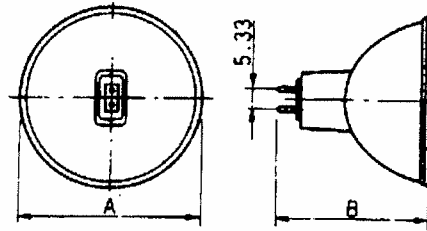


Dichroic Reflector Lamps — 51mm diameter (MR16)



Color Temperature : 3000K
Average Life : 3000 hours

ANSI/UK Code	Volts	Watts	A (max) (mm)	B (max) (mm)	Intensity (cd)	Filament type	Base	Approx. Beam Angle
ESX M68	12V	20W	51	46	4100	C8	GU5.3	12°
BBF M94	12V	20W	51	46	1500	C6/C8	GU5.3	24°
BAB M69	12V	20W	51	46	700	C6/C8	GU5.3	36°
FMT ---	12V	35W	51	46	7000	C8	GU5.3	12°
FRA M70	12V	35W	51	46	3500	C6/C8	GU5.3	23°
FMW M81	12V	35W	51	46	1250	C6/C8	GU5.3	36°
EXT M49	12V	50W	51	46	10000	C8	GU5.3	13°
EXZ M50	12V	50W	51	46	4400	C6/C8	GU5.3	24°
EXN M58	12V	50W	51	46	1700	C6/C8	GU5.3	38°
FNV M80	12V	50W	51	46	1000	C6/C8	GU5.3	60°
EYF M60	12V	75W	51	46	15000	C8	GU5.3	14°
EYC M61	12V	75W	51	46	2950	C6/C8	GU5.3	38°

- Available with open front or glass covered versions
- Other wattages available, e.g. **10W, 42W and 65W**
- Other voltages available, e.g. **6V, 14V, 24V and 28V**
- Different reflector patterns available

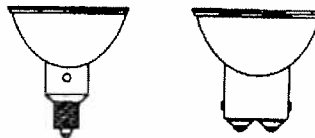


In compliance with IEC 598 (applies to European Standard EN60598)
Lamp capsules with low-pressure gas filling and covered versions can be used in open fixtures



UV-STOP quartz capsule available on request

- Other base types available, e.g. **E11, Ba15d**



Long life versions with glass cover in same physical and optical data available with Xenon-Halogen technology :

SUPER 5K
ULTRA 10K

5,000 hours
10,000 hours

PRODUCT SAFETY DATA SHEET
PSDS No. 1.1
FLUORESCENT LAMPS

PIN 550

OSRAM
SYLVANIA



Sylvania brand Fluorescent Lamps, manufactured by OSRAM / OSRAM SYLVANIA, 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 OSRAM SYLVANIA as a courtesy to its customers.

I. PRODUCT IDENTIFICATION

Trade Name: **Sylvania Fluorescent Lamps**

- This data sheet covers Sylvania linear "White" (Cool White, Warm White, Daylight, etc; 700, 800, 900 series triphosphor) standard, "Sylvania ECO" brand, and Safeline®Ⓞ linear, T12 & Octron Curvalume® (6" spacing), and T9 Circline fluorescent lamps for general lighting.
- This data sheet does **not** cover compact fluorescentⓄ, PentronⓄ (T5), plant, aquarium/vivarium, photocopy, germicidal, blacklight, or any colored or other special application fluorescent lamps.
- ⓄSafeline lamps are encased in a Polyethylene Terephthalate (PET) heat shrinkable tubing manufactured by EncapSulite International Inc., Stafford, TX.
- ⓄSee PSDS No. 1.1.5 for Compact Fluorescent Lamps.
- ⓄSee PSDS No. 1.1.8 for Pentron Fluorescent Lamps.

Manufacturer: **OSRAM SYLVANIA**

100 Endicott Street
 Danvers, MA 01923

Phone: (978) 777-1900

II. HAZARDOUS INGREDIENTS:

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

If the lamp is broken, the following materials may be released:

Chemical Name	CAS Number	% by Wt.	Exposure Limits in Air (mg/M ³)	
			ACGIH (TLV)	OSHA (PEL)
Glass (soda-lime)	----	75-95	10 ⁽²⁾	15 ⁽²⁾
Mercury ^(1,4)	7439-97-6	0.002-0.02	0.025	0.1 Ceiling
Lead Oxide ^(1,3,4)	1317-36-8	0.2-2.0	0.05	0.05
Aluminum Oxide	001-344-281	0-2.0	10 ⁽²⁾	15 ⁽²⁾
Fluorescent Phosphor and cathodes may contain:	----	0.5-3.0	10 ⁽²⁾	15 ⁽²⁾
Fluoride (as F)	----	0-0.1	2.5	2.5
Manganese ⁽³⁾ (as dust)	7439-96-5	0-0.1	0.2	5.0 Ceiling
Tin ⁽³⁾ (as dust)	7440-31-5	0-0.1	2.0	2.0
Yttrium ⁽³⁾ (as dust)	7440-65-5	0-0.5	1.0	1.0
Barium ⁽³⁾ (as dust)	7440-39-3	<0.1	0.5	0.5
Tungsten ⁽³⁾ (as dust)	7440-33-7	<0.1	1	15 ⁽²⁾
Strontium ⁽³⁾ (as dust)	7440-24-6	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Magnesium ⁽³⁾ (as dust)	7439-95-4	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Calcium ⁽³⁾ (as dust)	----	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Antimony ⁽³⁾ (as dust)	7440-36-0	0-0.1	0.5	0.5
Zinc ⁽³⁾ (as dust)	7440-66-6	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Europium ⁽³⁾ (as dust)	7440-53-1	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Cerium ⁽³⁾ (as dust)	7440-45-1	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Lanthanum ⁽³⁾ (as dust)	7439-91-0	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Terbium ⁽³⁾ (as dust)	7440-27-9	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Aluminum ⁽³⁾ (as dust)	7429-90-5	0-0.1	10 ⁽²⁾	15 ⁽²⁾
6" Curvalume® U-shaped Lamps contain a center support strap consisting of all, or a portion of the following:	----	~02.9	Within permissible exposure limits	
Carbonic Acid, Polymer with 4,4'-(1-methylethylidene) bis (2,6-dibromophenol) and 4,4'-(1-methylethylidene) bis [phenol]	32844-27-2			
Fiber Glass	1333-86-4			
Titanium Dioxide	13463-67-7			

