



Lamp Material Information Sheet

Material Safety Data Sheets (MSDS) Information and Applicability

The Material Safety Data Sheet (MSDS) requirements of the Occupational Safety and Health Administration (OSHA) for chemicals are not applicable to manufactured articles such as lamps. No material contained in a lamp is released during normal use and operation.

The following information is provided as a service to our customers. The following Lamp Material Information Sheet contains applicable Material Safety Data Sheet information.

I. Product Identification

GE Mercury Vapor Lamps

GE Consumer & Industrial
Lighting
1975 Noble Road
Nela Park
Cleveland, OH 44112
(216) 266-2222

II. Lamp Materials and Hazardous Ingredients

Glass

These lamps consist of an inner quartz arc tube enclosed in an outer envelope of heat-resistant glass. Depending on the lamp type, the envelope is either clear or coated with one of two different materials.

Phosphor

The phosphor used on the outer envelope of the "DX" type lamps consists of yttrium vanadate phosphate. This material, like most vanadium compounds, is relatively insoluble, and appears to have a much lower toxicity than vanadium pentoxide but may elicit some similar symptoms at high exposure levels. Excessive inhalation exposure to vanadium pentoxide may result in irritation of the nasal passages and respiratory tract, cough, difficulty in breathing, and bronchitis. However, the yttrium vanadium phosphate from the breakage of one or a small number of lamps should not result in a significant exposure.

The phosphor used on the outer envelope of the "WDX" lamps is the same as that in the "DX" lamps but with the addition of a small amount of magnesium germanate phosphor, a toxicologically relatively inert material.

Arc Tube

The quartz arc tube contains a small amount of mercury, ranging from 14 milligrams in a 50 watt up to 250 mg in a 1000 watt lamp. The arc tube contains a small amount of inert gas argon used as a fill gas. It also contains a small amount of other materials, used as an emission mix on the electrodes, but there would be no significant exposure from lamp breakage.

Also contained in the arc tube are small amounts of sodium and scandium iodide, and in some cases thorium iodide. None of these materials are expected to be a hazard in the small quantities present in the arc tube. The coating on the end(s) of the arc tube is aluminum oxide, a material generally considered to have a low order of toxicity.

Metals

Internally, the support wires used in the lamp construction are made from nickel-coated iron or stainless steel while the electrodes are tungsten. Many of the mercury lamp types will use a brass base and have lead-soldered connections to that base.

III. Health Concerns

Mercury Exposure

The air concentration of mercury resulting from the breakage of one or a small number of lamps should result in no significant exposure to the individual. However, if breaking a large number of lamps for disposal, appropriate monitoring, controls and equipment should be implemented to control airborne mercury and dust levels or surface contamination. Such work should be done in a well-ventilated area, and local exhaust ventilation or personal protective equipment may be needed.

Ultraviolet (UV) Radiation

The quartz arc tube, when operating, generates a considerable amount of ultraviolet radiation. The UV is filtered to acceptable levels by the glass outer envelope during normal use. However, if the outer envelope is broken, the UV filtering is lost. Lamps having ordering codes beginning with the letters "HR" or "HSB" have the following warning notice required under Federal Regulation 21 CFR 1040.30:

"WARNING: This lamp can cause serious skin burn and eye inflammation from shortwave ultraviolet radiation if outer envelope of the lamp is broken or punctured, and the arc tube continues to operate. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. General Electric Company has commercially available SAF-T-GARD Mercury and Multi-Vapor lamps that will automatically extinguish when the outer envelope is broken."

The self-extinguishing metal halide lamps referred to above have order codes beginning with the letters "HT" or "MVT". If the outer glass envelope of a SAF-T-GARD lamp is broken, although the arc tube will have self-extinguished, its support structure will still be electrically connected and could present an electrical shock hazard. Therefore, regardless of the type, if the outer envelope of the lamp is broken, turn the power off before replacing the lamps.

IV. Disposal Concerns

TCLP

A Toxicity Characteristic Leaching Procedure (TCLP) test conducted on the lamp for lead or mercury could cause the lamp to be classified as a hazardous waste. Mercury lamps use lead solder on the lamp base and mercury in the arc tube. The lead solder or mercury vapor should pose little risk of exposure under normal use and handling. While small numbers of these lamps placed in the ordinary trash should not appreciably effect the nature or method of disposal of the trash in most states, under some circumstances disposal of large quantities may be regulated. You should review your waste handling practices to assure that you dispose of waste lamps properly. Please check with state environmental departments regarding individual state disposal requirements.