SAFETY DATA SHEET
Metal Halide Lamps

SYLVANIA brand Metal Halide Lamps, manufactured by LEDVANCE, LLC, are exempted from the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) because they are "articles." The following information is provided by LEDVANCE, LLC as a courtesy to its customers.

I. IDENTIFICATION

Trade Name (as labeled): **SYLVANIA Metalarc® and Metalarc Pro-Tech® Lamps, SYLVANIA Metalarc® POWERBALL®, and SYLVANIA ceramic metal halide lamps for general lighting purposes**

This data sheet covers the following general lighting metal halide lamp types: Ceramic metal halide lamps and quartz medium-based and mogul-based lamps.

Manufacturer:
OSRAM de Mexico S.A. de C.V.
950 Joule Street, Industrial Park
A.J. Bermudes, C.P. 32470
Cd. Juarez, Chihuahua, Mexico

LEDVANCE LLC
200 Ballardvale Street
Wilmington, MA 01887

Emergency Contact: EH&S Specialist 978-570-3000

II. HAZARD IDENTIFCATION



Warning!

THERE ARE NO KNOWN HEALTH HAZARDS FROM EXPOSURE TO LAMPS THAT ARE INTACT.

Warning! Rupture risks: Metal Halide lamps can be constructed of an outer glass bulb with an internal arc-tube. Metal Halide arc-tubes operate at high pressure and at very high temperatures and can unexpectedly rupture due to internal causes or external factors such as a ballast failure or misapplication. An arc-tube rupture can burst and shatter the outer glass bulb resulting in the discharge of glass fragments and extremely hot particles. In the event of such rupture, **there is a risk of personal injury, property damage, burns and fire.**

To reduce these risks:

- Only operate with compatible ballast and fixture. (See catalog for specific information.)
- Only operate lamp in designated operating positions. (See catalog for illustration.)
- Never expose operating lamp to moisture (such as rain, sleet or snow).
- Replace lamp if outer glass bulb is scratched, cracked or damaged in any way.
- Electrically insulate any metal support in contact with the outer glass bulb to avoid glass decomposition.
- Replace lamp at or before the end of rated life. (See catalog for rated life.)

For applications where an additional measure of safety is desired, lamps using an internal shield designed to contain an arc-tube rupture are available.

Warning! Electrical shock and burn hazard: Do not remove or insert lamp while power is on. If outer glass bulb is broken, shut off power immediately and remove lamp after it has cooled.

Warning! Ultraviolet radiation exposure: This lamp can cause serious skin burn and eye inflammation from shortwave ultraviolet radiation if the outer envelope of the lamp is broken or punctured. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available. This product conforms to the following federal regulations**:** U.S.A.: 21 CFR 1040.30 and CANADA: SOR/80-381.

Immediately shut power off and replace lamp. If the outer jacket is broken and the lamp continues to operate, ultraviolet radiation may be emitted which may cause skin and eye irritation with prolonged exposure.

If irritation persists: get medical attention.

Do not handle until all safety precautions have been read and understood. Care must be taken to read and follow the directions and warnings accompanying the specific product to avoid personal injury and/or property damage.

Storage: Store in well-ventilated place.

Consult the SYLVANIA product catalog or relevant technical data sheets for complete warnings, operating and installation guides for specific lamp types.

III. COMPOSITION – INFORMATION ON INGREDIENTS

There are no known health hazards from exposure to lamps that are intact.

Materials listed on this data sheet are contained in varying percentages in this product. Exact percentages are proprietary and will not be disclosed other than as required in accordance with the regulations. If a lamp is broken, some of the following materials may be released:

Chemical Name	CAS Number	% by wt.
Quartz, fused	60676-86-0	0-30
(1, 2) Mercury	7439-97-6	<0.1
Aluminum Oxide	1344-28-1	0-<0.03
Thallium Iodide	7790-30-9	<0.002
Glass (Borosilicate)	---	50-86
Barium Peroxide	1304-29-6	0-<0.6
Yttrium Vanadate	13566-12-6	0-<0.5

(1) These chemicals are subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.
(2) The mercury in this product is a substance known to the state of California to cause reproductive toxicity if ingested. [California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).]

***NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards* and/or *NIOSH Pocket Guide to Chemical Hazards* lists the following effects of overexposure to the chemicals/materials tabulated below when they are inhaled, ingested, or contacted with skin or eye:**

Glass - Glass dust is considered to be physiologically inert and as such has an OSHA exposure limit of 15 mg/M3 for total dust and 5 mg/M3 for respirable dust. The ACGIH TLVs for particulates not otherwise classified are 10 mg/M3 for total dust and 3 mg/M3 for respirable dust.