- (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) Limits as nuisance particulate.
- (3) These elements are contained in the material as part of its chemical structure; the material is not a mixture.
- (4) The mercury and lead in this product are substances known to the state of California to cause reproductive toxicity if ingested. [California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).]

III. PHYSICAL PROPERTIES : Not applicable to intact lamp.

IV. FIRE & EXPLOSION HAZARDS

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.

V. HEALTH HAZARDS

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.

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:

Mercury - Contact, inhalation, or ingestion may cause one or more of the following symptoms: eye irritation, skin irritation, cough, chest pain, dyspnea, bronchitis, pneumonitis, tremor, insomnia, irritability, indecision, headache, fatigue, weakness, stomatitis, salivation, GI tract disturbance, anorexia, weight loss, and proteinuria.

Lead - Contact, ingestion, or inhalation may cause one or more of the following symptoms: weakness, lassitude, insomnia, facial palor, pal eye, anorexia, weight loss, malnutrition, constipation, abdominal pain, colic, anemia, gingival lead line, tremor, wrist paralysis, ankles paralysis, encephalopathy, kidney disease, eye irritation, and hypotension.

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.

Tin - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, skin irritation, and respiratory system irritation.

Manganese - Contact, ingestion, or inhalation may cause one or more of the following symptoms: Parkinson's, asthenia, insomnia, mental confusion, metal fume fever, dry throat, cough, chest tightness, dyspnea, rales, flu-like fever, low-back pain, vomiting, malaise, fatigue, and kidney damage.

Fluoride - Fluoride-containing dust may cause irritation of the eyes and respiratory tract. Swallowing fluoride may cause a salty or soapy taste, vomiting, abdominal pain, diarrhea, shortness of breath, difficulty in speaking, thirst, weakness of the pulse, disturbed color vision, muscular weakness, convulsions, loss of consciousness, and death. Kidney injury and bleeding from the stomach may occur. Repeated exposure to fluoride may cause excessive calcification of the bone and calcification of ligaments of the ribs, pelvis, and spinal column. Stiffness and limitation of motion may result. Repeated or prolonged exposure of the skin to fluoride-containing dust may cause a skin rash.

Aluminum Oxide (Alumina) - Alumina is a non-toxic material. Sharp-edged particles can irritate the eyes, skin, and respiratory system.

Phosphor - Phosphor dust is considered to be physiologically inert and as such has an OSHA exposure limit of 15 mg/cubic meter for total dust and 5 mg/cubic meter for respirable dust.

Yttrium - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, pulmonary irritation, and possible liver damage.

Barium (soluble compounds) - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, skin irritation, upper respiratory system irritation, skin burns, gastroenteritis, muscle spasm, slow pulse, extrasystole, and hypokalemia.

Tungsten - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, respiratory system irritation, diffuse pulmonary fibrosis, loss of appetite, nausea, cough, and blood changes.

Antimony - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, skin irritation, nose irritation, throat irritation, mouth irritation, cough, dizziness, headache, nausea, vomiting, diarrhea, stomach cramps, insomnia, anorexia, and unable to smell properly.

V. HEALTH HAZARDS (Continued)

EMERGENCY AND FIRST AID PROCEDURES

Glass Cuts: Perform normal first aid procedures. Seek medical attention as required.

Inhalation: If discomfort, irritation or symptoms of pulmonary involvement develop, remove from exposure and seek medical attention.

Ingestion: In the unlikely event of ingestion of a large quantity of material, seek medical attention.

Contact, Skin: Thoroughly wash affected area with mild soap or detergent and water and prevent further contact. Seek medical attention if irritation occurs.

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

CARCINOGENIC ASSESSMENT (NTP ANNUAL REPORT, IARC MONOGRAPHS, OTHER): None

VI. REACTIVITY DATA

Stability: Stable

Conditions to avoid: None for intact lamps.

Incompatibility (materials to avoid): None for intact lamps.

Hazardous Decomposition Products (including combustion products): None for intact lamps.

Hazardous Polymerization Products: Will not occur.

VII. PROCEDURES FOR DISPOSAL OF LAMPS

OSRAM SYLVANIA recommends that all mercury-containing lamps be recycled. For a list of lamp recyclers and to obtain state regulatory disposal information, log onto www.lamprecycle.org.

If lamps are broken, ventilate area where breakage occurred. Clean-up with a special mercury vacuum cleaner (not a standard vacuum cleaner) or other suitable means that avoids dust and mercury vapor generation. Take usual precautions for collection of broken glass. Clean-up requires special care due to mercury droplet proliferation. Place materials in closed containers to avoid generating dust.

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. Some states have specific disposal requirements for lamps containing mercury.

Lamps which 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 1 (*Procedures for Linear Fluorescent 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 1847, Rosslyn, VA 22209.

VIII. SPECIAL HANDLING INFORMATION - 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, smoking or handling tobacco products, applying cosmetics, or using toilet facilities.

Although OSRAM SYLVANIA Products Inc. 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:
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Product Safety Engineer
(978) 777-1900