

GREEN CHOICE PHILIPPINES

NELP-GCP 20080027 MULTI-FUNCTION PRINTING DEVICES

1. ENVIRONMENTAL SCENARIO

Printers or multi-function printing devices are among the many IT devices commonly used in offices and households. Printers are computer peripherals that are designed for low-volume, short-turnaround print jobs; requiring virtually no setup time to achieve a hard copy of a given document. The printer technology was improved to later on include non-printing features, thus elevating the printer into a Multi-Function Printing Device or Multi-Function Printer.

The major environmental impact of printers is often associated with its power consumption and its disposal. Printers consume significant quantities of energy during its manufacture and the use phase of its life-cycle. Printers also contain hazardous materials, flame retardants (e.g. PBB, PBDE), and heavy metals during its manufacture, use and end-of-life phases (Fraunhofer IZM & PE Europe, 2007). PBBs and PBDEs are harmful elements that are found to persist in the environment and accumulate in living organisms. PBBs are suggested to be carcinogens to humans by the International Agency for Research on Cancer, and PBDEs can have toxic effects on living organisms such as liver toxicity, thyroid toxicity and neurodevelopmental toxicity (U.S. Environmental Protection Agency, 2007).

Given that Multi-Function Printing Devices are the type of equipment that is present on a global scale and in large numbers, efforts must be made to address the environmental impact caused by these devices. The criteria is set in line with the proposed common core criteria for printers developed for the Global Eco-labelling Network, focusing on the following issues: health impacts due to hazardous components, product recyclability to minimize solid waste, and noise emission and energy consumption minimization without sacrificing the quality of the product.

2. DEFINITION OF TERMS

2.1. 3R

Reduce, Reuse, Recycle

2.2. DENR ADMINISTRATIVE ORDER 2005-05 (DENR AO 2005-05)

Toxic Chemical Substances for Issuance of Chemical Control Orders

2.3. DENR ADMINISTRATIVE ORDER 2005-27 (DENR AO 2005-27)

Revised Priority Chemical List

2.4. EQUIPMENT

The term used in reference to Inkjet Printer, Laser Printer or Multi-Function Device in this document.

2.5. HAZARDOUS WASTES

Refer to by-products, side-products, process residues, spent reaction media, contaminated plant or equipment or other substances from manufacturing operations and as consumer discards of manufactured products which present unreasonable risk and/or injury to health and safety and to the environment.

2.6. LIFE-CYCLE

Defines the sequence of stages a product goes through, generally covering the stages from raw material recovery, manufacture, use and end-of-life.

2.7. MULTI-FUNCTION DEVICE

The term used to define the equipment which is capable of at least three (3) functions both printing & non-printing: printing, faxing, scanning and/or copying.

2.8. PRINTERS

The term used to define a commercially available image or text reproducing computer peripheral used to create a paper document, by a single user or network-linked computers.

2.9. RECYCLING

Reprocessing in a production process of waste materials for their original purpose or for other purposes, but excluding energy recovery.

2.10. REUSE

Shall refer to the process of recovering materials intended for the same or different purpose without the alteration of physical and chemical characteristics.

2.11. REPUBLIC ACT 6969 (RA 6969)

Toxic Substances and Hazardous and Nuclear Waste Control Act of 1990.

2.12. REPUBLIC ACT 9003 (RA 9003)

Ecological Solid Waste Management Act

2.13. RESTRICTION OF HAZARDOUS SUBSTANCES DIRECTIVE (ROHS)

A European Union Directive which restricts the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE) in new electrical and electronic equipment.

2.14. TAKE-BACK SYSTEM

It requires the producers either take back spent products and manage them through reuse, recycling, or remanufacturing, or delegate this responsibility to a third party. It is also known as Extended Producer Responsibility (EPR). The idea underlying EPR is that placing responsibility for waste management with producers creates a strong incentive for them to redesign products with an aim toward less material use and improved recyclability.

2.15. TRANSPORT

Includes conveyance 5n air, water and land.

2.16. VOLATILE ORGANIC COMPOUND (VOC)

Organic chemical compounds that under normal conditions are gaseous or can vaporise and enter the atmosphere. VOCs contribute significantly to photochemical smog production and certain health problems.

3. SCOPE

The criteria are applicable to Multi-function Printing Devices.

