

EcoLogo™ Program Certification Criteria Document

CCD-077 (Draft 2.0)
Printing and Writing Paper



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.

In 2006, Canada and the United States consumed 29.9 million tonnes of printing and writing papers. Of the supply of printing and writing papers, 68% originated from the U.S., 20% from Canada and 12% from overseas (of which 66% came from Europe, mostly coated and uncoated mechanical papers). Most of what North America produces remains in this region. In 2006, only 3.3% of output was exported.

Pulp and paper mills consume significant quantities of energy and material resources, release waterborne and airborne substances into the receiving environment, and generate solid waste. Alternatives are available to manufacturers in the choice of pulp furnish and emissions controls to mitigate these environmental impacts.

This criteria document was developed using a multi-parameter approach that identifies the most important environmental stressors from all stages of the product's life cycle. These stressors have been translated into criteria that will result in lower environmental impacts through:

- Reductions in air emissions, water emissions and solid waste;
- More efficient use of fiber, preferably recycled;
- Reductions in energy use and greenhouse gas emissions; and
- Improved forestry practices and habitat conservation.

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.

Interpretation

1. In this criteria document:

“acidification potential” is a measure of the impact of emissions on acid rain formation. It is calculated using atmospheric emissions of sulphur dioxide (SO₂) and nitrogen oxide (NO_x) compounds. In Canada SO₂ is emitted by mills that use sulphur bearing coal and oil. For the purposes of this guideline acidification potential is based on measured SO₂ emissions from the mill;

“ADMt” means air-dried metric ton, where air-dried is 10% moisture content;

“AFF” means Ancient Forest Friendly, products with this certification are not manufactured with woods from old-growth, previously un-harvested areas;

“agricultural fiber” means a solid residue arising from the harvesting and processing of agricultural crops (e.g. dried stalks of harvested grain) which would otherwise be incinerated or sent to landfill;

“ATFS” means the American Tree Farm System, a certification program;

“biomass” means biological materials (i.e., hogfuel, black liquor organics) that are commonly used as an energy source. (Canadian Standards Association, final draft CAN/CSA-Z810-96, 1996);

“COD” (chemical oxygen demand) is a measure of the amount of oxygen required to oxidize organic and oxidizable inorganic compounds in water. It measures the fraction of organic substances present in mill effluent that the natural environment cannot readily degrade. COD is measured by the ISO 6060 test method, or by method 5220 C or D in *“Standard Methods for the Examination of Water and Wastewater”*, 17th Edition, American Public Health Association, American Water Works Association and Water Pollution Control Federation, 1989, Washington, DC;

“code of sustainable forest practices” means a statement of practices which has the objective of maintaining environmental, economic, and social values of the forest. A code must specify, at a minimum, harvesting practices, forest regeneration, biodiversity and wildlife protection, soil conservation, watershed protection, and the participation of communities in forest planning;

“cogeneration” means generating electrical energy for production and using the waste heat in the form of steam from the generation in other areas of the manufacturing process. Cogeneration requires approximately one third of the fuel that is required by condensing power;

“consumer” means a household, commercial establishment or institutional facility;

“CSA” means the Canadian Standards Association;

“DMHBP” means (1,1,4,4-tetramethyl-1,4-butanediyl)bis[(1,1-dimethylethyl) peroxide, an additive for coated paper and a bleaching agent;

“dry broke” means paper such as that spoiled in the process of drying, calendering, winding, rewinding and trimming, including butt rolls;

“effluent” means waste water from a mill, including process water, gas scrubbing water, boiler blow-down water, washdown water, cooling water and leachate from any site at the mill where solid residues generated by any mill are treated or disposed of or where wood chips or hogfuel is stored;

“elemental chlorine free” means that the paper fiber has been bleached by means other than gaseous elemental chlorine (Cl_2). These alternative methods include hydrogen peroxide bleaching, use of chlorine dioxide, or other bleaching compounds;

“fiber-only” means the actual amount of fiber that is fed into the pulp digester less the mass of moisture and the mass of any additives;

