

Section 3. Lamp Composition and Detailed Ingredient Information

General Lamp Composition

Glass & Metal

The glass tube used in a standard 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 end-caps on the lamp are generally aluminum while the wires in the lamps (called filaments or cathodes) are made of tungsten. None of these materials would present a potential 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. Glass composes between 93 and 97% of the lamp material depending on the lamp type. Metals compose between 1-5% of the lamp material depending on lamp type.

Phosphor

The fluorescent product line uses two different phosphor systems. One phosphor system (halophosphate) uses calcium chloro-fluoro-phosphate, with small amounts (less than 1-2% by weight of the phosphor) of antimony and manganese, both of which are tightly bound in the phosphor matrix. The second 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 type of the lamp (Cool White, SP41, SPX35, etc.). Also, in some lamps designed for reduced power consumption, a thin coating of tin oxide is placed on the inside of the glass prior to coating the glass with the phosphor. Phosphor composes between 1-2% of the lamp material depending on lamp type. (The remaining approximate 1% of lamp material is basing cement.)

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 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 Current lamps for over fifty 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 on humans by any of these routes during the many years of its manufacture or use. The phosphor is somewhat similar to 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 inorganic compounds. 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 accidentally breaking one or a small number of fluorescent lamps should result in significant exposures to the individual. However, when intentionally breaking a large number of lamps for disposal, appropriate industrial hygiene monitoring and controls should be implemented to minimize airborne levels or surface contamination. We recommend that the work be done in a well-ventilated area, and local exhaust ventilation or personal protective equipment may be needed.

Section 12. Ecological Information

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Section 13. Disposal Considerations

TCLP

Most fluorescent lamps sold during the past 15 years have greatly reduced mercury content. Low mercury lamps consistently pass the TCLP test. Low mercury lamps are typically marketed by Current under the ECOLUX® trade name and are available in most lamp types. Look for ECOLUX® on the lamp monogram, ECO in the lamp code information, and/or a Green Monogram stamp on the lamp to identify these lamp types. For more information on ECOLUX fluorescent lamps, visit www.currentlighting.com.

A Toxicity Characteristic Leaching Procedure (TCLP) conducted on traditional non-ECOLUX fluorescent lamp designs for mercury may cause the lamps to be classified as a hazardous waste due to the mercury content. While small numbers of these lamps placed in ordinary trash may not appreciably affect the nature or method of disposal of the trash, under most circumstances disposal of large quantities may be regulated. You should review your waste handling practices to assure that you dispose of waste lamps properly.

Some states require all mercury containing lamps to be recycled regardless of whether they pass the TCLP test or not. 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.

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)," "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 Fluorescent Lamps was prepared in 2022.