



## Environmental Statement for GE FLUORESCENT LAMPS

Manufacturer: GE Hungary ZRt	Company: General Electric Industrial Consumer and Industrial Lighting Address: 1340 Budapest Vaci ut 77 Hungary E-mail: Phone: +36-1-3991100
Date of issue: April 21 2006	Phone: +36-1-3991100

Requirements	Requirements	Statutory requirements	Requirements met			Remarks
			Yes	No	N/A	
<b>1</b>	<b>Restricted chemicals</b>					
1.1	The products contain no substances that break down the ozone layer (including CFC and HCFC).	Regulation 2037/2000/EC	X			
1.2	The products contain no PCB /polychlorinated -biphenils/.	Council Regulation 2455/92/EEC	X			
1.3	The products are in compliance with RoHS Directive regarding lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE) from the effective date.	Directive 2002/95/EC	X			Europe specific
1.4	The products are in compliance with TCLP for US/Canada	Toxicity Characteristic Leaching Procedure	X			For Ecolux lamps
<b>2</b>	<b>Electrical Safety, Electromagnetic Compatibility (EMC) for those lamps that are included in relevant IEC and ANSI standards</b>					
2.1	The products meet current national and international electrical safety regulations.	IEC 62035, IEC 61167 ANSIC78.43-2004	X			Country specific
2.2	The products meet current national and international EMC regulations.	89/336/EEC EMC Directive	X			Country specific
2.3	The products are third-party certified for electrical safety and EMC.	89/336/EEC EMC Directive	X			Country specific
2.4	The products are CE marked.	73/23/EEC LVD directive, 93/68/EEC CE directive	X			Country specific
<b>3</b>	<b>Packaging</b>					
3.1	Packaging materials used for the products are recyclable.		X			
3.2	The company is member of Green Dot.	Directive 94/62/EC	X			Country specific
3.3	The company is a member of/has its own system for collection and recycling of packages.	Directive 94/62/EC	X			Country specific
3.5	Packaging materials contain no PVC.			X		Blister and double clam blister packaging contain PVC.
<b>4.</b>	<b>Environmental System- Please check the following link: <a href="http://www.gelighting.com/eu/ehs/">www.gelighting.com/eu/ehs/</a></b>					
4.1	The company's European lamp components and lamp factories are ISO 14000 certified.		X			

4.2	The company has a documented environmental policy.		X			
4.3	The company has environmental targets and objectives.		X			
4.4	The company shares environmental information with the public		X			<a href="http://www.gelighting.com/eu/ehs/">www.gelighting.com/eu/ehs/</a>
4.5	The company follows and comply with all relevant environmental legislation		X			
4.6	The company trains his employees about environmental tasks		X			
4.7	The company has environmental requirements for its suppliers.		X			
4.8	The company follows international hazardous transportation regulations to minimize the environmental impact caused by transportation.		X			
4.9	The company is member of Collection and Recycling Service Organization required by WEEE from the effective date.	Directive 2002/96/EC	X			Country specific
4.10	National take-back is possible for recycling of end-of life lamps from the effective date.	Directive 2002/96/EC	X			Country specific

## II. LAMP MATERIALS AND HAZARDOUS INGREDIENTS

### 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 mounts at the ends of the tube holding the wires are manufactured from lead free glass. The 2D CFL lamp is manufactured completely from lead free glass.

-The end-caps on the lamp are generally aluminum while the cathodes in the lamps are made of tungsten. The tungsten coil is covered by emission material which consists a of triple oxide (BaO, CaO, SrO)+ZrO<sub>2</sub> in quantity of 4-12 mg/lamp depending on type. Some 4-pin CFL lamps also contain 2-3 mg titanium-hydride for controlling the lamp end-of-life mechanism. 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.

### 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 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. These phosphors produce better lamp efficiency and color rendition. The phosphor components may vary slightly depending on the color of the lamp (cool white, warm white, 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.

Normally a 1.5 inch diameter (T12) fluorescent lamp has approximately 1 - 1.25 grams of the phosphor per foot of lamp. A standard four-foot lamp has about 4 - 5 grams of the phosphor coating its inside length. The one inch diameter (T8) lamp would have proportionally less phosphor due to its smaller size. The CFLs have maximum 1.5 grams of phosphor, it depends on the type.

### Mercury

Mercury is present in small amounts in all fluorescent lamps. The overall fleet average for all GE fluorescent lamps (including standard four-foot, eight-foot) is approximately **8** milligrams. Reduced mercury fluorescent lamps and compact fluorescent contain as low as max. **5** milligrams.

The amount of mercury present in any given lamp will vary depending on both the size of the lamp and on the equipment that was used in its manufacture. This average is lower than that from several years ago, and GE is currently working to further lower the amounts of mercury used in its fluorescent lamp products.

#### **Electronic Ballast for self-ballasted lamp**

The electronic ballast is built in to the lamp housing. The ballast components are essentially similar but not identical to that used throughout the electronic industry for other common consumer articles.

#### **Plastic Material**

The plastic housing is made of PBT (Polybutylene-terephthalate) and a certain percentage of glass fibers. It also contains a fire retardant with a bromine containing polymer and antimony oxide. This product consists primarily of high molecular weight polymers, which are not expected to be hazardous.

### **III. HEALTH CONCERNS**

#### **Phosphor**

Except for small changes, it is essentially the same phosphor that has been in use in our lamps for over fifty years. No significant adverse effects, either by ingestion, inhalation, skin contact, or eye implant were found in the original phosphor by the Industrial Hygiene Foundation of the Mellon Institute. 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) which occur in nature.

Antimony, manganese, yttrium and tin compounds are characterized 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 or the phosphor concentration in air produced as a result of breaking one or a small number of fluorescent lamps should result in significant exposures to the individual. However, when 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.

#### **Other Toxic Materials**

It is GE Consumer & Industrial policy to control use of materials that could pose a toxic hazard to consumers.

#### **UV**

The UV content emitted by the LFLs and CFLs complies with the requirement (Photobiological safety, CIE S009 : 2002, min 8h UV PET).

### **IV. DISPOSAL CONCERNS**

### **TCLP in US/Canada**

A Toxicity Characteristic Leaching Procedure (TCLP) conducted on fluorescent lamp designs for mercury would most likely 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 and contact your state environmental department for any regulations that may apply. Reduced mercury fluorescent lamps that consistently pass the TCLP test are available and marketed under the Ecolux trade name. For more information on Ecolux fluorescent lamps visit [www.gelighting.com](http://www.gelighting.com).

### **Electronic Ballast**

This product is regarded as hazardous waste. Dispose in accordance with local regulations. GE is manufacturing fluorescent lamps which have Pb and Cd free electronic ballast to meet EC directive 2002/95/EC for ROHS.

### **Plastic material**

This product is not regarded as hazardous waste. Dispose in accordance with local regulations.

### **WEEE in Europe**

Please note the separate collection and treatment obligations set out in country specific environmental regulations in accordance with DIRECTIVE 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (WEEE). For more information on Ecolux fluorescent lamps visit [www.gelighting.com](http://www.gelighting.com).