

**PHILIPS**

Product Safety Data Sheet
Ultra High Performance (UHP™) Lamp

UHP lamps (High Pressure Mercury Discharge Lamps), manufactured by Philips Lighting, 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 Philips Lighting as courtesy to its customers.

1. Identification of the Product and of the Company / Undertaking

Product Name ; UHP™ lamp
 Product Type ; High Intensity Mercury Discharge Lamp
 Product Uses ; UHP lamp is operated with an electronic lamp driver in projection devices
 Manufacturer ; Philips Lighting, BU UHP Lighting Solutions
 p/a Philips Innovative Applications NV,
 Steenweg op Gierle 417. B-2300 Belgium

2. Composition/Information on Substances used in product

For lamps that are intact, no health hazards are known related to exposure to the lamp.

A UHP™ lamp can be subdivided roughly in a bulb and reflector parts (reflector, (possibly) front glass, silicon kit, side contacts etc.). The following information relates to the arc-tube portion of the bulb only, and does not include materials used in the reflector or base. If the bulb is broken, the following materials* may be released;

	CAS No.	Amount (g)	Chemical Name	Exposure Limits in Air (Mg/Cubic M)***	
				TLV	PEL
1.	7439-97-6	0.01-0.023	Mercury	0.025	0.1 Ceiling
2.	60676-86-0	3.4 - 3.9	Quartz, Fused	0.1 (resp. Dust)	0.1
3.	7440-33-7	0.044-0.136	Tungsten Insoluble Compounds	— 5	— 10
4.	7439-98-7	0.088	Molybdenum Insoluble Compounds	— 10	— 15

* Contaminations within the overall product and which are below accepted ppm levels are not listed in the substance overview.

**Amount is based on the initial substance presence within an intact lamp. (Expressed in gram) In case 2 values are listed, the lowest value refers to the minimum amount and the highest value refers to the maximum amount, present in the arc-tube.

*** TLV - Threshold Limit Value.

An estimate of the average safe airborne concentration of a substance in representative conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effect. TLVs are published annually by the ACGIH (American Conference of Governmental Industrial Hygienists).

• PEL - Permissible Exposure Limit.

The OSHA limit of employee exposure to chemicals; found primarily in 29 CFR 1910.1000.

3. Health Hazards Identification

Emergency Overview; Warning for Lamps during operation

- UHP lamps operate under very high pressure conditions (200 bar) and at high temperature (inner bulb temp \pm 1000 °C) and may **unexpectedly shatter**
- UHP lamps generate **ultraviolet (UV) radiation** which may cause skin irritation and serious eye damage with prolonged exposure
- UHP lamps **must be operated in suitably designed, enclosed projection devices**, which prevent direct observation of the arc and will prevent lamp fragments from exiting, in the event of a bulb rupture.
- In the event of a bulb rupture, a **limited amount of mercury vapour could be emitted** into the room. To avoid inhaling this mercury vapour (which is toxic and can be harmful for lungs and nervous system) **the room of use should be thoroughly ventilated for some period (30 minutes)**¹

Emergency Overview: Lamp Materials

There are **no known health hazards from exposure to lamps that are intact** and which are used within an enclosed fixture. **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 eyes.

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.

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

Tungsten - Inhalation of dust may cause mild irritation of nose and throat. Contact may cause mechanical irritation of skin and eyes.

Molybdenum - Oxides have caused irritation to the eyes, nose, and throat; weight loss and digestive disturbances in experimental animals.

4. First Aid Measures

Measures listed below refer to the situation where a person came in contact with one of those substances mentioned in the former paragraph (being Mercury, Tungsten, (Fused) Quartz, Molybdenum, Nickel) and developed symptoms of discomfort, irritation or pain.

- 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:** 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 immediately with water for 15 minutes. Seek medical attention.

¹ Time is depending on room size, room conditions and air flow (ventilation).

5. Accidental Release Measures

Ventilation in view of concentrations of mercury vapour.

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 under section '8. Special Handling Information – Broken Lamps'.

6. Pre Cautions for safe handling and use

Lamp instalment / replacement

- When one is installing a UHP lamp within a suitable application, the power should be switched off at all times. This is applicable for first instalment as well as the case in which a lamp is being replaced inside the application.
- Never touch the lamp when it is on, or soon after it has been turned off, as it is hot and will cause serious burns. Lamps should be allowed to cool for a minimum of ten (10) minutes after the lamp is turned off.
- Affix the lamp in the correct polarity according to the lamp and fixture design.
- Affix the lamp by hand tightening only. Do not use any tools to tighten nuts or the lamp itself. Any excessive stress to the lamp will cause a burst. Max torque on the side and centre connector: 1.5Nm.
- Never touch the front glass with bare hands. If bare hands have touched it, the front glass should be cleaned with a lint free towel before installing the lamp.

Lamp Operation

- Always operate the lamp in closed, protective housings. The set maker must design a lamp house to keep glass pieces in the lamp house.
- Do not look directly at the operating lamp for any length of time; this may cause serious eye injury while UHP lamps generate UV radiation.
- Always operate the UHP lamp in combination with the UHP driver to which is referred in the original lamp specification sheet provided by Philips UHP. Never operate a lamp above or below its rated current or voltage.
- The lamp area should be protected against high ignition pulses (max 8kV).
- The front glass of the lamp should not make direct contact with metal. Also direct airflow towards the front glass should be avoided.
- The lamp must be operated under the specified conditions such as cooling conditions (do not overcool nor risk insufficient cooling by projection device design).
- UHP lamps should not be used beyond their rated service life. Operation beyond the rated service life will increase the likelihood of bulb rupture, fast switching cycles will reduce lamp life

7. Stability and Reactivity Data

Stability: Stable, 1-The material Mo-foil that is used within the burner of a UHP lamp degrades at temperatures >350 °C which might lead to bulb rupture.
2-The side connector, which is attached to the outside of the reflector, degrades at temperatures >225°C

Conditions to avoid: None for intact Lamps

Incompatibility (materials to avoid): None for intact Lamps

Hazardous Decomposition Products (including combustion products): CO, CO₂

Hazardous Polymerisation Products: Will not occur

8. Procedures for Disposal of Lamps

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.

Waste Disposal Method. *It is the responsibility of the waste generator to ensure proper classification of waste products..At the end of rated life, when this lamp is removed from service, please dispose of in accordance with local law re. toxic waste. (UHP lamps are stamped with Hg mark,) it will be subjected to the current Toxic Characteristic Leaching Procedure (TCLP) prescribed by the Environmental Protection Agency (EPA). This test is used to determining whether an item is a hazardous waste or a non-hazardous waste under current*

E. P. A. definition. Philips Lighting will provide the test protocol on request. This result will allow the end user to evaluate all of the disposal options, which may be available in the particular state in which the generator facility is located. The generator should check with local and state officials for their guidance. Philips encourages recycling of its products by qualified recyclers.

8. Special Handling Information – 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 thoroughly before eating, smoking or handling tobacco products, applying cosmetics or using toilet facilities.

9. Regulatory Information

As a product these mercury containing lamps being shipped in the manufacturers original packaging are not regulated by air, truck or ocean shipment. As a waste, spent UHP lamps would be regulated in several states within the US as well as in other regions within the world. This material safety data sheet does not constitute "knowledge of the waste", in certain jurisdictions. TCLP data will be furnished upon request.

10. Other information

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Notice to Reader:

For more information, questions etc. please contact Philips Lighting at <http://www.uhp.philips.com/>

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