

EcoLogo^{CM} Program Certification Criteria Document

CCD-152
Flooring Products



Introduction

The EcoLogo^{CM} 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 service.

Flooring products may contain a variety of substances that are toxic or have other potential environmental impacts. These substances may include volatile organic compounds, styrene butadiene latex (SBL), 4-phenylcyclohexene (4-PC) and formaldehyde. The conventional production processes for these products uses significant amounts of energy, water, heavy metals and other resources. The final product has a high “embodied energy”. Additionally, flooring products may be manufactured from slower growing tree species that may not have been managed in a sustainable manner.

Based on a review of currently available life cycle information, the category requirements will produce an environmental benefit through: longer product life, a reduction in wastes and toxic emissions to the environment, the use of more renewable and/or sustainably managed materials, and the potential for greater material re-use and recycling.

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^{CM} Program reserves the right to accept equivalent test data for the test methods specified in this document.

Interpretation

1. In this criteria document:

“ASTM” means the American Society of Testing Materials;

“bamboo flooring” means a flooring product that is intended to replace hard or soft wood flooring, and has been made from bamboo, a fast growing material;

“batch-dyeing”, also referred to as beck-dyeing or piece-dyeing, means a process in which undyed textile is colored through immersion or other methods that use a significant amount of water;

“biocide” means a chemical treatment applied to a carpet to prevent or inhibit microbial activity within the carpet. This does not include preservatives added to softeners, anti-static agents, or lubricants, etc;

“CGSB” means the Canadian General Standards Board;

“CSA” means the Canadian Standards Association;

“coating” means a thin layer or covering of urethane, wax, or oil seal used as a stain, sealer, or topcoat;

“continuous thread construction” is when woven area rugs are manufactured with yarn attached more than once to the weft (backing). This manufacturing process allows for stronger construction and has the following benefits: reduced latex consumption; less yarn consumption; stronger construction; and better durability.

“density”, for the purposes of this document, means the mass or weight per unit area of the textile floor covering’s (generally measured in grams per square meter);

“flooring from other virgin wood substitutes” means a flooring product that is intended to replace hard or soft wood flooring, and has been made from a substitute material such as scrap/waste wood;

“FSC” means the Forestry Stewardship Council;

“heavy metals”, for the purposes of this document, means the following metals, which have been established as being toxic and/or carcinogenic: lead (Pb), mercury (Hg), arsenic (As), cadmium (Cd) and chromium VI (CrVI);

“INBAR” means the International Network for Bamboo and Rattan;

“pile weight” means density of the textile floor covering’s face fiber, as tested by ASTM D5848-98, “Standard Test Method for Mass Per Unit Area of Pile Yarn Floor Coverings” or a comparable standard;

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

“post-industrial material” means by-products of an industrial process that can be, and regularly are, used in either the same process, or in a different process;

“pre-finished flooring” means flooring that has been milled from hardwood and treated with a coating at the point of manufacture, prior to installation;

"PVC" means polyvinyl chloride, an industrial plastic derived from the polymerization of vinyl chloride, also known as chloroethene (CH_2CHCl);

"recyclable" means that the product is either manufactured from a homogenous material that may easily be diverted from the waste stream and adapted for re-use, or constructed in a fashion that enables the composite textile floor covering to be broken down into its component materials and recycled;

"recycled content" means post-consumer and post-industrial material;

"renewable material resources" means, for purposes of this criteria document, a substance of biological origin that can be replenished by natural processes at a rate comparable or faster than its rate of consumption by humans or other users. For example, animal based products such as sheep yarn, or cellulosic plant material such as hemp, bamboo, or other sustainable animal husbandry, or biomass crops.

