

## **GREEN CHOICE PHILIPPINES**

### **NELP-GCP 20080026 PHOTOCOPIER**

#### **1. ENVIRONMENTAL SCENARIO**

Since its invention in the 1960's, copiers are one of the most extensively used office equipment globally. Present in most offices, schools and government institutions, copiers revolutionized the world by making the duplication of a paper document more convenient. Even though it was widely heralded that photocopiers will be greatly diminished in number due to the inception of the "paperless office", photocopiers are still in great use until today. But the fact remains that though highly useful, these machines also have an impact on our environment. The main environmental impact of copying machines often occurs during the use and disposal phases.

The European Union's Waste Electrical and Electronic Equipment (WEEE) Directive and the Restriction of the use of certain Hazardous Substances (RoHS) Directive was implemented due to the increasing number of pollutants that are proliferating in the environment such as electrical and electronic devices wastes; heavy metals pollution caused by the land filling of such equipment; detection of specific brominated flame retardants that has the potential to accumulate and cause harm in the environment and in the living body, among others. Considering that copiers are products circulating internationally, efforts must be made to take these regulations into consideration.

Locally, efforts are also being made to address this need, which is the main purpose of this project. The focus of the following criteria is mainly on the following benefits: to minimize the health impacts caused by these hazardous components; to enhance product recyclability to minimize solid waste, and to improve 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. 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.

##### **2.5. 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.

## **2.6. PHOTOCOPIER**

A photocopier is a reprographic imaging unit the sole function of which is the production of duplicates from a graphic hard copy original. A copier must include a marking system, an imaging system, and a paper handling module.

This Product Criteria covers all black and white plain paper technologies, though the intent is to focus on widely-used standard copier equipment such as the light lens copiers. The specifications outlined below apply to standard-sized copiers designed to handle A4 sized paper (8.5" x 11") and large format copiers designed to handle A2 sized paper (17" x 22") or larger.

## **2.7. PRINTING SPEED**

Refers to the number of sheets printed per minute (PPM)

## **2.8. RE-USE**

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

## **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. REPUBLIC ACT 6969 (RA 6969)**

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

## **2.11. REPUBLIC ACT 9003 (RA 9003)**

Ecological Solid Waste Management Act of 2000

## **2.12. RESTRICTION OF HAZARDOUS SUBSTANCES DIRECTIVE (ROHS)**

A European 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.

## **2.13. 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.

## **2.14. TRANSPORT**

Includes conveyance used in air, water and land.

## **3. SCOPE**

These criteria are applicable to photocopiers.

## **4. GREEN CHOICE REQUIREMENTS**

### **4.1. Product Quality Performance**

#### **4.1.1. Product Quality Standard**

The product shall comply with the performance requirements of the relevant Philippine National Standard for its intended application.

**Table 1 – Applicable Philippine National Standards for Photocopier**

Standard No.	Title
PNS IEC 60950:1:2005	Information Technology Equipment – Safety Part 1: General Requirements

**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. Energy**

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

**4.2.4. Emissions (Dust, Ozone & Styrene)**

The emissions from the equipment must meet the limits indicated in table 2:

**Table 2 – Emission Limits for Copiers**

	Copiers
<b>Dust</b>	0.075 mg/m <sup>3</sup>
<b>Ozone</b>	0.02 mg/m <sup>3</sup>
<b>Styrene</b>	0.7 g/m <sup>3</sup>

**4.2.5. Noise**

Sound emission from copiers shall meet either sound pressure level limits or preferably sound power level limits indicated in Table 3:

**Table 3 – Copiers Sound Emission Limits**

Copying Speed (CPM)		≤ 30	31 ~ 50	51 ~ 70	≥ 71
Class					
Sound Pressure Level [dB(A)]	Copying Mode	≤ 63	≤ 68	≤ 75	-
	Standby Mode	≤ 40	≤ 50	≤ 52	
Sound Power Level [dB(A)]	Copying Mode	≤ 66	≤ 71	≤ 78	-
	Standby Mode	≤ 43	≤ 53	≤ 55	-

**4.2.6. Hazardous Substances**

The product shall not contain substances listed in DENR AO 2005-05 and/or with 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 toner shall comply with the requirements of GCP Criteria 2008022 and GCP 2008023 respectively.

**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 System**

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 Availability of Spare Parts and Consumables**

The applicant shall ensure that all spare parts and consumables are available for seven (7) years following the termination of production of a particular model.

**4.3.2 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.
- Information concerning disposal of used OPC kit/photosensitive drums, toner containers and containers for used toner.
- Print Capacity (number of copies per minute) of the machine and the copying volume per month or year.

## 5. EVALUATION AND VALIDATION

PRODUCT CRITERIA	EVALUATION AND VALIDATION
<b>4.1 PRODUCT QUALITY PERFORMANCE</b>	
4.1.1 <i>Product Quality Standard</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.**
4.1.2 <i>Paper</i>	
<b>4.2 PRODUCT ENVIRONMENTAL REQUIREMENTS</b>	
4.2.1 <i>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 where the plant is located.**
4.2.2 3R Design	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.**
4.2.3. Energy	
4.2.6 Hazardous Substances	
4.2.7 Plastic Materials and Photosensitive/Photographic Components	
4.2.8 Toners and Inks	
4.2.9 Packaging Requirements	
4.2.4 <i>Emissions (Dust, Ozone &amp; Styrene)</i>	The applicant shall submit duly signed certification from recognized/accredited laboratories and certification bodies*
4.2.5 <i>Noise</i>	
4.2.10 <i>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 = $\frac{\text{no. units retrieve (end of life)}}{\text{no. units sold}}$
<b>4.3 OTHER CRITERIA</b>	
4.3.1 <i>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.**
4.3.2 <i>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:**

*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*

Japan Environment Association; Eco Mark Product: Copier, Version 2.0 Certification Criteria

National Statistics Office. (2003, December 3). *2002 Survey of Information and Communication Technology (SICT) Highlights*. Retrieved March 2, 2008, from National Statistics Office Website: <http://www.census.gov.ph/data/sectordata/sr0373tx.html>

Nordic Ecolabelling; Swan Labelling of Imaging Equipment version 5.0; 2007  
Energy Allstars; Eligibility Criteria for Copiers; 2005.

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

PNS IEC 60950:1:2005 - Information Technology Equipment – Safety Part 1: General Requirements

United Nations University. (2004, May-June). *UNU Update*. Retrieved February 28, 2008, from UNU Update Website: [http://update.unu.edu/archive/issue31\\_5.htm](http://update.unu.edu/archive/issue31_5.htm)

**GREEN CHOICE PHILIPPINES**  
National Ecolabelling Programme

**Technical Working Group – Photocopier**

***Chair:***

***Dr. Alvin B. Culaba***

NELP GCP Technical Committee Member  
De La Salle University-CESDR

***Members:***

***Engr. Jose Carlos Reyes***

Bureau of Product Standards-DTI

***Engr. Margie Caridad***

National Solid Waste Commission

***Engr. Nelia Granadillos***

Occupational Safety and Health - DOLE

***Consultants:***

Maureen Grace V. Lebria

Rena Angela S. Bautista

Lejani C. Valisno