

## IF WE GET QUESTIONS ON "COMPACT FLUORESCENT LIGHTING" - SOME BACKGROUND:

We will receive inquiries related to Compact Fluorescent Lights (CFLs). CFLs are commonly identified as an easy way for consumers to do their part in building a conservation culture by replacing inefficient incandescent bulbs. Concerns have been raised on the proper use, application, end of life and disposal of the units. We have gathered information to assist in any customer inquiries on the issues.

### USAGE:

**For ALL applications, check the package for installation restrictions!**

#### **Can CFLs be used outside in cold temperatures?**

Yes, there are CFLs that can be used outdoors in temperatures as low as -30°C. However, check the low temperature rating on the package to make sure it suits your local climate. It is also preferable to have your CFL protected in an outdoor fixture from the cold, wind and humidity. If your CFL is used outdoors with a motion detector, the life of your CFL may be shortened. *Check the package to make sure.*

#### **Where can I install CFLs?**

They can be installed indoors or outdoors. The package will tell you where the CFL can be used. You'll find CFLs to fit almost all fixtures, from ceiling units to standing lamps. A good idea is to start installing CFLs in areas where lights are on longest, such as the kitchen, family room and outdoors. Many people install CFLs in hard-to-reach areas because they don't have to be changed as often. *Check the package to make sure.*

#### **Do CFLs work with dimmers, timers and three-way switches?**

Some CFLs are specially designed to work with dimmers and three-way switches. Unless specifically stated, most CFLs are not designed for use in emergency exit lights, for use with photocells, electronic timers or dimmer switches. *Check the package to make sure.*

#### **Are there spiral CFLs that can be used for plants as a source of light?**

Not at this time. Some fluorescent tubes are specifically designed to provide natural light to indoor plants; their light output contains blue, green, red and orange spectrums to promote plant growth.

### HEALTH CONCERNS:

#### **How much mercury is in compact fluorescent bulbs?**

A compact fluorescent light contains a small amount of mercury that is necessary to produce the light, about one-fifth of the mercury found in a wristwatch battery. The chart below compares the mercury content in a CFL to other household items.

Product	Amount of Mercury	Number of Equivalent CFLs
Compact fluorescent lamp	5 milligrams	1
Watch battery	25 milligrams	5
Home thermometer	500 milligrams - 2 grams	100 - 400
Float switches in sump pumps	2 grams	400
Tilt thermostat	3 grams	600
Electric tilt switches and relays	3.5 grams	700

### **What is the correct way to dispose of compact fluorescent bulbs?**

Just like paint, batteries, thermostats and other household chemicals, compact fluorescent bulbs should be disposed of safely. In the City of Guelph, they are treated as Household Hazardous Waste to be delivered to the depot at 100 Dunlop Drive. Check out the City of Guelph website at: <http://www.guelph.ca/living.cfm?itemid=46464&smocid=1488>.

### **Does the mercury contained in compact fluorescents make incandescent bulbs better for the environment?**

No. Although compact fluorescents (CFLs) contain small amounts of mercury, they are far more energy-efficient compared to incandescent bulbs. This means CFLs reduce greenhouse gas emissions from electrical generating stations powered by fossil fuels, as well as the need to build new power generating stations. And because CFLs last about 8 times longer, fewer bulbs and far less packaging end up in landfills.

### **Should I be concerned about using CFLs in my home?**

CFLs are safe to use in your home. No mercury is released when the bulbs are in use and they pose no danger to you or your family when handled properly. An extremely small amount of mercury, an average of five milligrams (roughly equivalent to the tip of a ball-point pen), is sealed within the glass tubing.

For a basis of comparison, there are about 500 milligrams to two grams of mercury in your average older home thermometer. It would take between 100 to 400 CFLs to equal that same amount of mercury! Many older manual home thermostats contain up to 3000 milligrams. It would take between 100 and 600 CFLs to equal those amounts!