Quartz, Fused - Fibrosis of the lungs causing shortness of breath and coughing has been associated with silica exposure.

Mercury - Exposure to high concentrations of vapors for brief periods can cause acute symptoms such as pneumonitis, chest pains, shortness of breath, coughing, gingivitis, salivation and possibly stomatitis. May cause redness and irritation as a result of contact with skin and/or eyes.

Barium Peroide – May be fatal if swallowed. Harmful dust. Avoid skin and eye contact.

Yttrium Vanadate – Inhalation of vanadium compounds can cause irritation of the nose, throat and respiratory tract. Eye contact and prolonged, repeated skin contact may also cause irritation. Studies of workers exposed to this material showed no evidence of chronic or systemic effects.

Aluminum Oxide (Alumina) - Alumina is a non-toxic material which is very low in free silica content. Sharp edged particles can irritate the eyes, perhaps the skin, and definitely the mucous membranes of the respiratory tract.

All other components of this product do not pose a significant risk of respiratory and/or physical effects.

IV. EMERGENCY AND FIRST AID PROCEDURES:

Glass Cuts: Perform normal first aid procedures. Seek medical attention as required.
Inhalation: If discomfort or irritation to the nose and throat develop, remove from exposure and seek medical attention as needed. If breathing has stopped, perform artificial respiration; keep affected person warm and at rest; get medical attention as soon as possible.
Ingestion: In the unlikely event of ingesting a large quantity of material, seek medical attention immediately.
Contact, Skin: Thoroughly wash affected area with mild soap or detergent and water and prevent further contact. Seek medical attention as needed.

Contact, Eye: Wash eyes, including under eyelids, immediately with copious amounts of water for 15 minutes. Seek medical attention.

V. FIRE-FIGHTING MEASURES:

Flammability: Non-combustible
Fire Extinguishing Materials: Use extinguishing agents suitable for surrounding fire.
Special Firefighting Procedure: Use a self-contained breathing apparatus to prevent inhalation of dust and/or fumes that may be generated from broken lamps during firefighting activities.
Unusual Fire and Explosion Hazards: When exposed to high temperature, toxic fumes may be released from broken lamps.

VI. ACCIDENTAL RELEASE MEASURES:

ONLY APPLICABLE FOR BROKEN LAMPS

Ventilation: Use adequate general and local exhaust ventilation to maintain exposure levels below the PEL or TLV limits. If such ventilation is unavailable, use respirators as specified below.
Respiratory protection: Use appropriate NIOSH approved respirator if airborne dust concentrations exceed the pertinent PEL or TLV limits. All appropriate requirements set forth in 29 CFR 1910.134 should be met.
Eye protection: OSHA specified safety glasses, goggles or face shield are recommended if lamps are being broken.
Protective clothing: OSHA specified cut and puncture-resistant gloves are recommended for dealing with broken lamps.
Hygienic practices: After handling broken lamps, wash hands and face thoroughly before eating, drinking, smoking or handling tobacco products, applying cosmetics, or using toilet facilities.

VII. SPECIAL HANDLING INFORMATION - FOR BROKEN LAMPS

ONLY APPLICABLE FOR BROKEN LAMPS

BROKEN ARC-TUBE: Take care in handling and disposing of this lamp. **If arc-tube is broken, avoid skin contact with any of the contents and fragments.**

Ventilation: Use adequate general and local exhaust ventilation to maintain exposure levels below the PEL or TLV limits. If such ventilation is unavailable, use respirators as specified below.
Respiratory Protection: Use appropriate NIOSH approved respirator if airborne dust concentrations exceed the pertinent PEL or TLV limits. All appropriate requirements set forth in 29 CFR 1910.134 should be met.
Eye Protection: OSHA specified safety glasses, goggles or face shield are recommended if lamps are being broken. To avoid exposure to ultraviolet radiation, use only in enclosed equipment designed for this lamp type.
Protective Clothing: OSHA specified cut and puncture-resistant gloves are recommended for dealing with broken lamps.
Hygienic Practices: After handling broken lamps, wash thoroughly before eating, smoking or handling tobacco products, applying cosmetics, or using toilet facilities.
Storage Instructions: Store in well-ventilated place.

VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Threshold Value Limits:

Chemical Name	CAS Number	Exposure Limits in Air (mg/cubic m)	
		ACGIH (TLV)	OSHA (PEL)

Quartz, fused	60676-86-0	0.1 Resp Dust	0.1
(1, 2) Mercury	7439-97-6	0.025	0.1 Ceiling
Aluminum Oxide	1344-28-1	10.0 (3)	15.0 (3)
Thallium Iodide	7790-30-9	0.1 Skin	<10.1
Glass (Borosilicate)	---	10.0 (3)	15.0 (3)
Barium Peroxide	1304-29-6	0.5	---
Yttrium Vanadate	13566-12-6	1.0	1.0

(1) These chemicals are subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.
(2) The mercury in this product is a substance known to the state of California to cause reproductive toxicity if ingested. [California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).]
(3) Limits as nuisance particulate.

