EcoLogo™

Environmental Standard - Certification Criteria Document

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Introduction

The EcoLogo™ Program is designed to recognize and support continuing efforts to improve or maintain environmental metrics, by recognizing the ongoing efforts by manufacturers to minimize their consumption of energy and materials per unit of production.

This standard was developed using a multi-parameter approach that identifies the most important environmental indicators from all stages of the product's life cycle.

For each of these environmental indicators identified, criteria have been devised with the goal to identify the top overall environmental performers on the market. These best performers have demonstrated that, compared to others on the market, they have an overall reduced potential burden on the environment per unit of production. Some of this reduced potential burden can be manifested in:

- lower noxious emissions to water
- lower wastewater discharge levels
- an efficient use of fiber through the use of recycled content
- lower solid waste volumes
- a lower potential contribution to acid rain and climate change
- a reduced amount of energy use
- the adoption of best forestry practices and habitat conservation

Standards maintenance 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.

Definitions

1) In this criteria document:

"acidification potential" is a measure of the impact of emissions on potential acid rain formation. It is calculated using atmospheric emissions of sulphur dioxide (SO_2) and nitrogen oxide (NO_x) compounds. In Canada SO_2, is emitted by mills that use sulphur bearing coal and oil. For the purposes of this standard acidification potential is based on measured SO_2 emissions from the pulp and paper mill;

"ADMT" means air-dried metric ton, where air-dried is 10% moisture content;

"agricultural fiber" means the fiber source from plants cultivated specifically for making paper (e.g., hemp, cotton, bamboo and straw) or the solid residues arising from the harvesting and processing of these agricultural crops which would otherwise be incinerated or sent to landfill as waste;

"as fuel" means when fuels are used to generate heat for the paper making process or for on-site mill use. Included in this category would be steam generation (excluding sales), building/air heating, lime kilns, and dryers;

"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;

"ECF" (elemental chlorine free) means a process that uses chlorine dioxide in the whitening process;

"ECF with extended or oxygen delignification" means a whitening process that removes more of the lignin from the wood before whitening, thus reducing energy and chemical use during this process. Chlorine dioxide is also used in the final stage of this process;

"ECF with ozone or hydrogen peroxide" means a whitening process that removes more of the lignin from the wood before whitening, and that uses ozone or hydrogen peroxide as an agent in the initial stages and chlorine dioxide in the final or near-final stage of this whitening process;

"effluent discharge" means water discharged from the waste treatment facility from the pulp and paper mill. For the purpose of this standard, the effluent discharge measure is an average of the discharges for the pulp mill and paper mill;

"energy use" means the energy used by a pulp and paper mill. For the purpose of this standard, the energy use calculation includes all uses of electricity and fuels;

"FSC" (Forest Stewardship Council) means the independent, non-governmental, not-for-profit organization established in 1993 to promote the responsible management of the world's forests;

"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. For the purpose of this standard, the greenhouse gas emissions measured are CO_2, CH_4 and N_2O from both pulp and paper mills;

"IC_{25}" means inhibiting concentration that will affect 25% of the test organisms;

"ISO" refers to the International Organization for Standardization;

"landfilled as waste" 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;

"**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 Dibenzo-para-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 Dibenzo-para-dioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) in Pulp Mill Effluents*, Environment Canada, 1991;

"PEFC" (Programme for the Endorsement of Forest Certification) means the international non-profit, non-governmental organization established in 1999 dedicated to promoting Sustainable Forest Management (SFM) through independent third-party certification;

"pre-consumer (post-industrial) material" means material diverted from the waste stream during a manufacturing process that has never reached the end-user. Excluded is the reutilization of materials generated in a process and capable of being reused as a substitute for a raw material without being modified in any way;

"post-consumer material" means material that has reached its' intended end-user which is no longer being used for its' intended purpose;

"post-consumer recycled content" means the proportion of the of post-consumer recycled material, by mass, in a product;

"processed chlorine-free (PCF)" means a whitening process that does not use chlorine or chlorine dioxide to whiten the raw fiber content in paper;

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

"recycled content" means the proportion of pre-consumer or post-consumer recycled material, by mass, in a product;

"raw fiber" means wood or agricultural fiber which has not previously been pulped;

"recycled material" means material that has been reprocessed from recovered (reclaimed) material by means of a manufacturing process and made into a final product or into a component for incorporation into a product;

"solid waste" means, for the purpose of this standard, only those amounts of solid waste (in m^3/ADMT) that are landfilled as waste and incinerated without energy recovery by the pulp and paper mill;