### **What is my health risk should a CFL break in my home?**

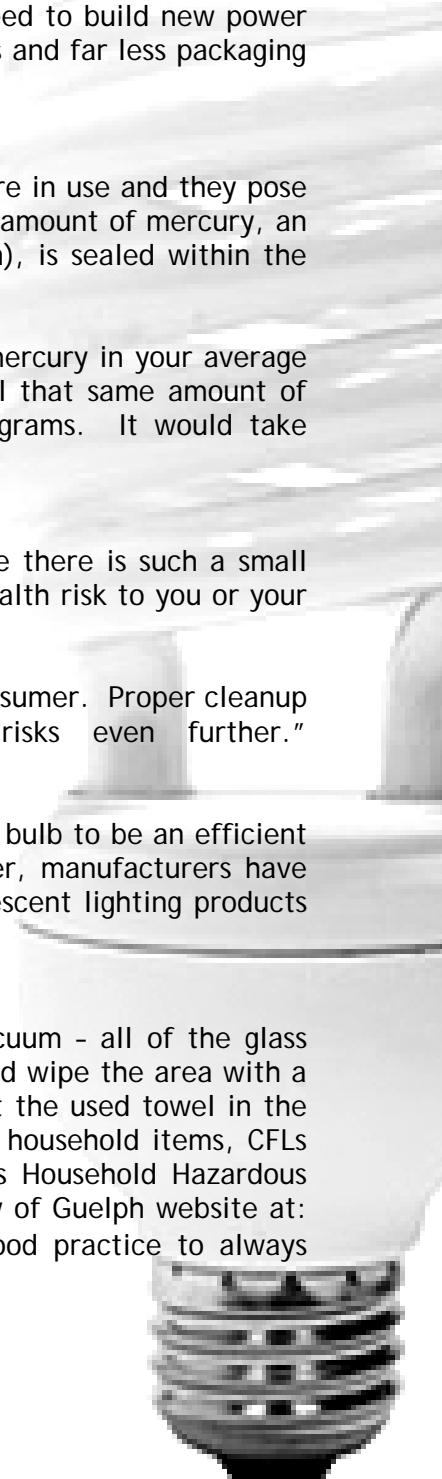
Actually, your greatest health risk is getting cut from glass shards. Because there is such a small amount of mercury in CFLs, research indicates that there is no immediate health risk to you or your family should the bulb break, especially if cleaned up properly.

"Breaking one fever thermometer is unlikely to threaten the health of the consumer. Proper cleanup of spilled mercury and adequate ventilation can minimize the risks even further."  
<http://www.epa.gov/glnpo/bnsdocs/hg/thermfaq.html>

Mercury is an essential, irreplaceable element in CFLs and is what allows the bulb to be an efficient light source. There is currently no substitute for mercury in CFLs, however, manufacturers have taken significant steps to reduce the amount of mercury used in their fluorescent lighting products over the past decade.

### **What should I do if a CFL breaks?**

In the unlikely event your bulb breaks, be certain to sweep up - don't vacuum - all of the glass fragments and phosphor powder. Place the broken pieces in a plastic bag and wipe the area with a damp paper towel to pick up any stray shards of glass or fine particles. Put the used towel in the plastic bag as well. Like paint, batteries, thermostats and other hazardous household items, CFLs should be disposed of properly. In the City of Guelph, they are treated as Household Hazardous Waste to be delivered to the depot at 100 Dunlop Drive. Check out the City of Guelph website at: <http://www.guelph.ca/living.cfm?itemid=46464&smocid=1488>. It is good practice to always clean up any products containing mercury with care and common sense.



## COMPARING INTENSITY OR POWER:

How do CFLs compare to Incandescent lamps?

Below is a chart that compares the equivalent light output for CFLs and Incandescent lamps.

Incandescent Lamp				Compact Fluorescent Light			
Wattage	Rated Life (hrs)	Lumens	Colour Temp Deg K	Wattage	Rated Life (hrs)	Lumens	Colour Temp Deg K
40	1,000	510	2,650	10	10,000	600	2,700
60	1,000	800	2,790	15	10,000	800	2,700
75	1,000	1,100	2,800	20	10,000	1,100	2,700
100	1,000	1,535	2,870	29	10,000	1,600	2,700
150	1,000	2,780	2,925	38	10,000	2,600	2,700

Is there a CFL equivalent to an incandescent tri-light of 50-100-150?

Yes, however, the wattage equivalency for a specific CFL may vary slightly between manufacturers. Also, there are different ranges of wattage for CFL tri-lights. *Check the package to make sure.*

How does a CFL do in areas where power surges occur, such as rural areas?

CFLs may not hold up to the stress of power surges. So using them in areas such as workshops may not be advisable.

## PRICE:

Why should I buy a compact fluorescent light bulb?

To save energy. CFLs use only one quarter of the energy of standard incandescent bulbs. A 15-watt CFL produces the same high-quality light as a typical 60-watt bulb. CFLs have a longer life, and will result in less packaging in our landfills.

How much will I save by using CFLs?

An average Canadian home has 30 light fixtures, indoors and out, that consume close to \$200 of electricity every year. Replacing just five bulbs with ENERGY STAR qualified CFLs in high-use areas can save up to \$30 a year, depending on location and amount of time used. That means you'll pay off the added cost of the bulbs in less than two years, and they last for a least five. Better still, you won't have to change them as often!

## QUALITY:

Why choose an ENERGY STAR qualified CFL?