Personal Protective Equiment: OSHA specified cut and puncture-resistant gloves are recommended for dealing with broken lamps.
Eye Protection: OSHA specified safety glasses, goggles or face shield are recommended if lamps are being broken.
Skin Protection: After handling broken lamps, wash hands and face thoroughly before eating, drinking, smoking or handling tobacco products, applying cosmetics, or using toilet facilities.
Respitory Protection: Use appropriate NIOSH approved respirator if airborne dust concentrations exceed the pertinent PEL or TLV limits. All appropriate requirements set forth in 29 CFR 1910.134 should be met.

VIV. PHYSICAL AND CHEMICAL PROPERTIES

NOT APPLICABLE FOR LAMPS

X. STABILITY AND REACTIVITY

NOT APPLICABLE FOR LAMPS

XI. TOXICOLOGICAL INFORMATION

THERE ARE NO KNOWN HEALTH HAZARDS FROM EXPOSURE TO LAMPS THAT ARE INTACT. No adverse effects are expected from occasional exposure to broken lamps. As a matter of good practice, avoid prolonged or frequent exposure to broken lamps unless there is adequate ventilation. The major hazard from broken lamps is the possibility of sustaining glass cuts.

XII. ECOLOGICAL INFORMATION

XIII. DISPOSAL CONSIDERATIONS

LEDVANCE, LLC recommends that all mercury-containing lamps be recycled. For a list of lamp recyclers and to obtain state regulatory disposal information, call 1-866-666-6850 or log onto www.lamprecycle.org.

If lamps are broken, ventilate area where breakage occurred. Clean-up with mercury vacuum cleaner or other suitable means that avoids dust and mercury vapor generation. Take usual precautions for collection of broken glass. Place materials in closed containers to avoid generating dust and mercury vapor.

It is the responsibility of the waste generator to ensure proper classification and disposal of waste products. To that end, TCLP tests should be conducted on all waste products, including this one, to determine the ultimate disposition in accordance with applicable federal, state and local regulations.

Lamps that pass the EPA's TCLP test are considered non-hazardous waste in most states. Always review your local and state regulations which can vary. Based upon the NEMA* Standard LL 3 (Procedures for High Intensity Discharge Lamp Sample Preparation and the TCLP) testing protocol, ECOLOGIC® lamps, marked "ECO," pass the TCLP test.

*NEMA (National Electrical Manufacturers Association) standard may be obtained from NEMA, 1300 North 17th Street, Suite 900, Arlington, VA 22209.

XVI. TRANSPORTATION INFORMATION

Shipments of these lamps, if levels of contained hazmat materials reach defined thresholds, will be subject to Dangerous Goods regulations for ground, air or sea shipments. Shippers are required to have DOT 49CFR training for ground shipments, IATA for air and IMDG training for sea shipments.

These lamps meet the general dangerous goods criteria for exception from requirements issued with internationally adopted UN Recommendations on the Transport of Dangerous Goods (Rev. 18) subsection 1.1.1.9 "Lamps containing dangerous goods". The quantity of dangerous goods contained in a single lamp is far below 1 g, retail packages of LEDVANCE do not exceed the regulatory limit value of 30 g for solids.

Mode of transport	*Mercury per package > 30 g*	*Activity per consignment > 10 000 Bq*	*Dangerous Goods Regulation (DGR)* *For radionuclides in lamps, higher thresholds may apply. Classification*	*Proper Shipping Name*
Ground Sea	Not relevant	No	DGR Special Provision 366	Not subject to dangerous goods regulation.
		Yes	Class 7, UN2911	Radioactive material, excepted package – articles
Air	No	No	IATA-DGR 1.2.11	Not subject to dangerous goods regulation.
	Yes	No	Class 8, UN3506	Mercury contained in manufactured articles
	No	Yes	Class 7, UN2911	Radioactive material, excepted package – articles
	Yes	Yes	Class 8, UN3506	Mercury contained in manufactured articles, Radioactive material, excepted package – articles

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XVII. REGULATORY INFORMATION

Although LEDVANCE, LLC attempts to provide current and accurate information herein, it makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage or injury of any kind which may result from, or arise out of, the use of/or reliance on the information by any person.

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In case of questions please call: EH&S Specialist 978-570-3000

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