

Environmental Choice^M Program

CERTIFICATION CRITERIA DOCUMENT



CCD-077

Product: Printing and Writing Paper

Preamble

Pursuant to paragraph 54 (1)(b) of the *Canadian Environmental Protection Act, 1999*, the Minister of the Environment is pleased to publish the following national guideline on **pulp and paper products** under the auspices of the Environmental Choice^M Program.

The Environmental Choice 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 available to Canadians.

Canada's largest manufacturing industry, when measured in terms of employment, value added and net exports, is pulp and paper. In 1997, pulp and paper sales totalled \$21.1 billion which represents over 40 percent of total forest product sales.

Pulp and paper mills consume significant quantities of energy and resources and may 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 emission control to mitigate adverse environmental impacts.

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

- a) reduction in air emissions;
- b) reduction in water emissions;
- c) reduction of waste;
- d) efficient use of fibre, preferably recycled fibre; and a
- e) reduction in energy use.

A requirement for a minimum content of recycled material is not specified in this guideline. This parameter has been incorporated into the calculation of resource consumption and solid waste production. Performance in these areas improves as the amount of recycled material increases.

Relationship to EPDS

Data obtained from the Canadian Pulp and Paper Association's *Environmental Profile Data SheetTM* (EPDS) may be used to determine Load Point values in Appendix II. Data from a completed EPDS for any pulp or paper product may be transferred with minor modifications into the Load Point Calculation Sections to determine whether a pulp or a paper product meets the certification criteria contained in this guideline.

Notice

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

The Environmental Choice Program reserves the right to accept equivalent test data for the test methods specified in this guideline.

Interpretation

1. In the following guideline:

“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;

“agricultural fibre” 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;

“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;

“CPPA” means the Canadian Pulp and Paper Association;

“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;

“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;

“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;

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

“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 CO₂;

“Helsinki Process” refers to the Pan-European Criteria and Indicators for Sustainable Forest Management;

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

“ISO” refers to the International Organisation for Standardisation;

“Incineration without energy recovery” means the combustion of a solid, liquid or gaseous waste with no power or chemical recovery;

“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;

“marginal fuels” means those fuels used by utilities to fulfill any marginal or incremental power demands. Many major Canadian utilities supplying electricity to the grid do so by keeping either hydroelectric and/or nuclear facilities operating at the maximum required rate. When electricity requirements change or incrementally increase, the marginal change in power generation supplied by the utility is generally done with fossil fuels (i.e. oil, coal);

“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 as defined in *Reference Method for the Determination of Polychlorinated Dibenzo-para-dioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) in Pulp Mill Effluents*, Report EPS 1/RM/19, 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 as defined in *Reference Method for the Determination of Polychlorinated Dibenzo-para-dioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) in Pulp Mill Effluents*, Report EPS 1/RM/19, 1991, and that, when multiplied by 0.1, exceeds 5 ppb;

“Montreal Process” refers to the Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests;

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

“over the fence” refers to chemicals that are produced on-site, but where chemical and electricity metering is performed by the chemical supplier or organization which “leases” the equipment to the mill;

“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;

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

“recovered fibre” means that fibre 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;

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

“TEF_{sub}” means sublethal toxicity emission factor. It is calculated as $TEF_{sub} = [\log (100/IC_{25\ mean})] \times [\text{annual mill effluent flow in m}^3] \div [\text{annual mill tonnage in ADMT}]$.

For freshwater receiving environments, the two required tests are:

- 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); and

“wet broke” means paper recovered from the wet press of a paper machine.