"resilient flooring" means a non-textile hard flooring type that is flexible and cushions impacts, it includes vinyl composite tile, vinyl sheet, linoleum, cork and rubber. By comparison, non-resilient flooring includes wood, laminate and ceramic tile;

"service life" means the total length of time (generally measured in years) that the product is possessed and used by the consumer;

"solution dyeing" means that pigment are added to the textile's polymer solution prior to extrusion. For textiles, this method of dyeing serves as alternative to conventional batch-dyeing for textiles;

"take-back program" means an established and operational infrastructure with collection facilities that accept products for diversion from disposal or for use in an energy recovery system;

"TVOC" means total volatile organic compounds;

"total weight" means density of the composite textile floor covering material, as tested by ASTM D5848-98, "Standard Test Method for Mass Per Unit Area of Pile Yarn Floor Coverings" or a comparable standard;

"toxic metals" means metallic elements that have no known biological function and disrupt essential physiological processes (arsenic, cadmium, lead, silver, mercury, tin, nickel);

"volatile organic compound" or "VOC" means any organic compound which participates in atmospheric photochemical reactions. It excludes those organic compounds that the EcoLogo^{CM} Program designates as having negligible photochemical reactivity (see Appendix 1). VOCs in indoor air refer to any volatile carbon containing compounds [excluding carbon dioxide (CO_2) and carbon monoxide (CO)] that may or may not participate in photochemical reactions; and

“**water-based adhesive**” means an adhesive that does not contain volatile organic compounds in excess of 5% by weight as measured by one of the following methods:

- EPA Method 24-24A, 40 C.F.R., Part 60, Appendix A (1991), or
- Method 18,48 Federal Register 48, no. 202, October 18, 1983, or
- Method 1400 NIOSH “Manual of Analytical Methods”, Volume 1, February 1984, or
- Environmental Protection Agency Method 8240 GC/MS “Method for Volatile Organics”, September 1986, or
- as demonstrated through calculation from records of the amounts of constituents used to make the product.

Category Definition

2. This category includes the following flooring products:
 - (a) bamboo flooring (CCD-152A);
 - (b) commercial modular carpeting (CCD-152B);
 - (c) commercial non-modular textile flooring (CCD-152C);
 - (d) resilient flooring (CCD-152D);
 - (e) flooring from other virgin wood substitutes (CCD-152E);
 - (f) rubber-backed textile flooring (CCD-152F); and
 - (g) area rugs (CCD-152G)

General Requirements

3. To be authorized to carry the EcoLogo^{CM}, the flooring product 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

CCD-152A: Bamboo Flooring

4. To be authorized to carry the EcoLogo^{CM}, the bamboo flooring product must:
 - (a) meet or exceed the following performance requirements:

- (i) a wear resistance of 500-600 cycles when tested according to ANSI/NEMA LD 3-2005, "High-Pressure Decorative Laminates", Section 3.13 Abrasion Test, and
 - (ii) a hardness (in pounds-force) as defined in Appendix 2 when tested according to ASTM D1037-99, "Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials", Hardness Test 68-73;
- (b) not emit VOCs, including formaldehyde, at a rate greater than 0.5 mg/m² per hour when tested in accordance with ASTM D5116-90, "Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products";
- (c) be finished with coatings that meet the following:

- (i) are either water-based or 100% solid UV curable,
 - (ii) have not been manufactured or formulated with arsenic, cadmium, chromium, lead, mercury or nickel, and
 - (iii) do not contain suspected carcinogens or mutagens;
- (d) if finished with a water-based coating, use only those coatings that meet the requirements of EcoLogo^{CM} criteria document CCD-047 (Architectural Surface Coatings), noting that this does not mean the coating must be certified by the EcoLogo^{CM} Program;
- (e) be accompanied by a guarantee of at least 10 years;
- (f) not be manufactured from bamboo species that appear on the Convention on International Trade in Endangered Species (CITES) list; and
- (g) be made from bamboo that is grown in accordance with sustainable harvesting principles such as those in CAN/CSA-Z809-96, or in accordance with programs run by the FSC or INBAR.

CCD-152B: Commercial Modular Carpeting

5. To be authorized to carry the EcoLogo^{CM}, the commercial modular carpeting must:
- (a) meet or exceed industry standard levels for the following performance characteristics:
 - (i) colorfastness (to light, to crocking and to wet cleaning),
 - (ii) tuft bind,
 - (iii) delamination strength of secondary backing fabrics,
 - (iv) breaking strength,
 - (v) dimensional stability,
 - (vi) squareness,
 - (vii) linear dimensions,
 - (viii) profile change,
 - (ix) electrostatic propensity and electrical resistivity, and
 - (x) flammability.