“FSC” means the Forest Stewardship Council;

“global warming potential” (GWP) means the time-integrated change in radiative forcing due to the instantaneous release of 1 kilogram of a gas expressed relative to the radiative forcing from the release of 1 kilogram of CO_2 ;

“IC₂₅” means inhibiting concentration that will affect 25% of the test organisms;

“ISO” refers to the International Organization for Standardization;

“landfilled” means a method of disposing of solid mill waste by transporting it to a designated land area, dumping it into excavations and then applying a covering;

“Load Point” means a value that is assigned for each parameter (e.g. Fiber Use, Chemical Oxygen Demand, Sublethal Toxicity (TEF_{sub}), Energy Use, Global Warming Potential Measure for fossil fuel use at the mill site and for transportation, Acidification Potential Measure, and Solid Waste) based on a product’s actual environmental performance. Load points are assigned on a linear scale, starting at the “minimum” value of zero points, up to the “threshold” value of four points. Generally, the minimum end of the scale for a parameter corresponds to the best attained by any installation in North America with a proven record of operating commercially and reliably. A manufacturing process that generates a parameter equal to the minimum end of the scale would be assigned zero points for the parameter. If innovative or unusual technology were used to operate below the minima, negative points would be assigned.

“market pulp” means pulp that is sold to paper producers on the open market;

“measurable concentration of 2,3,7,8-TCDD” means a concentration of 2,3,7,8-TCDD that is greater than the level of quantification (15 ppq) when tested using one of the following methods:

- Method 1613 Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS in “Guidelines Establishing Test Procedures for the Analysis of Pollutants”; US Environmental Protection Agency, October 1994, [or](#)

- Report EPS 1/RM/19, “Reference Method for the Determination of Polychlorinated Dibenzopara-dioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) in Pulp Mill Effluents”, Environment Canada, 1991;

“measurable concentration of 2,3,7,8-TCDF” means a concentration of 2,3,7,8-TCDF that is greater than the level of quantification (15 ppq) and that when multiplied by 0.1, exceeds 5 ppb, when tested using one of the following methods:

- Method 1613 Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS in “Guidelines Establishing Test Procedures for the Analysis of Pollutants”; US Environmental Protection Agency, October 1994, or
- Report EPS 1/RM/19, “Reference Method for the Determination of Polychlorinated Dibenzopara-dioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) in Pulp Mill Effluents”, Environment Canada, 1991;
- Testing on an aquatic vertebrate species using one of the following:
 - EPA-821-R02-012, “Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Estuarine and Marine Organisms” (*Menidia beryllina*), US Environmental Protection Agency, 2002; or
 - EPA-600-R95-136, “Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms”, US Environmental Protection Agency, 1995; or
 - Report EPS 1/RM/22, “Biological Test Method: Test of Larval Growth and Survival Using Fathead Minnows”, Environment Canada, 1992.
- Testing on an aquatic invertebrates species using one of the following:
 - EPA-821-R02-013, “Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms” (*Ceriodaphnia dubia*), US Environmental Protection Agency, 2002; or
 - EPA-600-R95-136, “Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms”, US Environmental Protection Agency, 1995; or
 - Report OECD/OCDE-211, “*Daphnia magna* Reproduction Test”, Organization for Economic Cooperation and Development, September 1998; or
 - Report EPS 1/RM/2, “Biological Test Method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia*”, Environment Canada, 1992; or
 - Report EPS 1/RM/27, “Biological Test Method: Fertilization Assay Using Echinoids (Sea Urchins and Sand Dollars)”, Environment Canada, 1992.