Category Definition

2. This category includes paper as further defined in the subcategories below:
 - a) uncoated wood-free printing & writing paper;
 - b) clay coated free sheet;

General Requirements

3. To be authorized to carry the EcoLogo, *pulp and paper products* must:
 - (a) meet or exceed all applicable governmental and industrial safety and performance standards;

Note: In Canada, standards for paper products are published by the Canadian General Standards Board (CGSB) and the Bureau de normalisation du Quebec (BNQ). Manufacturers whose products are sold in the consumer market must meet applicable CGSB or BNQ standards unless specific procurement contracts specify different additional requirements; and,

 - (b) be manufactured and transported in such a manner that all steps of the process, including the disposal of waste products arising therefrom, meet the requirements of all applicable governmental acts, by laws and regulations including, for facilities located in Canada, the *Fisheries Act* and the *Canadian Environmental Protection Act* (CEPA).

Product Specific Requirements

4. To be authorized to carry the EcoLogo the *pulp and paper products* must:
 - (a) be manufactured so that the total of load points assessed for Fibre-use, COD, TEF_{sub}, Energy-use, GWP measure, acidification potential measure, and solid waste, as determined from Table 1, does not exceed 28;
 - (b) be manufactured so that the effluent from the paper mill or any mill which produces a market pulp does not contain a measurable concentration of 2,3,7,8-TCDD or a measurable concentration of 2,3,7,8-TCDF; and
 - (c) if manufactured from pulp made from primary wood fibre, use only pulp derived from forests which may be demonstrated to be managed under a code of sustainable forest practices such as the CCFM (Canadian Council of Forest Ministers), the Montreal Process, the Helsinki Process, etc.

Verification

5. To verify a claim that a product meets the criteria listed in the guideline, the Environmental Choice 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 Environmental Choice Program shall be advised in writing immediately by the licensee of any noncompliance which may occur during the term of the license. On the occurrence of any noncompliance, 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 **pulp and paper product(s)**. 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 criteria statement must be specific to the product's sub-category.

For sub-category 2(a), the recommended criteria may be "Uncoated Wood-free Printing Paper", "Uncoated Wood-free Writing Paper" or "Uncoated Wood-free Printing & Writing Paper", as appropriate; and

for sub-category 2(b), the recommended criteria statement is "Clay Coated Free Sheet Paper".

The licensee may propose other wording for the criteria statement, but any such proposed wording must be approved by the Environmental Choice Program.

10. All licensees and authorized users must comply with the Environmental Choice Program's *Guide to Proper Use of the EcoLogo^M* regarding the format and usage of the EcoLogo.
11. Any accompanying advertising must conform with the relevant requirements stipulated in this guideline, the license agreement and the Environmental Choice Program's *Guide to Proper Use of the EcoLogo^M*.

***For additional copies of this guideline or for more information about the Environmental Choice Program, please contact: TerraChoice Environmental Services Inc.,
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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 the minimum value shown (which is assigned a value of 0 (zero)), to the threshold, which is assigned a value of 4 (four). Products that result in values which exceed 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 calculation methodology provided in Appendix 2 must be done for each product that is to be certified.*** Values relevant to upstream manufacturing of pulp, whether at the site of the paper mill or otherwise, are included. 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, is set and would correspond to 4 Load Points. Intermediate values being scaled linearly. For example, a mill using 100% post-consumer fibre achieves a Load Point value of '0' for *Resource Depletion* because no primary fibre is used in the production of its pulp. The 80th percentile would be a mill using a mix of recycled content and other fibre sources that achieves a fibre-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. The minimum and the threshold values found in the Table below that represent optimal and the 80th percentile, have been set based on actual mill performance.

Table : Calculating Load Points

Category	Parameter	Units	Calculated
Resource depletion	Fibre use	t / ADMT product	
Liquid effluent	Chemical Oxygen Demand	kg / ADMT product	
Liquid effluent	Sub-lethal toxicity	TEF _{sub}	
Energy consumption	Energy use	GJ / ADMT product	
Global Warming	Estimated CO ₂ emissions	GJ / ADMT product	
Atmospheric (Acidic) emissions	Estimated SO ₂ emissions	kg SO ₂ / ADMT product	
Solid waste	Solid waste	m ³ / ADMT product	
Total Calculated Load Points			

Note: Appendix 2 contains an outline of the methodology to be used when calculating the Load Point values. It is based on the methodology used in the CPPA Environmental Profile Data Sheet. This appendix will be provided on request to those who wish to calculate Load Points for a given product.