The industry standard levels that must be met are those prescribed in CAN/CGSB 4.129-93, "Carpet for Commercial Use", noting that this method combines the requirements of the AATCC (American Association of Textile Chemists and Colorists), ASTM (American Society of Testing Materials), and ISO (International Organization for Standardization);

- (b) be sold as removable tiles using a peel and stick water-based adhesive;
- (c) be sold with a service offering that includes rotation and replacement of worn tiles;

- (d) include a post-consumer or post-industrial recycled content of at least 5% in the carpet backing;
- (e) not be manufactured with topically applied biological inhibitors; and
- (f) demonstrate the following emission rates for the carpet when measured using ASTM D5116-90, "Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products":
 - (i) for TVOCs, 0.25 mg/m² per hour or less after 24 hours, and
 - (ii) for formaldehyde, 0.02 mg/m² per hour or less after 48 hours; and
- (g) demonstrate the following emission rates for the adhesive when measured using ASTM D5116-90, "Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products":
 - (i) for TVOCs, 0.25 mg/m² per hour or less after 24 hours, and
 - (ii) for formaldehyde, 0.02 mg/m² per hour or less after 48 hours; and

CCD-152C: Commercial Non-modular Textile Flooring

6. To be authorized to carry the EcoLogo^{CM}, the commercial non-modular textile flooring must:
- (a) be recyclable;
 - (b) comply with the following minimum requirements for recycled content (post-consumer and/or post-industrial):
 - (i) 75% for the lower web/backing, and
 - (ii) 90% for any PVC used in the lower web/backing;
 - (c) meet or exceed the following performance requirements:
 - (i) meet or exceed industry standard levels for the following performance characteristics:
 - colorfastness (to light, to crocking and to wet cleaning),
 - tuft bind,
 - delamination strength of secondary backing fabrics,
 - breaking strength,
 - dimensional stability,
 - squareness,
 - linear dimensions,
 - profile change,
 - electrostatic propensity and electrical resistivity, and
 - flammability.

The industry standard levels that must be met are those prescribed in CAN/CGSB 4.129-93, "Carpet for Commercial Use", noting that this method combines the requirements of the AATCC (American Association of Textile Chemists and Colorists), ASTM (American Society of Testing Materials), and ISO (International Organization for Standardization);

- (d) experience longer expected service life than competing products as indicated by a high degree of wear resistance through a minimum CRI TM-101 Reference Scale rating of 3.5 after one of the following:
 - (i) 12,000 cycles when measured using ASTM D5252-05, "Standard Practice for the Operation of the Hexapod Drum Tester", or
 - (ii) 22,000 cycles when measured using ASTM-D5417 "Standard Practice for the Operation of the Vetterman Drum Tester";
- (e) demonstrate the following emissions rates when measured using ASTM D5116-90, "Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products":
 - (i) for TVOCs, 0.25 mg/m² per hour or less after 24 hours, and
 - (ii) for formaldehyde, 0.02 mg/m² per hour or less after 48 hours;
- (f) not exceed the following density limits:
 - (i) for pile weight, 750 g/m², and
 - (ii) for total weight, 1800 g/m²;
- (g) not be manufactured with:
 - (i) heavy metals, or
 - (ii) topically applied biological inhibitors;
- (h) not contain and/or emit:
 - (i) benzene,
 - (ii) butadiene,
 - (iii) 4-PC (4-phenylcyclohexene),
 - (iv) vinyl chloride, or
 - (v) vinyl acetate;
- (i) be sold either:
 - (i) as a removable product using an alternative installation method to chemical adhesives such as, *inter alia*, double-sided tape or velcro; or
 - (ii) together with a water-based adhesive that is either certified by the EcoLogo^{CM} Program or meets the following requirements:
 - contains less than 5% VOCs by weight,
 - is not formulated or manufactured with aromatic solvents, borax, formaldehyde, or any halogenated solvent,

