

Compact Fluorescent Lamps

Current Lighting Solutions, LLC

25825 Science Park STE 400
Beachwood, OH 44122-7392

Safety Data Sheet (SDS),
Material Safety Data Sheets (MSDS)

Information and Applicability

The Product Safety Data Sheet (SDS) requirements, formally known as the Material Safety Data Sheets (MSDS), 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 Product Safety Data Sheet contains applicable Safety Data Sheet information.

Section 1. Product Identification

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Section 2. Hazardous Identification

Mercury

Mercury is present in very small amounts in all compact fluorescent lamps. The amount of mercury present in any given lamp will vary depending on both the size of the lamp and the design life of the lamp. Compact fluorescent lamp types sold today contain less than 5 mg of mercury. 5 mg of mercury is extremely small, equivalent in size to the period at the end of this sentence.

Section 3. Lamp Composition and Detailed Ingredient Information

General Lamp Composition

Glass & Metal

The glass tube used in a standard compact fluorescent lamp is manufactured from soda-lime glass and is essentially similar but not identical to that used throughout the glass industry for bottles and other common consumer items. The lamp bases are generally nickel-plated brass. The coils in the lamps (called filaments or cathodes) are made of tungsten. An emission material covers the tungsten coil. The emission material consists of triple oxide (BaO, CaO, SrO) + ZrO₂ in a quantity of 4-12 mg/lamp depending on type. Some 4-pin Compact fluorescent lamps contain 2-3 mg of titanium-hydride. None of these materials would present a hazard in the event of breakage of the lamp, aside from the obvious ones due to broken glass. Some fluorescent lamps (CovRguard® products) use an external coating of polycarbonate to provide a shatter-resistant coating.

Phosphor

The phosphor system (SP/SPX) uses a mixture of rare earth elements such as lanthanum and yttrium as either an oxide or as a phosphate, along with a barium/aluminum oxide. The phosphor components may vary slightly depending on the color of the lamp (SPX30, SPX35, etc.). Compact fluorescent lamps typically have a maximum of 1.5 grams of phosphor. Total phosphor weight will vary by lamp size and type.

Electronic Ballast for Self-Ballasted Compact Fluorescent Lamp

The electronic ballast is built into the lamp housing. The ballast consists of parts that are essentially similar, but not identical, to those used throughout the electronics industry for other common consumer articles.

Plastic Material

The plastic housing is typically made of PBT (Polybutylene-terephthalate) or PET (Polyethylene-terephthalate) fire retarded plastic with a bromine-containing polymer and antimony oxide. The plastic housing is glass fiber filled. This product consists primarily of high molecular weight polymers that are not hazardous.

Section 4. First Aid Measures

Not applicable to intact lamps during normal use and operation.

Section 5. Fire-Fighting Measures

No special precautions necessary for fire fighters.

Section 6. Accidental Release Measures

Less than 1% of the mercury in a compact fluorescent lamp is in vapor form and will be released if a lamp is accidentally broken. This extremely small exposure is less than 0.05 mg of mercury and is insignificant to an individual. Removing the broken lamp debris and ventilating the area for 15 minutes (if possible) is recommended. Do not vacuum lamp fragments. Clean-up all visible lamp pieces before vacuuming.

Section 7. Handling and Storage

New lamps being held for use, or spent lamps being held for recycling, should remain in their original packaging, or other protective packaging, and should be placed in a dry storage area that minimizes any risk of accidental breakage.

Section 8. Exposure Controls/Personal Protection

No special requirements during normal use and operation.

Section 9. Physical and Chemical Properties

Not applicable to intact lamps.

Section 10. Stability and Reactivity

Not applicable to intact lamps.

Section 11. Toxicological Information

Phosphor

Except for small changes, it is essentially the same phosphor that has been in use in our lamps for over thirty years. The Industrial Hygiene Foundation of the Mellon Institute found no significant adverse effects, either by ingestion, inhalation, skin contact, or eye implant, in a five-year animal study of the original phosphor. Also, there have been no significant adverse effects reported in humans by any of these routes during the many years of its manufacture and use. The phosphor is somewhat like the inert mineral apatites (calcium phosphate-fluorides) that occur in nature.

Antimony, manganese, yttrium and tin compounds are characterized by OSHA as hazardous chemicals, as are most metals. However, due to their insolubility, relatively low toxicity and small amount present in the phosphor and the lamp, these materials do not present a significant hazard in the event of breakage of the lamp.

Mercury

Neither the mercury nor the phosphor concentration in air produced because of breaking one or a small number of compact fluorescent lamps should result in significant exposures to the individual. Where a large quantity of lamps is intentionally broken, for example, in a drum-top crusher, work should be done in a well-ventilated area, and local exhaust ventilation or personal protective equipment may be needed. Also, appropriate industrial hygiene monitoring and controls should be implemented to minimize airborne levels or surface contamination. Current recommends lamp recycling when large quantity lamp disposal is required. See: www.lamprecycle.org for a list of lamp recyclers.

UV

The Ultraviolet energy emitted by compact fluorescent lamps complies with the Photobiological safety requirements in IESNA RP-27.1 & IESNA RP27.3. (CFL lamps also comply with CIE S009: 2002.)

Section 12. Ecological Information

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Section 13. Disposal Considerations

TCLP

A Toxicity Characteristic Leaching Procedure (TCLP) test conducted on modern compact fluorescent lamp designs is not expected to cause the lamp to be classified as a hazardous waste because modern CFL lamps are made with extremely low mercury content and no lead content (in the case of screw-based compact fluorescent lamps). Although CFL lamps are not considered hazardous waste under Federal law, several states regulate the disposal of all mercury containing products and lamp recycling is required in these states. Review your waste handling practices to assure that lamps are disposed properly and contact your state environmental department for any regulations that may apply. To check state regulations or to locate a recycler, go to www.lamprecycle.org.

Electronic Ballast

Modern electronic ballast designs for screw-based compact fluorescent lamps would not fail the TCLP test for lead as lead has been removed from modern ballast designs. Dispose in accordance with local regulations; recycling is recommended or required in several states. Modern lead-free ballast designs also meet the EC directive 2002/95/EC for ROHS (Restriction of Hazardous Substances) in Europe.

Plastic Material

The plastic material used in a compact fluorescent lamp can be recycled during the lamp recycling process.

Universal Waste

Used lamps being stored for recycling must be managed as Universal Waste.

- (1) Lamps being held for recycling should be held in containers or packages that are structurally sound, adequate to prevent breakage, and compatible with the contents of the lamps and such containers should remain closed.
- (2) Any lamp that is broken or shows evidence of damage should be placed in a container that is closed, structurally sound, and compatible with the contents of the broken lamps.
- (3) If storing lamps for recycling, each container in which such lamps are stored must be labeled or marked clearly with one of the following phrases: "Universal Waste--Lamp(s)," or "Waste Lamp(s)," or "Used Lamp(s)."

Section 14. Transport Information

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Section 15. Regulatory Information

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Section 16. Other Information

The Product Safety Data Sheet for Compact Fluorescent Lamps was prepared in 2022.