“non-wood fiber” refers to alternative fiber sources and includes, but is not limited to, hemp, cotton, bamboo, straw, other plants cultivated specifically for use as a fiber source, and agricultural wastes;

“NTA” means nitrilotriacetic acid, which is a chelating agent;

“PCF” means processed chlorine-free pulp;

“PEFC” means the Programme for the Endorsement of Forest Certification schemes;

“post-consumer material” means a product which has served its end-use at the consumer level, has been discarded by the consumer, and would, unless diverted, enter the waste stream;

“pre-consumer material” means materials generated by an industrial process that would, unless diverted, enter the waste stream. This includes, but is not limited to, damaged or defective materials, overstock or obsolete inventories from manufacturers, distributors, wholesalers and trimmings from converting processes. It does not include wet or dry broke;

“printed recovered material” means material which has been printed and/or coated and would, unless diverted, enter the waste stream;

“printing and writing paper” means paper which consists of at least 70% paper pulp and no more than 10% filler materials (e.g. kaolin). This is also denominated “uncoated woodfree”, “office paper” and “fine paper”;

“product unit” means a metric tonne of pulp or paper product that is produced;

“pulp” means fibrous material produced mechanically or chemically by reducing woody plants into their component parts from which paper or paperboard sheets are formed;

“raw wood fiber” means fiber from wood which has not previously been pulped;

“recovered fiber” means that fiber derived from planer shavings, sawdust, pre-consumer materials and post-consumer materials;

“recycled material” means post-consumer material and pre-consumer material. It does not include by-products of an industrial process that can be, and regularly are, used in either the same process, or in a different process, except that proportion which originated as post-consumer material and pre-consumer material. It may include sawdust or planer shavings from sawmill operations;

“SFI” means the Sustainable Forestry Initiative certification scheme;

“sublethal toxicity” means the effects that a substance has on a test organism over a significant portion of the test organism’s life (10% or more), such as growth, reproductive or metabolic inhibition;

“TEF_{sub}” means sublethal toxicity emission factor. It is calculated as $TEF_{sub} = [\log(100/IC_{25\ mean})] \times [\text{annual mill effluent flow in m}^3] / [\text{annual mill tonnage in ADMT}]$. To determine the IC₂₅ values, required tests are:

For freshwater receiving environments:

- for invertebrates: Environment Canada's *Biological Test Method: Test of Reproduction and Survival Using the Cladoceran Ceriodaphnia dubia* (EPS Report 1/RM/21, 1992); and
- for fish: Environment Canada's *Biological Test Method: Test of Larval Growth and Survival Using Fathead Minnows* (Report EPS 1/RM/22, 1992);

For marine and estuarine receiving environments, the two required tests are:

- for invertebrates: Environment Canada's *Biological Test Method: Fertilization Assay Using Echinoids (Sea Urchins and Sand Dollars)* (Report EPS 1/RM/27, 1992); and
- for fish: US Environmental Protection Agency's *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (Report EPA600/4-91/003, 1991);

"wet broke" means paper recovered from the wet press of a paper machine; and

"wood-free" means paper made using the chemical rather than mechanical pulping process.

Category Definition

2. This category includes all printing and writing papers. Note that the "official" categorization of these papers is uncoated wood-free printing and writing paper and clay coated free sheet.

This category explicitly excludes converted paper products, including envelopes, tags, continuous forms, labels, and bound materials. These products are covered by CCD-079 *Business Forms and other Converted Paper Products*.

General Requirements

3. To be authorized to carry the EcoLogo™, the printing and writing paper 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 printing and writing paper must:
- (a) be manufactured so that the total of load points assessed for Fiber Use, COD, TEF_{sub,r}, Energy Use, Global Warming Potential Measure, Acidification Potential Measure, Solid Waste, and Effluent Flow does not exceed 32 (note that Appendix I contains the table for calculating Load Points, and Appendix II contains the methodology for collecting data);
 - (b) be manufactured so that the effluent from the paper mill or any mill which produces a component pulp, if such mills operate a chlorine bleaching plant, does not contain a measurable concentration of 2,3,7,8-TCDD or a measurable concentration of 2,3,7,8-TCDF;
 - (c) if manufactured from pulp made from primary wood fiber, use only pulp derived from forests which have been harvested under a third party forestry certification system, such as the Forest Stewardship Council (FSC), Canadian Standards Association (CSA), Sustainable Forestry Initiative (SFI), American Tree Farm System (ATFS), or another forestry certification scheme recognized by the Programme for the Endorsement of Forest Certification schemes (PEFC);
 - (d) contain at least 30% post-consumer recycled fiber;
 - (e) not contain fiber that has been bleached with:
 - (i) elemental chlorine (i.e. the fiber must be “elemental chlorine-free”), or
 - (ii) thiourea dioxide;
 - (f) not be manufactured with:
 - (i) NTA,
 - (ii) bisphenol A, or
 - (iii) DMHBP; and
 - (g) be manufactured in such a manner that fossil fuel use results in air emissions of less than 1,100 kg CO₂ equivalents per ADMt of product.

