockets) or Solar Elements model #100916 (wire leads).

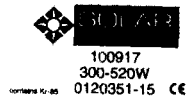


All dimensions shown in millimeters



- 1 – Filling containing Kr-85
- 2 – Ceramic socket
- 3 – Cement to glue the ceramic socket to the quartz arc pinching
- 4 – Wire lead (#100916 only)

Box label





**20 Pieces**



**100917**

**300-520 W**

**0120351-15**

**Made in Germany**

**contains Kr-85**

**CE**

**323 17281**

**20 Pieces**



**100917**

**300-520 W**

**0120351-15**

**Made in Germany**

**contains Kr-85**

**CE**

**323 17281**

Case  
label

**20 Pieces**



**100917**

**300-520 W**

**0120351-15**

**Made in Germany**

**contains Kr-85**

**CE**

**323 17281**

**20 Pieces**



**100917**

**300-520 W**

**0120351-15**

**Made in Germany**

**contains Kr-85**

**CE**

**323 17281**

**20 Pieces**



**100917**

**300-520 W**

**0120351-15**

**Made in Germany**

**contains Kr-85**

**CE**

**323 17281**

**20 Pieces**



**100917**

**300-520 W**

**0120351-15**

**Made in Germany**

**contains Kr-85**

**CE**

**323 17281**

# USER INSTRUCTIONS FOR ULTRAVIOLET TANNING LAMPS

**Sunlamp - DANGER - Ultraviolet Radiation.  
Follow Instructions**

Avoid overexposure. As with natural sunlight, overexposure can cause eye and skin injury and allergic reactions. Repeated exposure may cause premature aging of the skin and skin cancer.

**WEAR PROTECTIVE EYEWEAR; FAILURE TO DO SO MAY RESULT IN SEVERE BURNS OR LONG-TERM INJURY TO THE EYES.**

Medications or cosmetics may increase your sensitivity to the ultraviolet radiation. Consult physician before using sunlamp if you are using medications or have a history of skin problems or believe yourself especially sensitive to sunlight. If you do not tan in the sun, you are unlikely to tan from the use of this product."

**Use ONLY in fixture equipped with a timer.**

**Use ONLY in fixture equipped with an appropriate protective filter.**

Always follow the instructions accompanying the sunlamp equipment to minimize potential injury. Use only with products where this lamp is specified as replacement or original equipment by the sunlamp product manufacturer.

The lamp operates at an overpressure so that the possibility of an explosion cannot be entirely excluded.

The quartz bulb should be free from contaminations such as fingerprints.

Contamination may be removed with methylated spirit.

The manufacturer cannot accept any responsibility for personal injury or damage to equipment which may result from improper use of the lamp or from using improper equipment.

This product is in conformity with the performance standards for sunlamp products under 21 CFR 1040.20

Imported by Superior UV Technologies (888) 526-7712

contains Kr-85



Made in Germany  
10233689

# Lieferschein

DE



Auslieferung: 302039210 Auftrag: 201913937

Bestelldatum: 22.03.2007

Datum: 02.04.2007 Kunde: 1014249

Bestellnr.: 640321

**Lieferanschrift:**

RADIUM  
LAMPENWERK GMBH  
DR.-E.-KERSTING-STR.6  
D-51688 WIPPERFUERTH

**Rechnungsanschrift:**

RADIUM  
LAMPENWERK GMBH  
DR.-E.-KERSTING-STR.6  
D-51678 WIPPERFUERTH

Die mit "AL" ungleich "N" gekennzeichneten Güter unterliegen bei der Ausfuhr aus der EU der europäischen bzw. deutschen Ausfuhrgenehmigungspflicht. Die mit "ECCN" ungleich "N" gekennzeichneten Güter unterliegen der US-Reexportgenehmigungspflicht. Auch ohne Kennzeichen, bzw. bei Kennzeichen "AL:N" oder "ECCN:N" kann sich eine Genehmigungspflicht, unter anderem durch den Endverbleib und Verwendungszweck der Güter, ergeben. Alle unsere Lieferungen stehen unter dem Vorbehalt der Beachtung der OSRAM-Exportkontroll-Klausel. Diese kann vom Kunden eingesehen werden unter [http://www.osram.de/pdf/service\\_corner/exportkontroll-klausel.pdf](http://www.osram.de/pdf/service_corner/exportkontroll-klausel.pdf)

Pos.	Menge	ME	Materialnummer Kundenartikelnummer	Bezeichnung Gefahrguthinweise	Charge	Auftragsnummer / Pos. Bestellnummer AL-Nr. ECCN	Nettogewicht KG Bruttogewicht KG
10	646	L	B4680098XX12 AR+0,05MCI KR85/L			201913937 / 000010 640321 N N	1,078 14,110

Nettogew. : 1,078 KG	Colli pro	Spediteur:	Lieferbedingungen:	Versandstelle:
Bruttogew. : 14,110 KG	Sendung: 3	Trans-o-Flex GmbH & Co. KG	DDU	0801
Volumen : 0,034 M3		Versandart: Speditionssammelgut	Gepackt durch: Wipperfürth	

Ansprechpartner: Tel. (030) 3386 2607 Fax (030) 3386 2605 E-mail J.Philipp@osram.de

VAT-nr. DE811148275 WEEE-Nr. 71568000

Seite 1

Briefadresse: OSRAM GmbH Nonnendammallee 44 D-13629 BERLIN	Hausadresse: OSRAM GmbH Nonnendammallee 44 D-13629 BERLIN	OSRAM-Gesellschaft mit beschränkter Haftung München Vorsitzender des Aufsichtsrates Jürgen Radomski	Geschäftsführung: Martin Goetzeler, Vorsitzender Kurt Gerl Johannes Närgen Claus Regitz	Registergericht: München HRB 4151
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**RADIOACTIVE MATERIAL**  
**N.O.S.**

**UN 2915**

Absender: OSRAM GmbH  
Nonnendammallee 44-61  
13629 Berlin

Empfänger: RADIUM GmbH  
Dr.Eugen-Kersting-Str.6  
51688 Wipperfürth

Lieferschein: 070031174013

Gasgemisch: 100% Ar + 0,05 mCi Kr<sup>85</sup>U

SN: B 4680098 XX 12

Fl. Inhalt: 210,- l

Fl. Nummer: 3100

Fl. Druck: 104,- bar

Brutto Gewicht: 4,35 KG

Herstelldatum: 28.3.07

This is to acknowledge the receipt of your letter/application dated

5/23/08, and to inform you that the initial processing which includes an administrative review has been performed.

☒ New License Application (03037784)  
There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

☐ Please provide to this office within 30 days of your receipt of this card

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned **Mail Control Number** 142490.  
When calling to inquire about this action, please refer to this control number.  
You may call us on (610) 337-5398, or 337-5260.