



Environmental Standard - Certification Criteria Document

CCD 035: Office Machines

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Office Machines



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Introduction

The EcoLogo® Program is designed to support a continuing effort to improve and/or maintain environmental quality by reducing energy and materials consumption and by minimizing the impacts of pollution generated by the production, use and disposal of goods and services.

EcoLogo® is a Government of Canada official mark used under license from Environment Canada. TerraChoice is not an agent of Environment Canada.

This criteria document updates and replaces three previous EcoLogo® criteria documents – CCD-035 Photocopiers, CCD-036 Fax Machines and CCD-037 Laser Printers.

Office machines include multifunction devices, printers, copiers, faxes and mailing machines. Office machines are widely used in both office and home working environments and fulfill the basic needs of most offices today.

Office machines consume significant quantities of both energy and paper. They typically contain hazardous metals and flame-retardants. These units also release emissions in the form of noise and chemical substances, such as ozone, dust and volatile organic compounds.

These criteria include requirements for standard sized monochromatic and color office machines based on electrophotographic (including laser and LED) and inkjet marking technologies. Standard-sized machines are those that primarily print or copy on regular sized (e.g., A4 / 8.5 x 11) paper and envelopes. Digital duplicators are not covered.

Based on a review of currently available life cycle information, the product category requirements will produce an environmental benefit through a reduction of waste to landfill, a reduction of chemical emissions and the conservation of energy.

Life cycle review is an ongoing process. As information and technology change, the product category requirements will be reviewed and possibly amended.

Notice

Any reference to a standard means to the latest edition of that standard.

The EcoLogo® Program reserves the right to accept equivalent test data for the test methods specified in this document.

Notice of Intent

Future revisions of this document may remove the exemption provided in criteria 4(c) and 4(d) (exemption of remanufactured or refurbished equipment from prohibitions on hazardous substances).

Interpretation:

1) In this standard:

"**casings**" means the outer case of office machines;

"**chloroparaffins**" means a class of substances produced by chlorination of normal paraffin fractions (straight-chain hydrocarbons, at least 98% linear), and have the general formula $C_xH_{(2x-y+2)}Cl_y$. The length of the carbon chains is usually between 10 and 30 carbon atoms, and the chlorine content is between 20 and 70% by weight;

"**consumables**" means items that are replaced on a routine basis either by users or service agents. Depending on the type of machine, these items could include toner cartridges, toner bottles, ink jet cartridges, drums, and/or fusers. It does not include waste toner bottles / waste toner receptacles;

"**copier**" means an office machine marketed as a copier that makes hard-copy duplicate images from hard copy originals, either colour or black and white or both;

"**current ENERGY STAR® requirements**" means the Energy Star® requirements for imaging machines. At the time of publication of this document this is "ENERGY STAR® Program Requirements for Imaging Equipment – Version 1.0"

"**duplexing**" means the ability of an office machine to automatically place images on both sides of a print or copy sheet (i.e. one sided to two sided or two sided to two sided);

"**EPA**" means United States Environmental Protection Agency;

"**electrophotographic**" means an office machine technology based on illumination of a photoconductor (also drum / roller) in the pattern of the desired image and subsequent arrangement of toner in the pattern of the image and onto paper;

"**end of life waste diversion program for consumables**" means a program provided by the manufacturer to divert consumables (see definition of "consumables" above) of office machines from landfill. Collection of consumables is done by any of the following:

- return of consumable by mail,
- return of consumable by service agent, or
- instructions for blue box disposal of eligible materials (e.g., empty plastic toner bottles) with instructions on how to return if blue box facilities do not exist.

"**fax**" means an office machine marketed as a fax that sends and receives hard copy images over a telephone system, network or the internet, it may or may not perform single page copying

"**homogenous material**" means a material that cannot be mechanically disjointed into different materials;

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"integrated mailing machine" means an office machine marketed as an integrated mailing machine that prints postage onto mail pieces and prints addresses onto mail pieces. It may or may not be integrated with the functions to weigh, fold, insert, and seal mail;

"mailing machine" means an office machine marketed as a mailing machine which prints postage onto mail pieces;

"manufacturer" means original equipment manufacturer (OEM);

"multifunctional device" means an office machine marketed as a multifunctional device that performs two or more of copying, printing, faxing, and scanning, one of which must be printing or copying. Fax machines with single page convenience copying are not considered multifunctional devices;

"n-up" or "multi-up" means the ability to place images from two or more original sheets onto one side of the print or copy sheet;

"noise" means an undesired sound;

"office machines" means multifunctional devices, printers, copiers, faxes, mailing machines and integrated mailing machines;

"ozone" means an unstable molecule (O_3) produced when oxygen decomposes in the presence of high voltage and electrical discharges. In office machines, it is formed by the use of charging devices necessary for the imaging process;

"polybrominated biphenyls" means a class of substances that have the molecular formula $C_{12}H_{(10-n)}Br_n$ in which "n" is greater than 2;