- is not formulated or manufactured with mercury, lead, cadmium, hexavalent chromium or their compounds,
 - is accompanied by detailed instructions for proper application and information describing proper disposal methods for containers, and
 - demonstrates a TVOC emission rate of 0.05 mg/m² per hour or less after 72 hours, when measured using ASTM D5116-90, "Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products"; and
- (i) demonstrate reduced process water consumption in the product's manufacture, by at least one of the following methods:
- (i) the product has been colored exclusively using solution dyeing, and/or
 - (ii) total process water consumption does not exceed 50 litres per square meter of final product, and/or
 - (iii) a minimum of 50% of dyeing process water is recycled by the manufacturer.
7. To be authorized to carry the EcoLogo^{CM}, the manufacturer and/or distributor of the commercial non-modular textile flooring must demonstrate corporate environmental stewardship, in relation to sales of this product. Examples of such stewardship includes, *inter alia*:
- (a) ensuring that the product is sold with a service offering to customers that includes a "takeback" program for the textile floor covering at the end of its service life; and/or
 - (b) recovering and recycling of any retired/waste carpet into raw materials for new textile floor coverings (or components thereof); and/or
 - (c) recovering and recycling of any retired/waste carpet polymers into raw materials for other products/industries; and/or
 - (d) actively participating in industry-level programs such as Carpet Recycling Europe (CRE).

CCD-152D: Resilient Flooring

8. To be authorized to carry the EcoLogo^{CM}, the resilient flooring must:
- (a) be manufactured from greater than 50% renewable materials on a percent weight basis;
 - (b) meet appropriate performance characteristics:
 - (i) for linoleum flooring, meet the performance characteristics of ASTM F2034, "Standard for Linoleum Sheet Floor Covering" or ASTM F2195-03, "Standard Specification for Linoleum Floor Tile", or

- (ii) for cork flooring, meet performance characteristics of ISO 3813, "Resilient floor coverings -- Cork floor tiles – Specification";
- (c) demonstrate a slip resistance of 0.55 or more when tested according to ASTM D2047, "Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine";
- (d) not emit VOCs, including formaldehyde, at a rate greater than 0.5 mg/m² per hour when tested in accordance with ASTM D5116-90, "Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products";
- (e) not be finished with coatings formulated or manufactured with polymers containing metal cross-linking agents based on zinc or toxic metals; and
- (f) not be finished with coatings that are formulated or manufactured with chemicals that are included in the International Agency for Research on Cancer (IARC) lists for proven (Group 1), probable (Group 2A) or possible (Group 2B) carcinogens.

CCD-152E: Flooring from Other Virgin Wood Substitutes

9. To be authorized to carry the EcoLogo^{CM}, the flooring from other virgin wood substitutes must:
- (a) meet or exceed the following performance requirements:
 - (i) a wear resistance of 500-600 cycles when tested according to ANSI/NEMA LD 3-2005, "High-Pressure Decorative Laminates", Section 3.13 Abrasion Test, and
 - (ii) a hardness (in pounds-force) as defined in Appendix 2 when tested according to ASTM D1037-99, "Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials", Hardness Test 68-73;
 - (b) not emit VOCs, including formaldehyde, at a rate greater than 0.5 mg/m² per hour when tested in accordance with ASTM D5116-90, "Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products";
 - (c) be finished with coatings that:
 - (i) are either water-based or 100% solid UV curable,
 - (ii) have not been manufactured or formulated with arsenic, cadmium, chromium, lead, mercury or nickel, and
 - (iii) do not contain suspected carcinogens or mutagens;
 - (d) if finished with a water-based coating, use only those coatings that meet the requirements of EcoLogo^{CM} criteria document CCD-047 (Architectural Surface Coatings), noting that this does not mean the coating must be certified by the EcoLogo^{CM} Program;

- (e) be accompanied by a guarantee of at least 10 years;
- (f) not be manufactured from bamboo species that appear on the Convention on International Trade in Endangered Species (CITES) list; and
- (g) if manufactured from a fast growing wood substitute material, be made from fiber that is grown in accordance with sustainable harvesting principles such as those in CAN/CSA-Z809-96, or in accordance with programs run by the FSC or INBAR.