4. GREEN CHOICE REQUIREMENTS

4.1. Product Quality Performance

4.1.1. Quality Performance

The product shall comply with the performance requirements of the relevant Philippine National Standard for its intended application in Table 1 or the product meets any other internationally accepted.

Table 1 – Applicable Philippine National Standards for Printers

Standard No.	Title
PNS IEC 60950-1:2005	Information Technology Equipment – Safety Part 1: General Requirements
PNS ISO/IEC 11160-1:2003	Information technology – Office Equipment— Minimum information to be included in specification sheets – Printers – Part 1: Class 1 and Class 2 printers
PNS ISO/IEC 11160-2:2003	Information technology – Office Equipment— Minimum information to be included in specification sheets – Printers – Part 1: Class 1 and Class 2 printers

4.1.2. Warranty

- The manufacturer shall offer a commercial guarantee on the quality of the product provided the product is used for its intended purpose. The period of this guarantee must be at least 1 year.
- The equipment shall be capable of using recycled paper made from 100% waste paper and shall not void the warranty of the equipment.

4.2. Product Environmental Requirements

4.2.1. Compliance to Environmental Regulations

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

4.2.2. 3R Design

The standard for the design of multi-function devices are established based on its modularity. Each part of the product or module can be separated from the whole, and hence can be treated as a single entity for the purpose of recyclability, disassembly and reparability. The following requirements have to be fulfilled:

- The parts of the product shall be recyclable.
- There shall be no inseparable joints between different materials such as glued or welded joints.
- Modules shall be easily removed.
- Connections between parts must be easily located.
- Labels and/or stickers shall be made up of the same material as the part in which they are attached and/or it must not be treated in a manner that would pose difficulty in recycling.

4.2.3 Emissions

For Multi-Function Printing Devices with laser and inkjet printing, emissions shall not exceed the levels indicated in the following tables:

Table 2 – Emission Limits for Laser Printing

Emission	Laser Printing (of product body volume)
Ozone	Less than 0.04 mg/m ³
Particulate Matter	0.25 mg/m ³

Table 3 – Emission Limits for Inkjet Printing

Emission	Inkjet Printing
VOCs	5% by weight

For Multi-Function Printing Devices with copiers, emissions (Dust, Ozone & Styrene) shall not exceed the levels indicated in the following table:

Table 4 – Emission Limits for Copiers

	Copiers
Dust	0.075 mg/m ³
Ozone	0.02 mg/m ³
Styrene	0.7 g/m ³

4.2.4 Energy

Energy consumption shall comply with the requirements of Energy Star at the time of the application.

4.2.5 Noise

Sound emission from printers shall meet either sound pressure level limits or preferably sound power level limits indicated in Table 5:

Table 5 – Sound Power Level Limits for Multi-Function Printing Devices

	Copies per Minute	Sound Power Level (L_{Wad})
Operating	0-30	66 dB
	31-50	71 dB
	51-70	7.8 dB
	>70	-
Standby	0-30	43 dB
	>30	-

4.2.6 Hazardous Substances

The product shall not contain substances listed in DENR AO 2005-05 and/or in ROHS.

4.2.7 Plastic Materials and Photosensitive/Photographic Components

Plastic components, plastic additives and pigments shall not contain any substances restricted under DENR AO 2005-27.

4.2.8 Toners and Inks

The inks and toners shall comply with the requirements of GCP Criteria 2008022 and GCP 2008023.

4.2.9 Packaging Requirements

The packaging material shall be based on its reusability and recyclability. The following requirements have to be fulfilled:

- Plastic polymers containing halogens shall not be used as packaging material for the machines and its parts.
- Primary packaging shall have a plastic resin identification code.
- Packaging materials shall not be treated or made in a manner that would prevent reusing and recycling.
- Cardboard packaging shall consist of at least 80% recycled content.

4.2.10 Take-Back

The applicant shall have an established and validated retrieval or take back system equivalent to not less than 10% of its total units sold.

4.3 Other Criteria

4.3.1 Consumer Information

The following technical information shall be specified in the user’s manual:

- Instructions on the proper positioning of the machine.
- Information about how and where each part is used and which decommissioned products/parts can be returned for refilling, recycling and/or disposal.
- Print Capacity (copies per minute) and copying volume per month or year.

