GREEN CHOICE PHILIPPINES

NELP-GCP 20070010
FLUORESCENT LAMPS

Environmental Scenario

The continuing evolution of lighting products can be attributed to the growing demand for environment-responsiveness through the production of less polluting and more energy efficient lighting products. Studies reveal that the biggest environmental impacts of fluorescent lamps occur during their utilization. Hence, saving energy through the use of more efficient lamps and bulbs is a trend in the ongoing efforts to reduce the environmental impacts of electricity production and use, which is a major contributor to the global warming due to green house gasses emissions. The use of energy efficient lighting reduces the amount of coal, oil, and gas burned in power plants, as well as the amount of air pollutants released in the air by the power generators.

Currently, the most popular lamp being used is fluorescent where mercury is an essential component for this energy efficient lamp. A typical fluorescent lamp is composed of a phosphor coated glass tube with electrodes located at either end. The tube contains a small amount of mercury, which, when voltage is applied, the electrode energizes the mercury vapor, causing it to emit ultraviolet (UV) energy. The tube with phosphor coating absorbs the UV energy and the phosphor fluoresces and emits visible light. (National Electrical Manufacturers Associations Study on Fluorescent and Other Mercury Containing Lamps and the Environment, March 2005)

In the Philippines, all lamps being sold in the market are imported as the country does not have local manufacturers. As such, the significant environmental impact of the product can only be measured locally in the utilization and end of life phases of the product. The government through its Bureau of Product Standards established the Philippine National Standards for lamps addressing the energy efficiency performance and safety of the product. On the other hand, the government policy on lamp waste management is not yet in place and still needs to develop comprehensive procedures in the recovery of used mercury for safe disposal.

Mercury levels in the environment have increased considerably since the onset of the industrial age. Mercury is now present in waterways, soil, air and food sources (especially fish) with levels that adversely affect humans and other forms of living organisms. Widespread exposures to mercury occur due to human-generated sources (United Nation Environmental Programme Global Mercury Assessment, September 2002). Mercury is toxic to humans. Overexposure to mercury can affect the nervous system, kidneys and other organs. It enters the environment as a pollutant through the disposal of certain products such as lamps. A parallel study reveals that one fluorescent lighting tube contains enough mercury to contaminate 30, 000 liters of water to an unsafe drinking level (Policy Study on Lamp Waste Management Policy Dialogue, December 2006).

Fluorescent lamps' energy efficiency, service lifetime, mercury content and its potential threat to the environment when disposed are the key considerations of these criteria.

Definition of Terms

1. Fluorescent lamp – discharge lamp of the low pressure mercury type, in which most of the light is emitted by one or several layers of phosphors excited by the ultra-violet radiation from the discharge.
2. Linear/Tubular Fluorescent Lamp – fluorescent lamp having two separate caps mostly of tubular form and linear shape. Also known as double-capped fluorescent lamps.
3. Compact Fluorescent Lamp – an integrated lamp/ballast combination with a medium screw base. Also known as self-ballasted compact fluorescent lamps.
4. General Lighting Service (GLS) Lamps – terms for lamps intended for lighting spaces that are typically occupied or viewed by people. Examples would be lamps for lighting offices, schools, homes, factories, roadways, or automobiles. It does not include lamps for such uses as film projection, reprographic processes, "sun-tanning", industrial processes, medical treatment and searchlight applications.
5. Mercury (also known as "quicksilver") – is a constituent element of the earth, a heavy metal. In pure form, it is known as alternatively as "elemental" or "metallic" mercury, also expressed as Hg. It is silvery white in appearance. It belongs to a transition metal and one among five elements that is liquid at room temperature. In fluorescent lamp, when voltage is applied, mercury in vapor form is energized by the electrode causing it to emit ultraviolet (UV) energy.
6. Atomic Absorption Spectrophotometry – is an analytical technique that measures the concentration of elements. Atomic absorption is so sensitive that can measure down to parts per billion of a gram in a sample. The technique makes use of the wavelengths of light specifically absorbed by an element. They correspond to the energies needed to promote electrons from one energy level to another or to higher energy levels.

Scope

These criteria shall apply to linear and compact fluorescent lamps for general lighting service applications.

Green Choice Requirements

To carry the Green Choice Philippines seal, the product must meet the following requirements:

1. The product shall comply with the corresponding Philippine National Standards on safety and performance specifications and its corresponding implementing guidelines.
2. The mercury content of the product shall not exceed 10 milligram per lamp. Specifically, the following specifications shall be followed:

    a. Mercury for compact fluorescent lamps shall not exceed 5 mg per lamp.
    b. Mercury for linear fluorescent lamps for general purposes shall not exceed
        b.1. 10 mg per lamp for halophosphate

b.2. 5 mg per lamp for triphosphate with normal life time

b.3. 8 mg per lamp for triphosphate with long life time

Other requirements

The following information shall be included and stated in the packaging of the product.

3. Mercury content of the product shall be clearly indicated in the packaging. It shall be stated as: "*It contains _____mg of mercury"*.
4. Proper procedures of handling and storing the post consumer use of the product shall be indicated in the packaging by means of a simple written instruction and symbol.

Verification Methods

1. On product requirement number 1, the applicant should get a certification from the Bureau of Product Standards that the product passed the corresponding PNS.
2. On product requirement number 2, the applicant shall submit a certification that the product has passed the maximum limit for mercury content based on acceptable and internationally recognized testing procedures for mercury.

Effectivity and Validity

These product criteria shall be in effect for three (3) years from the date of its approval, and are subject to change or withdrawal by the National Ecolabelling Programme of the Philippines Board when deemed necessary.