CCD-152F: Rubber-backed Textile Flooring

10. To be authorized to carry the EcoLogo^{CM}, rubber-backed textile floorings must:

- (a) meet or exceed industry standard levels for the following performance characteristics:
 - (i) colorfastness (to light, to crocking and to wet cleaning),
 - (ii) tuft bind,
 - (iii) delamination strength of secondary backing fabrics,
 - (iv) breaking strength,
 - (v) dimensional stability,
 - (vi) squareness,
 - (vii) linear dimensions,
 - (viii) profile change,
 - (ix) electrostatic propensity and electrical resistivity, and
 - (x) flammability.

The industry standard levels that must be met are prescribed in CAN/CGSB 4.129-93, "Carpet for Commercial Use", noting that this method combines the requirements of the AATCC (American Association of Textile Chemists and Colorists), ASTM (American Society of Testing Materials), and ISO (International Organization for Standardization);

- (b) be sold either:
 - (i) as a removable product using an alternative installation method to chemical adhesives such as, *inter alia*, double-sided tape or velcro; or
 - (ii) together with a water-based adhesive that is either certified by the EcoLogo^{CM} Program or meets the following requirements:
 - contains less than 5% VOCs by weight,
 - is not formulated or manufactured with aromatic solvents, borax, formaldehyde, or any halogenated solvent,
 - is not formulated or manufactured with mercury, lead, cadmium, hexavalent chromium or their compounds,
 - is accompanied by detailed instructions for proper application and information describing proper disposal methods for containers, and

- demonstrates a TVOC emission rate of 0.05 mg/m² per hour or less after 72 hours, when measured using ASTM D5116-90, "Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products", and
 - demonstrates a formaldehyde emission rate of 0.02 mg/m² per hour or less after 72 hours, when measured using ASTM D5116-90, "Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products";
- (c) be sold with a service offering that includes rotation and replacement of worn tiles;
- (d) not be manufactured with:
- (i) heavy metals, or
 - (ii) topically applied biological inhibitors;
- (e) not be manufactured with, contain and/or emit:
- (i) benzene,
 - (ii) greater than 100ppm of 4-PC (4-phenylcyclohexene),
 - (iii) vinyl chloride, or
 - (iv) vinyl acetate;
- (f) not exceed the following density limits:
- (i) for the pile material, 1000 g/m²,
 - (ii) for the pre-coat, 900 g/m² dry weight, and
 - (iii) for the secondary (gel) backing, 1200 g/m² dry weight;
- (g) contain at least 85% recycled content in the pile material;
- (h) use a secondary (gel) backing material that:
- (i) contains no carbon black, and
 - (ii) is made from 100% natural rubber that comes from sustainably managed resources;
- (i) demonstrate the following emission rates when measured using ASTM D5116-90, "Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products":
- (i) for TVOCs, 0.25 mg/m² per hour or less after 24 hours, and
 - (ii) for formaldehyde, 0.02 mg/m² per hour or less after 48 hours; and
- (i) be colored using:
- (i) solution dyeing only, and
 - (ii) dyes or colorants that were not manufactured or formulated with heavy metals.

11. To be authorized to carry the EcoLogo^{CM}, the manufacturer and/or distributor of the rubber-backed textile flooring must demonstrate corporate environmental stewardship, in relation to sales of this product. Examples of such stewardship includes, *inter alia*:
- (a) ensuring that the product is sold with a service offering to customers that includes a “takeback” program for the flooring at the end of its service life; and/or
 - (b) recovering and recycling of any retired/waste materials (e.g. pile, rubber backing, etc.) into raw materials for new rubber flooring products (or components thereof); and/or
 - (c) recovering and recycling of any retired/waste polymers into raw materials for other products/industries; and/or
 - (d) actively participating in industry-level programs such as Carpet Recycling Europe (CRE).