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.

Conditions for EcoLogo™ Use

7. The EcoLogo™ may appear on wholesale or retail packaging, or on the product itself, provided that the product meets the requirements in this guideline.
8. It is recommended that a criteria statement appear with the EcoLogo™ whenever the EcoLogo™ is used in association with the "Printing and Writing Paper". 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 suggested criteria statement wording for this product type is "Printing and Writing Paper". 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 guideline, the license agreement and the Program's *Guide to Proper Use of the EcoLogo™*.
11. Manufacturers with EcoLogo certified products will be given the option to share verified environmental information about their products on the EcoLogo website and product packaging as a way of responding to customers seeking additional details such as the amount of recycled content, bleaching mechanism, forestry certification scheme, or other environmental information relevant for the product category. Participation in this optional communication process is not a requirement for EcoLogo™ certification.

For additional copies of this criteria document or for more information about the
EcoLogo™ Program, please contact:
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Appendix I: Load Point Determination

Load Points are assigned for each parameter listed in the table below on a linear scale from a minimum value of zero to a threshold value of four. Products that result in values exceeding the threshold on any parameter are assigned additional Load Points on an extrapolated linear scale. The Load Points for each parameter are summed to calculate the total Load Point value for the product. **The data collection and calculation methodology provided in Appendix II must be done for each product that is to be certified.** Appendix II will be provided on request to those who wish to calculate Load Points for a given product.

Generally, the minimum end of the scale for a parameter corresponds to the best attained by any installation in the world with a proven record of operating commercially and reliably. A manufacturing process that generates a parameter equal to the minimum end of the scale would be assigned zero points for the parameter. If innovative or unusual technology is used to operate below the minima stated herein, then negative points would be assigned. A threshold value, corresponding to approximately the 80th percentile of commercially operating values for the parameter, has been set and would correspond to 4 Load Points. Intermediate values have been scaled linearly.

For example, a mill using 100% post-consumer fiber achieves a Load Point value of '0' for Resource Depletion because no primary fiber is used in the production of its pulp. The 80th percentile would be a mill using a mix of recycled content and other fiber sources that achieves a fiber-use efficiency of 1.3 tonnes input per tonne of pulp produced. This mill would receive a Load Point of '4'. Parameters above the threshold value would be assigned Load Points on the same linear scale. Values substantially above the threshold point would effectively disqualify a product. A product with one characteristic parameter that exceeds the threshold value would have to perform well in all other parameters to qualify.

Calculating Total Load Points (See Appendix II for detailed Load Point calculation methodology.)

Parameter	Units	Load Point Minimum (0 load points)	Load Point Threshold (4 load points)	Calculated Load Point (from Appendix II)
Fiber Use	tonne / ADMt product	0	1.3	
Chemical Oxygen Demand	kg / ADMt product	9	25	
Sublethal toxicity	TEF _{sub}	0	22	
Energy Use	GJ/ ADMt product	15	30	
Global Warming Potential Measure	kg CO ₂ eq. / ADMt product	290	1100	
Acidification Potential Measure	kg SO ₂ / ADMt product	0	0.35	
Solid Waste	kg / ADMt product	70	210	
Effluent Flow	m ³ / ADMt product	35	60	
Total Calculated Load Points				