

GREEN CHOICE PHILIPPINES

NELP-GCP - 2008020 TONER CARTRIDGE

1. ENVIRONMENTAL SCENARIO

Toner cartridges are widely used for most laser printers, computer printers, multi-function devices, fax machines and copying machines. The toner is the powder used in these printers to form the text and images on the printed paper while the cartridge is the container that holds the toner in most modern day printers. Toner cartridges are typically composed of the container filled with the toner, a drum and/or a developing unit.

These toners have an environmental impact due to the heavy metals found in the toner which may have effect on human health during its manufacture and use stages. With the increasing demand of toner usage in offices, the concern over its disposal and that of its packaging poses a serious problem (Thailand Environment Institute, 2003).

The refilling of cartridges significantly reduces the total consumption of cartridges, thereby reducing the environmental impact of the product throughout its life-cycle. However, threat is still posed by the continuous use of the toner & the toner cartridge. This criteria gives focus to the hazardous components of a toner cartridge and its 3R design (reuse, reduce, recycle) in order to reduce the health impact, the waste generated and the resources consumed throughout the entire life-cycle of a toner cartridge.

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. *DEVICE*

Term used to define an equipment or machine in which a toner cartridge is used.

2.5. *ORIGINAL TONER CARTRIDGES*

Refers to the toner cartridges manufactured by output device manufacturers or manufactured on consignment by output device manufactures for the purpose of being used in a certain model of output devices.

2.6. *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.

2.7. RECYCLING

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

2.8. REMANUFACTURED TONER CARTRIDGES

These are cartridges which are collected, disassembled, cleaned, inspected, repaired, assembled and refilled with toner powder.

2.9. REPUBLIC ACT 6969 (RA 6969)

Toxic Substances and Hazardous and Nuclear Waste Control Act of 1990

2.10. REPUBLIC ACT 9003 (RA 9003)

Ecological Solid Waste Management Act

2.11. STANDARD COLOR

The standard equipped print color in toner cartridges. These are the colors black, cyan, magenta and yellow.

2.12. 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.

2.13. TRANSPORT

Includes conveyance by air, water and land

2.14. TONER CARTRIDGE

A container composed of toner powder, drum and a developing unit, used in laser printers, computer printers, copying machines, fax machines or multi functional copiers which enables the machine to create text and images on a piece of paper.

2.15. UNIFORMITY OF PRINTING DENSITY

The uniformity for the density of the printed part with standard color

3. SCOPE

The criteria are applicable to toner cartridges or toner bottles used in laser or electro photographic output devices (printers, facsimile machines, copiers and multifunction devices).

4. GREEN CHOICE REQUIREMENTS

4.1. Product Quality Performance

The product shall be of high quality and perform well in their intended application.

4.1.1. Print Quality

The print capacity of the product shall comply with the following requirements:

- Fixation of toner: There shall not be any scrap of toner powder on the paper.

- Cleanliness of printed side of paper: There shall not be any spot, scratch or contaminant on the printing side of paper.

4.2. Product Environmental Performance

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 toner cartridges 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:

- Connections between parts must be easily located.
- There shall be no inseparable joints between different materials such as glued or welded joints.
- 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. Heavy Metals

The product shall not contain mercury, lead, cadmium, and hexavalent chromium or as listed in DENR AO 2005-05. If the above substances exist in the product as impurities or contaminants, their total weight shall be less than 0.1% of the product.

4.2.4. Colorants

The following azo dyes and pigments shall not be used in the toner formulation.

Name	CAS Number
4-aminodiphenyl	92-67-1
4-aminoazobenzene	60-09-3
Benzidine	92-87-5
4-chloro-o-toluidine	95-69-2
2-naphthylamine	91-59-8
o-aminoazotoluene	97-56-3
2-amino-4-nitrotoluene	99-55-8
p-chloroaniline	106-47-8
2,4-diaminoanisole	615-05-4
4,4'-diaminodiphenylmethane	107-77-9
3,3'-dichlorobenzidine	91-94-1
3,3'-dimethoxybenzidine	119-90-4
3,3'-dimethylbenzidine	119-93-7
3,3'-dimethyl-4,4'-diaminodiphenylmethane	838-88-0
p-cresidine	120-71-8
4,4'-methylene-bis-(2-chloroaniline)	101-14-4
4,4'-oxydianiline	101-80-4
4,4'-thiodianiline	139-65-1

o-toluidine	95-53-4
2,4-toluidinediamine	95-80-7
2,4,5-trimethylaniline	137-17-7
o-anisidine	90-04-0

4.2.5. *Material Safety Data Sheets (MSDSs)*

The applicant shall submit MSDS for the specified product.

4.2.6. *Take-Back System*

The applicant shall have an established and validated retrieval or take back system equivalent to not less than 30% of its total units sold.

4.3. Other Criteria

4.3.1. *Packaging*

Packaging materials used shall not contain halogenated plastics and PVCs. CFCs and HCFCs shall not be used in the production of packaging.

4.3.2. *Label*

The packaging or manual shall be attached with a label indicating a brief description on the proper use of the product.

5. EVALUATION AND VALIDATION

PRODUCT CRITERIA	EVALUATION AND VALIDATION
4.1 PRODUCT QUALITY PERFORMANCE	
<i>4.1.1 Print Quality</i>	Actual test of print quality during Product Evaluation
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 where 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>4.2.3 Heavy Metals</i>	Submission of certification or testing results from recognized or accredited laboratories and/or certifying bodies*.
<i>4.2.4 Colorants</i>	
<i>4.2.5 Material Safety Data Sheets (MSDSs)</i>	Submission of Material Safety Data Sheets (MSDSs) of the toner used
4.3 OTHER CRITERIA	
<i>4.3.1 Packaging</i>	The applicant shall submit a portfolio and statement in writing signed by the Chief Executive Officer or counterpart of the company complete with relevant documentations, including samples.**
<i>4.3.2 Take-Back System</i>	<p>The applicant shall submit its program on take back program. The program shall ensure a 30% retrieval of the annual sales.**</p> <p>%Retrieval = $\frac{\text{no. units retrieve (end of life)}}{\text{no. units sold}}$</p>

* 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

Hong Kong Green Label Scheme; Product Environmental Criteria for Ink Jet/Laser Jet Printers (GL-006-003)

Hong Kong Green Label Scheme; Product Environmental Criteria for Toner Cartridge GL-005-002

Japan Environment Association; Eco Mark Product Category No. 132: Toner Cartridge, Version 1.2 Certification Criteria

Korea Eco-Label; EL 104-1997/5/2005-68 – Toner Cartridges

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>

New Zealand Ecolabelling Trust; License Criteria for Toner Cartridges EC-30-05

Nordic Ecolabelling; Swan Labelling of Toner Cartridges Remanufactures version 4.0

Thailand Environment Institute. (2003). *Developing Common Core Criteria for Toner Cartridges*. Bangkok: Global Eco-labeling Network (GEN).

GREEN CHOICE PHILIPPINES
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