"sound environmental management practices" means those practices and goals used to manage forest and/or agricultural products within a sound environmental management system that have the objectives of maintaining environmental values of the surrounding ecosystem;

"sound environmental management system" means a system, including *inter alia* the ISO 14000 series of standards, used to manage forest and/or agricultural products that incorporates sound environmental management practices. At a minimum, system elements must include:

a) planning elements such as: identifying forest and/or agricultural resources; identifying environmental aspects; assessing environmental impacts; identifying environmental governmental policies, regulations and guidelines and committing to meeting or surpassing these within an adaptive management context; and defining and committing to environmental policies, objectives and targets;

b) operational elements such as: defining roles and assigning responsibilities; providing adequate staff training; communicating environmental aspects and policies both internally and externally; implementing an environmental management program based on identified environmental aspects and impacts; documenting all policies, goals and procedures; periodically reviewing and, where necessary, revising the system; performing public consultation and/or outreach; and establishing an environmental emergency preparedness and response plan; and

c) monitoring and measurement elements such as: monitoring and measuring key aspects of the system; evaluating and mitigating negative environmental impacts; correcting non-conformance with the management system; performing internal reviews; and having third party audits performed;

"species diversity" means a measure of the diversity within an ecological community that incorporates both species richness (the number of species in a community) and the evenness of species' abundances. Evenness measures the variation in the abundance of individuals per species within a community;

"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 equivalency factor. It is calculated as TEF_{sub} = [log (100/$IC_{25\ mean}$)] x [annual mill effluent flow in m^3] / [annual mill tonnage in ADMT]. To determine the IC_{25} values, required tests are:

For freshwater receiving environments:

- for invertebrate species: Environment Canada's *Test of Reproduction and Survival Using the Cladoceran Ceriodaphnia dubia* (Report EPS 1/RM/21 Second Edition), February 2007, or the US Environmental Protection Agency's *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (*Ceriodaphnia dubia*) (EPA-821-R02-013), 2002; and

- for algal species: Environment Canada's *Biological Test Method: Growth Inhibition Test Using a Freshwater Alga* (Report EPS 1/RM/25 Second Edition), March 2007, or *the* Centre d'expertise en analyse environnementale du Québec's *Détermination de l'inhibition de la croissance chez l'algue Selenastrum capricornutum* (Reference Method MA 500-S. cap.2.0), September 1997, or the US Environmental Protection Agency's *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (*Selenastrum capricornutum*) (EPA-821-R02-013), 2002; or

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), December 1992, or U.S. Environmental Protection Agency's *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (Sea Urchin) (Third Edition) (Reference Method EPA/821/R/02–014), October 2002; and

- for algal species, the U.S. Environmental Protection Agency's *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (*Champia parvula*) (Third Edition) (Reference Method EPA/821/R/02–014), October 2002.

"to produce electricity" means those fuels used to generate electricity on-site at a pulp and paper mill (i.e., gas/steam turbines or back-up generators);

"to produce steam for sale" means those fuels used to generate steam at a pulp and paper mill sold to third parties;

"totally chlorine-free" means paper produced without fibers that were whitened using chlorine or chlorine dioxide;

"toxic" means those Cat 1-3 chemicals that are acutely toxic to human health, those Cat 1, 1A and 1B reproductive toxicants, and those Cat 1 and 2 chemicals that are acutely toxic to aquatic environments according to the Globally Harmonized System of Classification and Labelling of Chemicals;

"water input" means water coming into the mill from *inter alia* wood and other raw fiber, ground water, surface water and/or recycling water; and

"**water output**" means water leaving the mill in *inter alia* products, wood chips, evaporation losses from drying and/or hot pressing and/or otherwise, and energy generation;

Category Definition

2) This category includes all printing, office and fine papers, including wood-free, clay coated, and free sheet papers. It also includes newsprint.

This category explicitly excludes converted paper products, including envelopes, tags, continuous forms, labels, and bound materials. Moreover, this category does not include sanitary paper products. These products are covered in other EcoLogo standards.