"polybrominated diphenyl ethers (PDBEs)" means a class of substances which contain an identical base structure, $C_{12}H_xBr_nO$ but differ in the number of attached bromine atoms (n= 1 to 10);

"printer" means an office machine marketed as a printer that produces hard copy output of images received from computers or other input devices. It may be a desktop or free-standing machine;

"toner cartridge" means an assembly used for printing and copying, and, depending on the style of the office machine, containing, but not limited to toner and one or more of the following: a photosensitive element, a corona unit, a developer unit, and a wiper wand;

"remanufactured toner cartridge" means a toner cartridge to which the following service has been performed: the disassembly of the cartridge, inspection, cleaning and adjustment of all components, repair where necessary, replacement of worn or damaged parts, reassembly and testing of the remanufactured cartridge, and, where applicable, removal of the remaining toner, replacement of the toner supply, and, refurbishing the organic photoreceptor cell (OPC) or replacing the OPC with a new or after market cell;

"reused, remanufactured or refurbished components" means components of office machines that are removed from end-of-life machines and placed into other office machines. These include all types of parts, subassemblies, electronic components, trays, doors, roller drums etc; and

"total volatile organic compound" or "TVOC" means the total of the concentrations of identified and unidentified volatile organic compounds, which elute between n-hexane and n-hexadecane, inclusive of these compounds, during gas chromatographic separation on a non-polar column. This definition is taken verbatim from German Blue Angel Test method for the determination of emissions from hardcopy devices with respect to awarding the environmental label for office devices RAL-UZ 62, RAL-UZ 85 and RAL-UZ 114 or Test method for the determination of emissions from hardcopy devices with respect to awarding the environmental label for office devices with printing function according to RAL-UZ 122.

Category Definition

- 2) This category includes the following subcategories of office machines:
 - (a) multifunctional device;
 - (b) printer;
 - (c) copier;
 - (d) fax; and
 - (e) mailing machines.

General Requirements

- 3) To be authorized to carry the EcoLogo[®], office machines must:
 - (a) meet or exceed all applicable governmental and industrial safety and performance standards; and
 - (b) be manufactured and transported in such a manner that all steps of the process, including the disposal of waste products arising therefrom, will meet the requirements of all applicable governmental acts, by laws and regulations.

Product Specific Requirements

- 4) To be authorized to carry the EcoLogo[®], the office machine must:

Restrictions on Hazardous Substances

- (a) meet emission rates from the table below when tested at monochrome settings and following the German Blue Angel "Test method for the determination of emissions from hardcopy devices with respect to awarding the environmental label for office devices with printing

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function” according to RAL-UZ 122, or the Ecma International “European association for standardizing information and communication systems test method ECMA 328 - Determination of Chemical Emission Rates from Electronic Equipment” 2nd edition with particular attention paid to section B9 of ECMA 328;

Office machine	Ozone (mg/h)	Dust (mg/h)	Total volatile organic compounds (mg/h)
Multifunctional device	1.5	4.0	10
Copier	1.5	4.0	10
Laser printer	1.5	4.0	10
Ink-jet printer	--	--	10
Laser fax	1.5	4.0	10
Ink-jet fax	--	--	10
Integrated mailing machine	1.5	4.0	10

- (b) not use CFCs, HCFCs, HFCs to clean electronic parts during assembly or disassembly;
- (c) not contain cadmium, lead, mercury or hexavalent chromium except for trace amounts consistent with “Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment” (the European “RoHS” directive) and all amendments/exemptions. The RoHS maximum allowable concentrations of trace impurities in homogenous material are:
 - (i) cadmium 0.01 w-% (100 ppm),
 - (ii) lead 0.1 w-% (1000 ppm),
 - (iii) mercury 0.1 w-%; (1000 ppm), and
 - (iv) hexavalent chromium 0.1 w-%; (1000 ppm).

Note also that these restrictions do not apply to reused, remanufactured or refurbished components of office machines;

- (d) use only plastic casing parts that have been manufactured without the following flame retardants
 - (i) poly-brominated biphenyls (PBBs),
 - (ii) polybrominated diphenyl ethers (PBDEs), and
 - (iii) chloroparaffin flame retardants with chain length 10 to 17 carbon atoms, and chlorine content greater than 50% by weight.

Note that these restrictions do not apply to reused, remanufactured or refurbished components of office machines;

- (e) use photoreceptors / photoconductors that have not been manufactured with selenium or arsenic containing compounds;

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- (f) be accompanied by information that is stated either in an instruction manual or on a product information sheet available in hard-copy or on the web:
 - (i) the ambient ozone level being met, including and the test method used,
 - (ii) the procedure for changing ozone filters and the recommended frequency of filter replacement or service by the manufacturer,
 - (iii) the declared A-weighted sound power level (LWAd) in decibels (dBA) of the product for both in-use and idling modes as tested in accordance with ISO 7779: Acoustics - Measurement of airborne noise emitted by information technology and telecommunications equipment, and
 - (iv) electricity consumption;