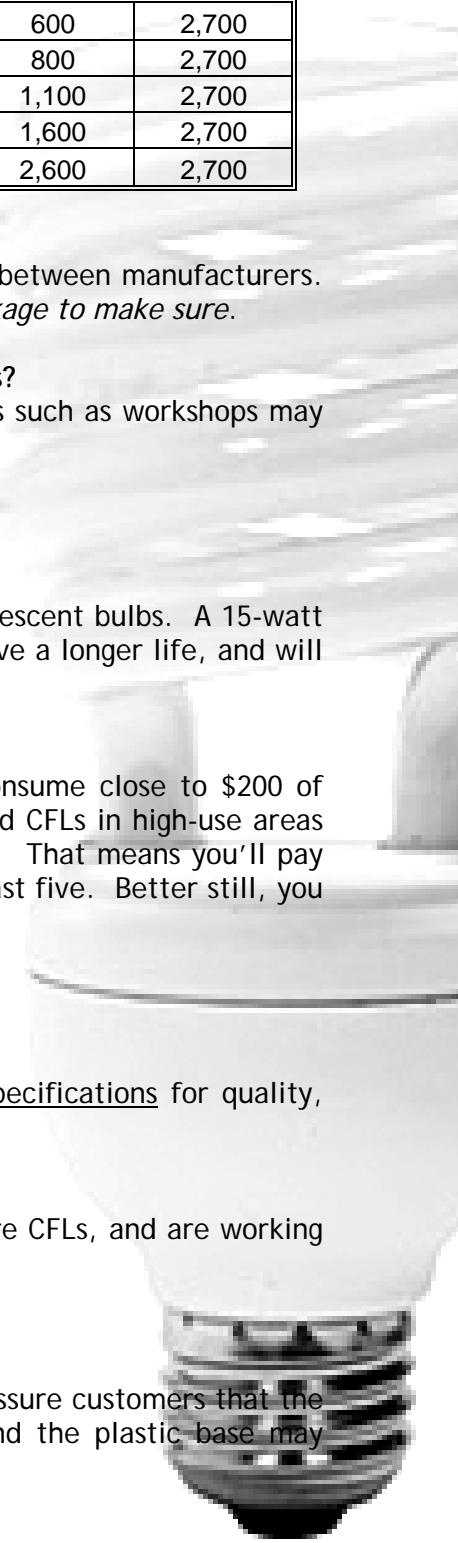
On CFLs, the ENERGY STAR symbol means that the product meets strict specifications for quality, including long life, colour and brightness as well as energy savings.

Are CFLs available in different colours?

Many manufacturers offer a choice of "warm" and "cool" colour temperature CFLs, and are working to improve the Colour Rendering Index (CRI) of these bulbs.

## END OF LIFE CONCERNS:


Ontario's Electrical Safety Authority has issued a Product Safety Alert to reassure customers that the normal end-of-life failure mode of CFLs may include smoke, an odour, and the plastic base may



become discoloured, charred or deformed. Certification agencies have indicated that this failure does not present a shock or fire hazard for approved products:

**ALERT NOTICE** Print 07-03-AL

March 2007




**Electrical  
Safety  
Authority**

**Product Safety Alert** March 22, 2007  
**For Immediate Release**

**THE ELECTRICAL SAFETY AUTHORITY RESPONDS TO CONSUMER CONCERNS ABOUT COMPACT FLUORESCENT LAMPS**

Toronto, ON – The Electrical Safety Authority (ESA) is receiving increasing reports from concerned consumers regarding the end-of-life failure of Compact Fluorescent Lamps (CFLs). The end-of-life failure for CFLs may vary depending on the manufacturer of the CFL, and on the type and location of the lighting fixture being used. When CFLs fail they may emit smoke, an odour, or a popping sound; and the plastic base may become discoloured, charred or deformed. Certification agencies have advised that this failure does not present a shock or fire hazard for approved products.

This picture is representative of CFL failures reported to ESA.



ESA is concerned that it can be difficult for consumers to distinguish between what is normal and what may be a precursor to fire or some other hazardous condition. As a safety precaution, ESA encourages consumers to replace CFLs at the first sign of failure or aging. The early warning signs to look for include: flickering, a bright orange or red glow, popping sounds, an odour, or browning of the ballast enclosure (base).

ESA is also advising consumers that different CFLs are required for different applications and use. CFLs may lack information on the packaging, or provide conflicting information about safe product use. Consumers are encouraged to read the base of the lamp and to contact manufacturers for additional information if required. Unless otherwise specified, CFLs should not be used: in totally enclosed recessed fixtures; with dimmer switches; in touch lamps with photocells or with electronic timers; where exposed to weather; or where exposed to water.

ESA is encouraging product manufacturers to review packaging information to support consumers in making safe product decisions. Activities are underway to update the existing Canadian safety standard for CFLs to address consumers' end-of-life product issues.

Contact: Electrical Safety Authority: Ted Olechna, Provincial Code Engineer, (905) 712-5366.

---

© Electrical Safety Authority Page 1 of 1

IF YOU RECEIVE, OR IF YOU HAVE ANY ADDITIONAL QUESTIONS relating to “COMPACT FLUORESCENT BULBS”, please contact Giorgio or Matt.

Sources: <http://www.oee.nrcan.gc.ca/energystar>, [www.quelph.ca](http://www.quelph.ca), [www.energystar.gov](http://www.energystar.gov)  
NRCan / Ministry of Ontario “Lighting Reference Guide.”  
U.S. Environmental Protection Agency