General Requirements

3) To be authorized to carry the EcoLogo, the paper products 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 paper product must:

   a) be manufactured from a pulp and paper making process such that the total of load points assessed for Recycled Content, Solid Waste, Global Warming Potential, Energy Use, Chemical Oxygen Demand, Sublethal Toxicity, Acidification Potential and Effluent Discharge does not exceed 8 (Appendix I contains the table for calculating Load Points, and Appendix II contains the methodology for collecting data). Also, the amount of points per environmental indicator must not exceed 3;

   b) be manufactured such that if a whitening process is used:

      i) the fiber must not have been whitened with elemental chlorine; and

      ii) the effluent directly downstream of the whitening plant must not contain a measurable concentration of 2,3,7,8-TCDD or a measurable concentration of 2,3,7,8-TCDF;

c) be manufactured from agricultural or wood fibers that have been sourced from forestry or agricultural operations that have implemented a sound environmental management system and are adhering to sound environmental management practices for 100% of its activities. At minimum these practices must contain these elements:

   i) sustainable harvest rates;
   ii) the conservation of:
      (1) species at risk;
      (2) species diversity;
      (3) wildlife habitat;
      (4) soil;
      (5) water and aquatic ecosystems (e.g., wetlands, lake and river ecosystems); and
      (6) key landscape and ecosystem-level ecological functions and processes, including corridors where necessary to preserve these ecological components;
   iii) no use of World Health Organization Type 1A and 1B, chlorinated hydrocarbon pesticides, pesticides that are toxic, as well as pesticides banned by international agreement;
   iv) no use of genetically modified seeds; and
   v) no new forestry or agricultural operations on natural forest lands or peatlands (i.e., that have not been previously modified for forestry or agricultural purposes except in very limited areas and timeframes when this will lead to long-term conservation benefits);

   FSC and PEFC-endorsed forest management certification systems might be examples of sound environmental management systems used to manage forests. The EcoLogo Program reserves the right to investigate the background documentation which has led forests to receive these certifications to ensure that these adequately meet the minimum practices outlined above.

d) come from a pulp and paper mill that has a water management plan in place which outlines:

   i) all water input and output quantities measured and not measured; and
   ii) all known emissions to water measured and not measured;

e) not be manufactured with bisphenol A.

Labelling requirements

5) To be authorized to carry the EcoLogo mark, this product information must be disclosed to purchasers and consumers:

   a) the forest or agricultural management system used (e.g., which certification);
   b) the percentage of recycled and post-consumer recycled content in the product; and
   c) the whitening process used according to this classification or equivalent:
      (1) ECF with extended or oxygen delignification
      (2) ECF with ozone or hydrogen peroxide
      (3) elemental chlorine-free
      (4) processed chlorine-free (PCF)
      (5) totally chlorine-free (TCF)

Verification

6) 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.

7) Compliance with section 3(b) shall be attested to by a signed statement of the Chief Executive Officer or the equivalent authorized agent 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

8) The EcoLogo may appear on wholesale or retail packaging, or on the product itself, provided that the product meets the requirements in this standard.

9) It is recommended that a criteria statement appear with the EcoLogo mark whenever the EcoLogo is used in association with the paper product. 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 "CCD-077 Certified Paper". The licensee may propose other wording for the criteria statement, but any such proposed wording must be approved by the EcoLogo Program.

10) All licensees and authorized users must comply with the *EcoLogo Brand Guide* regarding the format and usage of the EcoLogo mark.

11) Any accompanying advertising must conform with the relevant requirements stipulated in this standard, the license agreement and the *EcoLogo Brand Guide*.

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

Load Points are assigned for each environmental indicator listed in the table below. The Load Points for each parameter are summed up to calculate the total Load Point value for the product. The data collection and calculation methodology provided in Appendix II must be completed 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. Note that "0" load point does not indicate "0" impact.

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

Environmental Indicator		Paper Grade	Load points				
			0	1	2	3	4
1	Recycled Content (%)	Office and Fine	>60	60-30	29-7	6-1	<1
		Newsprint	>70	70-37	36-28	29-10	<10
2	Solid Waste (m3/ADMT)	All	<0.10	0.10-0.15	0.16-0.20	0.21-0.25	>0.25
3	Global Warming Potential (kg of CO2 eq/ADMT)	Office and Fine	<546	546-617	618-688	689-860	>860
		Newsprint	<631	631-767	768-841	842-951	>951
4	Energy Use (GJ/ADMT)	Office and Fine	<18	18-30	31-41	42-51	>51
		Newsprint	<9	9-22	23-35	36-44	>44
5	Chemical Oxygen Demand (kg COD /ADMT)	Office and Fine	<15	15-23	24-30	31-38	>38
		Newsprint	<13	13-20	21-27	28-33	>33
6	Acidification Potential (kg SO2/ADMT)	Office and Fine	<0.1	0.1-1.2	1.3-2.9	3-3.5	>3.5
7		Newsprint	<0.01	0.01-1.1	1.2-2.9	3-4.5	>4.5
	Effluent Discharge (m3/ADMT)	All	<30	30-45	46-60	61-75	>75
8	TEFsub	All	<13	14-18	19-25	26-31	>31