GREEN CHOICE PHILIPPINES

NELP-GCP PRP 2009002
INDUCTION LAMP LUMINAIRES

Environmental Scenario

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.

Magnetic induction lamps is an environmentally friendly technology which can reduce the negative environmental impacts by saving energy, reducing CO2 emissions, reducing materials consumption, reducing Mercury consumption and waste reduction.

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.

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).

Mercury of magnetic induction lamp is compounded with other metals form into solid form called amalgam. Solid form of mercury poses less environmental impact than liquid mercury. In the case of induction lamp, breakage of the small slug of amalgam can be easily recovered hence it can be disposed of properly with little or no risk of creating a locally contaminated area.

Induction Lamp Luminaires' 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. Magnetic Induction Lamp or Electrodeless lamp – is an electrode less fluorescent lamp that relies on the fundamental principles of electromagnetic induction and gas discharge to create light.

2. Amalgamated mercury –the combination of mercury with other metals that form into solid form of mercury.
3. Sulfur or Metal Halide- a member of the high-intensity discharge (HID) family of lamps, produce high light output for their size, making them a compact, powerful, and efficient light source. It operates under high pressure and temperature, and require special fixtures to operate safely. They are also considered a "point" light source, so reflective luminaires are often required to concentrate the light for purposes of the lighting application.

4. Electronic Ballast – sometimes called control gear; is a device intended to limit the amount of current in an electric circuit.
5. Induction lamp luminaires- the system composed of different components of the induction lamp.
6. Efficacy- refers to the amount of light (luminous flux) produced by a lamp (a light bulb or other light source), usually measured in lumens, as a ratio of the amount of power consumed to produce it, usually measured in watts.
7. Power factor- is defined as the ratio of the real power flowing to the load to the apparent power, and is a number between 0 and 1 (frequently expressed as a percentage, e.g. 0.5 pf = 50% pf).
8. Total harmonic distortion- is a measurement of the harmonic distortion present and is defined as the ratio of the sum of the powers of all harmonic components to the power of the Fundamental frequency.
9. 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.
10. 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.
11. IEC 61347-2-3/2000 - Lamp controlgear – Part 2-3: Particular requirements for a.c. supplied electronic ballasts for fluorescent lamps
12. EN 61347-1- Lamp controlgear. General and safety requirements
13. RA 6969- An act to control Toxic Substances and Hazardous and Nuclear Wastes, Providing Penalties for Violations Thereof, and For Other Purposes.
14. RA 9003- An Act Providing for an Ecological Solid Waste Management Program, Creating the Necessary Intitutional Mechanisms and Incentives, Declaring Certain Acts Prohibited and Providing Penalties, Appropriating Funds Therefor, and For Other Purposes.

Scope

These criteria shall apply to induction lamp luminaires for general lighting service applications. The rated voltage should be within 230-277 V 60 Hz and the wattages should be 40 to 200. The shape should be circular or rectangular (see appendix A).

Green Choice Requirements

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

A. Product Quality Performance

1. The product should comply with IEC 61347-2-3.
2. The Total Harmonic Distortion (THD current) of the product should be less than 15%.
3. The electronic ballast should be reliable and high efficient. Power factor (PF) should be greater than 90%, lower power consumption.
4. Electromagnetic Compatibility (EMC) should meet the international standards such as FCC,CE and other related.
5. Has an average life o f 100,000 burning hours.

6. It has an efficacy of at least 70 lumen/watts.

7. Has lumen depreciation rate of 5%@2,000 hours.

8. The product should be ROHS compliant particularly for the PCB and the mercury content.

B. Product Environmental Performance

1. The applicant is required to comply with relevant environmental legislations related to production process, transport and disposal features of the product.

2. The applicant should have a proper retrieval and disposal program of busted lamps.

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4. The ballast components must be easily dismountable into case, to allow a material-specific recycling.

C. Other requirements

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

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.

D. Evaluation and Validation

PRODUCT CRITERIA	EVALUATION AND VALIDATION
4.1 PRODUCT QUALITY PERFORMANCE	
4.1.1 Product Quality Standard	The applicant shall submit a certification from duly recognized/ accredited laboratories and/or certifying bodies.
4.2 PRODUCT ENVIRONMENTAL REQUIREMENTS	
4.2.1 Compliance to Environmental Regulations	The applicant shall submit applicable licenses and permits indicating the manufacturer's compliance with

	environmental regulations, applicable to the area where the plant is located
4.2.2 Retrieval and Disposal Program	The applicant shall submit a document showing their program on retrieval and disposal activities either in the form of Memorandum of Agreement with other organization or their procedures on retrieving and disposal of their busted lamps that is duly signed by their CEO or authrorized representative. The MOA should be notarized.
4.2.3 For numbers 3-8	The applicant shall submit a test result from locally or internationally accredited laboratories.
4.3 OTHER REQUIREMENTS	
4.3.1 Packaging	The applicant shall submit a sample or colored-photos of their packaging.

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.