CCD-152G: Area Rugs

12. To be authorized to carry the EcoLogo^{CM}, area rugs must:
- (a) be manufactured with at least 40% renewable material resources;
 - (b) if machine made woven, have a minimum of 15% and maximum of 75% continuous thread construction.
 - (c) not be manufactured with polyvinyl chloride (PVC);
 - (d) meet or exceed the following performance requirements:
 - (i) meet or exceed industry standard levels for the following performance characteristics:
 - colorfastness (to light, to crocking and to wet cleaning),
 - tuft bind,
 - delamination strength of secondary backing fabrics,
 - breaking strength,
 - dimensional stability,
 - squareness,
 - linear dimensions,
 - profile change,
 - electrostatic propensity and electrical resistivity, and
 - flammability.

The industry standard levels that must be met depend on intent use (i.e. commercial vS residential use) are those prescribed in CAN/CGSB 4.129-93, “Carpet for Commercial Use”, **OR** CAN/CGSB-4.161-M87, “Carpet for Residential Use”, noting

that this method combines the requirements of the AATCC (American Association of Textile Chemists and Colorists), ASTM (American Society of Testing Materials), and ISO (International Organization for Standardization);

- (e) experience longer expected service life than competing products as indicated by a high degree of wear resistance through a minimum CRI TM-101 Reference Scale rating of 3.5 for commercial use, **OR** 2.0 for residential use, after one of the following:
 - (i) 12,000 cycles when measured using ASTM D5252-05, "Standard Practice for the Operation of the Hexapod Drum Tester", or
 - (ii) 22,000 cycles when measured using ASTM-D5417 "Standard Practice for the Operation of the Vetterman Drum Tester";
 - (f) demonstrate the following emissions rates when measured using ASTM D5116-90, "Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products":
 - (i) for TVOCs, 0.25 mg/m² per hour or less after 24 hours, and
 - (ii) for formaldehyde, 0.02 mg/m² per hour or less after 48 hours;
 - (g) not be manufactured with:
 - (i) heavy metals, or
 - (ii) topically applied biological inhibitors;
 - (h) not be manufactured with and/or emit:
 - (i) benzene,
 - (ii) butadiene,
 - (iii) 4-PC (4-phenylcyclohexene),
 - (iv) vinyl chloride, or
 - (v) vinyl acetate;
 - (i) demonstrate reduced process water consumption in the product's manufacture, by at least one of the following methods:
 - (i) the product has been colored exclusively using solution dyeing, and/or
 - (ii) total process water consumption does not exceed 50 litres per square meter of final product, and/or
 - (iii) a minimum of 50% of dyeing process water is recycled by the manufacturer.
13. To be authorized to carry the EcoLogo^{CM}, the manufacturer and/or distributor of the area rug must demonstrate corporate environmental stewardship, in relation to sales of this product. Examples of such stewardship includes, *inter alia*:
- (e) ensuring that the product is sold with a service offering to customers that includes a "takeback" program for the area rug at the end of its service life; and/or

- (f) recovering and recycling of any retired/waste materials (e.g. pile, etc.) into raw materials for new area rugs (or components thereof); and/or
- (g) recovering and recycling of any retired/waste polymers into raw materials for other products/industries; and/or
- (h) actively participating in industry-level programs such as Carpet America Recovery Effort (CARE) (i.e. CARE is a joint industry-government effort to increase the amount of recycling and reuse of post-consumer carpet and reduce the amount of waste carpet going to landfills).

Verification

- 14. To verify a claim that a product meets the criteria listed in the document, the EcoLogo^{CM} 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.
- 15. 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^{CM} 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^{CM} Use

- 16. The EcoLogo^{CM} may appear on wholesale or retail packaging, or on the product itself, provided that the product meets the requirements in this guideline.
- 17. It is recommended that a criteria statement appear with the EcoLogo^{CM} whenever the EcoLogo^{CM} is used in association with the flooring 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 the title of the subcategory (e.g. "Bamboo Flooring"). The licensee may propose other wording for the criteria statement, but any such proposed wording must be approved by the EcoLogo^{CM} Program.