5 EVALUATION AND VALIDATION

PRODUCT CRITERIA	EVALUATION AND VALIDATION
4.1 PRODUCT QUALITY PERFORMANCE	
<i>4.1.1 Quality Performance</i>	The applicant shall submit a portfolio and statement in writing signed by the Chief Executive Officer or counterpart of the company and shall be accompanied by the relevant documentations.**
<i>4.1.2 Paper</i>	
4.2 PRODUCT ENVIRONMENTAL REQUIREMENTS	
<i>4.2.1. Compliance to Environmental Regulations</i>	Submission of applicable licenses and permits to operate indicating the manufacturer’s compliance with agreements on environmental regulations applicable to the area which the plant is located.**
<i>4.2.2. 3R Design</i>	The applicant shall submit a portfolio and statement in writing signed by the Chief Executive Officer or counterpart of the company and shall be accompanied by the relevant documentations**.
<i>4.2.4. Energy</i>	
<i>4.2.6. Hazardous Substances</i>	
<i>4.2.7. Plastic Materials and Photosensitive/Photographic Component</i>	
<i>4.2.8. Toners and Inks</i>	
<i>4.2.9. Packaging Requirements</i>	
<i>4.2.3 Emissions (Dust, Ozone & Styrene)</i>	The applicant shall submit duly

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<i>4.2.5. Noise</i>	signed certification from recognized/accredited laboratories and/or certification bodies.*
<i>4.2.10 Take-Back Program</i>	The applicant shall submit its program on take back program. The program shall ensure a 10% retrieval of the annual sales.** %Retrieval = $\frac{\text{no. units retrieve (end of life)}}{\text{no. units sold}}$
4.3 OTHER CRITERIA	
<i>4.3.1 Availability of Spare Parts and Consumables</i>	The applicant shall submit a portfolio and statement in writing signed by the Chief Executive Officer or counterpart of the company and shall be accompanied by the relevant documentations.**
<i>4.3.2 Consumer Information</i>	

* Laboratories accepted by national or international accreditation bodies such as the Asia Pacific Laboratory Accreditation Cooperation (APLAC) or International Laboratory Accreditation Cooperation (ILAC)

** Notarized documents

6 PERIOD OF VALIDITY

The product criteria shall take effect for three (3) years from the date of its approval, and subject to change or withdrawal by the **Green Choice Philippines-NELP Board**, if proven necessary at any period of time.

7 REFERENCES

American Chemical Society. (2000). Is Extended Producer Responsibility Effective? *Environmental Science & Technology* , 170-175.

DENR Administrative Order 2005-05: Toxic Chemical Substances for Issuance of Chemical Control Orders

DENR Administrative Order 2005-27: Revised Priority Chemical List
Republic Act 6969: Toxic Substances, Hazardous and Nuclear Waste Control Act

European Union. (2003, January 27). DIRECTIVE 2002/95/EC on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment

Fraunhofer IZM & PE Europe. (2007). *EuP Preparatory Studies "Imaging Equipment" (Lot 4): Final Report on Task 5 "Definition of Base Cases"*. Fraunhofer Institute for Reliability and Microintegration, IZM, Berlin, Department Environmental Engineering . Berlin: Fraunhofer IZM & PE Europe.

International Agency for Research on Cancer. (2007, November 29). *IARC Monographs - Classifications - Group 2B*. Retrieved February 7, 2008, from International Agency for Research on Cancer Web Site:
<http://monographs.iarc.fr/ENG/Classification/crthgr02blist.php>

Japan Environment Association; Eco Mark Product Category No. 122: Printers version 2.0 Certification Criteria.

New Zealand Ecolabelling Trust; License Criteria for Copying Machines, Printers, Fax Machines and Multifunctional Devices EC-24-05.

Nordic Ecolabelling; Swan Labelling of Imaging Equipment version 5.0

U.S. Environmental Protection Agency. (2007, August 3). *Pollution Prevention and Toxics: Polybrominated diphenylethers (PBDEs)*. Retrieved February 7, 2008, from U.S. Environmental Protection Agency Web Site: <http://www.epa.gov/oppt/pbde/>

PNS 60950-1:2005 - Information Technology Equipment – Safety

Part 1: General Requirements

PNS ISO/IEC 11160-1:2003: Information technology – Office Equipment—Minimum information to be included in specification sheets – Printers – Part 1: Class 1 and Class 2 printers

PNS ISO/IEC 11160-2:2003: Information technology – Office Equipment—Minimum information to be included in specification sheets – Printers – Part 1: Class 1 and Class 2 printers

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