



PRODUCT SAFETY DATA SHEET¹

March 2008

PRODUCT: MBIL and Graphic Arts Metal Halide Lamps

SECTION 1: MANUFACTURER

Manufacturer's Name and Address: Venture Lighting International, Inc.
32000 Aurora Road
Solon, Ohio 44139
Phone: (440) 248-0600

SECTION 2: HAZARDOUS INGREDIENTS²

	OSHA PEL (TWA- mg/m ³)	ACGIH TLV (TWA- mg/m ³)	PERCENTAGE %
Mercury (7439-97-6)	0.1(C) skin	0.025 skin	< 0.1
Metal Halide as iodides (7553-56-2)	1.0-Ceiling	1.0-Ceiling	< 0.01
Thorium (elemental) (USNRC limits: Less than 0.0055 mCi/ lamp)			< 0.01
Krypton-85 gas (USNRC limits: Less than 30 mCi/ lamp)			< 0.01
Yttrium Oxide 1314-36-9	15mg/m ³	10mg/m ³	< 0.01
Inert ingredients			> 99.98

SECTION 3: PHYSICAL DATA

This item is a metal halide high intensity discharge (HID) lamp; chemical characteristics are not applicable.

SECTION 4: FIRE AND EXPLOSION DATA

The quartz tube is composed of silicon dioxide (quartz) which is a refractory material. The quartz tubes operate at extremely high temperatures and may rupture as a result of misapplication, system failure or other factors. This type of failure may release extremely hot gases, and lamp parts into the surrounding environment. Detailed safety precautions to minimize this risk are included in Section 9.

Lamps are non-combustible; use extinguishing agents suitable for surrounding fire.

¹ MSDS's are **not** required by the U.S. Occupational Safety and Health Agency for manufactured articles such as lamps

² Lamps may contain all or just some of these materials

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SECTION 5: REACTIVITY DATA

Stability: Lamp is stable under normal handling conditions. Quartz tube may break if dropped. This may result in the scattering of glass fragments.

Incompatibility: Quartz tube will react with hydrofluoric acid.

Polymerization: Will not occur.

SECTION 6: HEALTH HAZARD DATA

Other than a physical burn from a hot lamp, there are no known health hazards from exposure to intact lamps.

UV Hazard: THIS LAMP CAN CAUSE SERIOUS SKIN BURN AND EYE INFLAMMATION FROM SHORTWAVE ULTRAVIOLET RADIATION IF THE LAMP IS OPERATED WHILE EXPOSED. DO NOT USE WHERE PEOPLE WILL REMAIN FOR MORE THAN A FEW MINUTES UNLESS ADEQUATE SHIELDING OR OTHER SAFETY PRECAUTIONS ARE USED.

Krypton-85 and Thorium: Some lamps contain an US NRC exempted quantity of radioactive Krypton-85 (less than 0.1 mCi), and an US NRC "unimportant quantity" of elemental radioactive thorium (less than 0.002 mCi). From the extremely small quantities of Krypton-85 and thorium in each lamp, the maximum dose rate at the surface of a lamp is less than 0.5 mrem / hr.

The maximum exposure to someone holding one of these lamps continuously for one year is less than 5 mrem. This is less than 0.1% of the U.S. Nuclear Regulatory Commission's (USNRC's) maximum permissible occupational exposure (5000 mrem / yr), and less than 5% of the USNRC's maximum permissible non-occupational exposure (100 millirem / yr), and less than 2% of the average background radiation of 300 mrem / yr in the U.S. Therefore, there is no significant risk of radiation exposure to anyone from handling either a whole or broken lamp.

Mercury and Metal Halide Salts: The lamp tube is composed of quartz. Breakage of the quartz tube may result in exposure to small quantities of mercury (5-250 mg) and metal halide salts. No adverse effects are expected from occasional exposure to broken arc tubes. However, as a matter of good practice, breakage should be avoided.

Electrode emission mix: Some lamps contain a small amount of emission mix as a coating on the electrodes. The emission mix uses a mixture of rare earth elements such as yttrium as an oxide, along with a barium/thorium oxide.

Yttrium compounds, due to their insolubility, relatively low toxicity and small amount present in the lamp, are not expected to present a significant hazard in the event of breakage of the lamp. As a matter of good practice, breakage should be avoided.

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Emergency and First Aid Procedure:

Inhalation: If respiratory discomfort or irritation develops, move to fresh air.

Skin Contact: Thoroughly wash affected area with mild soap and water. Seek medical attention if irritation persists. Use normal first aid for glass cuts and hot glass burns.

SECTION 7: PRECAUTIONS FOR SAFE HANDLING AND USE

Normal precautions should be taken for collection of broken glass and/or quartz, in the event of lamp breakage.

Waste Disposal Method:

The U.S. Environmental Protection Agency (USEPA) has enacted the Universal Waste rule to facilitate the consolidation of consumer products containing hazardous materials that have been widely disseminated throughout society. Many states have adopted mercury-containing lamps under their State plan. This rule allows shipment under a bill of lading to a recycling facility. In lieu of this path the U.S. EPA requires a determination to be made if mercury-containing lamps are hazardous waste by the Toxicity Characteristic Leachate Procedure (TCLP). TCLP tests of used or spent fluorescent, incandescent, and HID lamps may cause these lamps to be classified as hazardous waste. Mercury can be reclaimed from spent lamps; and, in fact, most Venture lamps use reclaimed mercury.

Each lamp contains less than 0.01% by weight of mercury, less than 0.02 mCi of radioactive thorium, and may contain radioactive Krypton-85 in quantities of less than 0.1 mCi. From these very small quantities, no significant adverse effects are expected from occasional exposure to lamps being broken. However, as a matter of good practice, breakage should be avoided. Prolonged or frequent exposure to broken envelopes should be avoided.

In any case, spent lamps should be disposed in accordance with applicable Federal, State, and Local requirements.

SECTION 8: CONTROL MEASURES

Respiratory Protection:

An appropriate respirator should be used if large volumes of lamps are being broken for disposal.

Ventilation:

Avoid inhalation of any airborne dust. Provide local exhaust when breaking large quantities of lamps for disposal.

Hand and Eye Protection:

Appropriate hand and eye protection (e.g. gloves and safety glasses) should be worn when disposing of lamps or handling broken quartz.

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SECTION 9: OTHER SAFETY PRECAUTIONS

In order to minimize the risk of lamp rupture, the following precautions should be taken:

- o Re-lamping at or before the rated end of life.
- o Turning off the lamp for 15 minutes at least once each week, in any application where lamps are burned continuously 24 hours per day, seven days per week. This will cause lamps approaching end of life to fail simply by failing to re-ignite.
- o Using lamps in proper configurations and in proper luminaires, as indicated by lamp designation, **Type F**.

STATEMENT OF LIABILITY-DISCLAIMER

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