ANNEXE I

Détermination des cotes de charge

Des cotes de charge sont attribuées à chaque paramètre inscrit au Tableau 1 sur une échelle linéaire graduée à partir de la valeur minimale indiquée (à laquelle est attribuée une valeur de zéro) jusqu'à une valeur seuil dont la valeur attribuée est de quatre. Lorsque des produits obtiennent des valeurs supérieures à la valeur seuil pour quelque paramètre que ce soit, on leur attribue des cotes de charge additionnelles, sur une échelle linéaire extrapolée. Pour chaque paramètre, on additionne les cotes de charge afin d'obtenir la valeur totale des cotes de charge pour le produit. **Effectuer le calcul indiqué à l'annexe 2 pour chaque produit à être certifié.** Les valeurs relatives à la fabrication en amont de la pâte, à l'usine elle-même ou ailleurs, sont incluses. En règle générale, la valeur minimale de l'échelle pour un paramètre donné correspond aux meilleurs résultats obtenus par n'importe quel établissement dans le monde reconnu pour son exploitation commerciale fiable. Un procédé de fabrication dont un paramètre serait égal à la valeur minimale de l'échelle recevrait une cote zéro pour ce paramètre. Si une technologie innovatrice ou inhabituelle est utilisée pour exploiter l'établissement en deçà des valeurs minimales énoncées dans le présent document, on attribue alors des cotes négatives.

On établit pour le paramètre une valeur seuil correspondant approximativement au 80^e percentile de valeurs reconnues, pour une exploitation commerciale, cette valeur correspondant à des cotes de charge de 4, les valeurs intermédiaires étant échelonnées sur une base linéaire. Par exemple, une usine utilisant exclusivement des fibres de postconsommation obtient une cote de charge de «0» en ce qui a trait à *l'épuisement des ressources*, car aucune fibre primaire n'entre dans la production de sa pâte. Le 80^e percentile correspondrait à une usine qui utiliserait un mélange de matières recyclées et d'autres sources de fibre et qui atteindrait, sur le plan de l'utilisation de la fibre, un taux de rendement équivalant à des intrants de 1,3 tonne par tonne de pâte produite. Une cote de charge de «4» serait attribuée à cette usine. On attribuerait aux paramètres supérieurs à la valeur seuil des cotes de charge figurant sur la même échelle linéaire. Les valeurs dépassant de beaucoup la valeur seuil entraîneraient l'exclusion effective d'un produit. Un produit dont un paramètre caractéristique serait supérieur à la valeur seuil devrait obtenir de bonnes cotes pour tous les autres paramètres pour être accepté. Les valeurs minimales et les valeurs seuil figurant au Tableau 1, ci-dessous, lequel représente la valeur optimale et le 80^e percentile, ont été calculées selon le rendement réel de l'usine.

Tableau 1 : Détermination des cotes de charge (par tonnes métriques sèches à l'air (TMSA) de produit)

Catégorie	Paramètre	Unités	Valeur calculée
Épuisement des ressources	Utilisation de la fibre	t/t produit	
Effluent liquide	Demande chimique en oxygène	kg/t	
Effluent liquide	Toxicité sub létale	FRT _{sub}	
Consommation d'énergie	Consommation d'énergie	GJ/t produit	
Réchauffement du globe	Émissions estimées de CO ₂	GJ/t produit	
Émissions atmosphériques (acidogènes)	Émissions estimées de SO ₂	kg SO ₂ /t produit	
Résidus solides	Résidus solides	m ³ /t	
Total Cotes de charge calculées			

Nota:

L'Annexe II présente une description de la méthode à utiliser pour le calcul des cotes de charge. Cette méthode s'appuie sur la méthode utilisée dans la Fiche technique de profil environnemental de l'ACPP. Cette annexe sera transmise sur demande à ceux qui veulent calculer les cotes de charge pour un produit donné.