Design for Extended Life, Re-use and Recycling

- (g) allow the use of remanufactured toner cartridges without automatically voiding the original manufacturer's warranty on the office machine. However damage caused by faulty cartridges will not be covered. Manufacturers' warranties can require that remanufactured cartridges meet quality standards (such as CAN/CGSB-53.148-200 *Toner Cartridges*) or the original manufacturer's standards and criteria;
- (h) not use any hardware restricting replacement cartridges to only the original equipment manufacturers' cartridges;
- (i) use only plastic parts that are marked to indicate the composition code and any added flame retardants to facilitate future recycling efforts (see ISO 11469 Plastics -- Generic identification and marking of plastics products and ISO 1043 Parts 1 - 4 Plastics – Symbols and abbreviated terms - exception for parts <25 g or <200mm² in flat area);
- (j) for repair purposes and extending product life, make spare parts available for 3 years after sale;
- (k) make efforts to secure plastic containing post-consumer recycled content in at least the outer casing. Furthermore, efforts should include a preference for plastic that originated from office machines;
- (l) offer an end of life waste diversion program for consumables at no-cost to office machine owner or lessee;
- (m) offer an end of life collection program for the office machine, noting that end of life collection programs are not required in jurisdictions where diversion of office machines from landfill is a legal requirement and end of life machines are already included in an existing collection, reuse and recycling infrastructure;
- (n) ensure that office machines and consumables that are collected in an end-of-life program are first evaluated for possible re-use of components and then sent to recyclers practicing environmentally sound management. As a minimum, manufacturers shall ensure recyclers are following environmentally sound management by requiring recyclers demonstrate the following;

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- (i) compliance with all applicable environmental and labour regulations (international, federal, provincial/state and municipal),
- (ii) posses all applicable provincial provincial/state waste and air emission permits,
- (iii) an active inventory of all hazardous materials onsite that includes guidance on how the materials are controlled,
- (iv) ensure that no electronic materials (e.g., display panels, circuit boards) are landfilled,
- (v) all required permits for trans-boundary shipments, and
- (vi) an inventory of any sub-contractors used and assurances that subcontractors are meeting (i) through (v);

Energy and Paper Savings

- (o) offer warranties and service contracts that do not prohibit the use of post-consumer recycled paper. Paper quality requirements such as EN12281:2002 "Printing and business paper. Requirements for copy paper for dry toner imaging processes" may be specified in warranties and service contracts;
- (p) for multifunctional devices, printers or copiers producing 45 copies or more per minute at the monochrome setting, be equipped with automatic duplexing capabilities and be configurable by the end-user such that the duplexing mode may be set as the default mode;
- (q) for multifunctional devices, printers or copiers producing 25 copies or more per minute at monochrome setting, be offered with an option to include automatic duplexing capabilities;
- (r) be accompanied by instructions for how to auto-duplex and "n-up" and statements of the paper savings associated with these functions in either an instruction manual or on a product information sheet available in hard-copy or on the web; and
- (s) meet the applicable energy consumption requirements in ENERGY STAR® requirements for imaging equipment Version 1.0 when tested in accordance with EPA's "Test Conditions and Equipment for Energy Stare Imaging Equipment Products" and "Energy Star Qualified Imaging Equipment Typical Electricity Consumption Test Procedure" or "Energy Star Qualified Imaging Equipment Operational Mode Test Procedure".

Verification

- 5) To verify a claim that a product meets the criteria listed in the document, the EcoLogo® Program will require access, as is its normal practice, to relevant quality control and production records and the right of access to production facilities on an announced basis.
- 6) Compliance with section 3(b) shall be attested to by a signed statement of the Chief Executive Officer or the equivalent officer of the manufacturer. The EcoLogo® Program shall be advised in writing immediately by the licensee of any non-compliance which may occur during the term of the license. On the occurrence of any non-compliance, the license may be suspended or terminated as stipulated in the license agreement.

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Conditions for Use of EcoLogo®

- 7) The EcoLogo® may appear on wholesale or retail packaging, or on the product itself, provided that the product meets the requirements in this document.
- 8) It is recommended that a criteria statement appear with the EcoLogo® whenever the EcoLogo® is used in association with the office machine. The intent of this statement is to provide clarification as to why the product was certified and to indicate constraints to which the certification is limited. This is to ensure no ambiguity over, or misrepresentation of, the reason(s) for certification.

The EcoLogo® suggested criteria statement wording for this product type is “Office machine - XXX”. Where XXX refers to the category of office machine (e.g., Office machine – copier) The licensee may propose other wording for the criteria statement, but any such proposed wording must be approved by the EcoLogo® Program.

- 9) All licensees and authorized users must comply with the Program's Guide to Proper Use of the EcoLogo® regarding the format and usage of the EcoLogo®.
- 10) Any accompanying advertising must conform with the relevant requirements stipulated in this document, the license agreement and the Program's Guide to Proper Use of the EcoLogo®.

For additional copies of this criteria document or for more information about the EcoLogo® Program, please contact:

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