- 18. All licensees and authorized users must comply with the Program's *Guide to Proper Use of the EcoLogo^{CM}* regarding the format and usage of the EcoLogo^{CM}.
- 19. 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^{CM}*.

For additional copies of this criteria document or for more information about the
EcoLogo^{CM} Program, please contact:
TerraChoice Environmental Marketing Inc.
Toll free: 1-800-478-0399, Telephone: (613) 247-1900, Email: ecoinfo@terrachoice.com

Appendix 1: Volatile Organic Compounds with Negligible Photochemical Reactivity

The list of volatile organic compounds (VOCs) designated by the EcoLogo^{CM} Program as having negligible photochemical reactivity has been taken from the following two documents:

1. State of California Air Resources Board, Regulation for Reducing Volatile Organic Compound Emissions from Consumer Products, Appendix.
2. U.S. EPA VOC Definition, Federal Register, Volume 57, No. 22, 3 February 1992, Rules and Regulations, pg. 3945, sec. 51.100.

This EcoLogo^{CM} designated list includes the following compounds:

- | | | | |
|-----|---|------|--|
| (a) | acetone | (aa) | tetrafluoroethane (HFC-134a) |
| (b) | ammonium carbonate | (bb) | 1,1,1-trifluoroethane (HFC-143a) |
| (c) | carbon monoxide | (cc) | 1,1-difluoroethane HFC-152a) |
| (d) | carbonic acid | (dd) | 3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca) |
| (e) | ethane | (ee) | 1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb) |
| (f) | metallic carbides or carbonates | (ff) | perfluorocarbons (classes of): |
| (g) | methane | (A) | cyclic, branched, or linear, completely fluorinated alkanes |
| (h) | methylene chloride (dichloromethane) | (B) | cyclic, branched, or linear, completely fluorinated ethers with no unsaturations |
| (i) | cyclic, branched, or linear completely methylated siloxanes | (C) | cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations |
| (j) | parachlorobenzotrifluoride (PCBTF) | (D) | sulfur-containing perfluorocarbons with no unsaturations with the sulfur bonds only to carbon and fluorine |
| (k) | perchloroethylene (tetrachloroethylene) | | |
| (l) | 1,1,1-trichloroethane | | |
| (m) | trichlorofluoromethane (CFC-11) | | |
| (n) | dichlorodifluoromethane (CFC-12) | | |
| (o) | trichlorotrifluoroethane (CFC-113) | | |
| (p) | dichlorotetrafluoroethane (CFC-114) | | |
| (q) | chloropentafluoroethane (CFC-115) | | |
| (r) | chlorodifluoromethane (HCFC-22) | | |
| (s) | dichlorotrifluoroethane (HCFC-123) | | |
| (t) | dichlorofluoroethane (HCFC-141b) | | |
| (u) | chlorodifluoroethane (HCFC-142b) | | |
| (v) | 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124) | | |
| (w) | trifluoromethane (HFC-23) | | |
| (x) | 1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC-43-10mee) | | |
| (y) | pentafluoroethane (HFC-125) | | |
| (z) | 1,1,2,2-tetrafluoroethane (HFC-134) | | |

Appendix 2: Wood Hardness at 12% Moisture Using the Janka Test

The EcoLogo^{CM} Program recognizes the hardness threshold / limit values according to the table below, noting that values for wood not included in the table will be treated on a case-per-case basis.

Wood Type		Pounds-force
Alder, red	<i>Alnus rubra</i>	590
Ash, white	<i>Fraxinus Americana</i>	1320
Aspen, quaking	<i>Populus tremuloids</i>	350
Beech, American	<i>Fagus grandifolia</i>	1300
Birch, paper	<i>Betula papyifera</i>	910
Birch, yellow	<i>Betula alleghaniensis</i>	1260
Cottonwood	<i>Populus balsamifera</i>	300
Fir, Douglas	<i>Pseudotsuga menziesii</i>	710
Fir, balsam	<i>Abies balsamea</i>	400
Hemlock, all	<i>Tsuga spp.</i>	550
Larch, western	<i>Larix occidentalis</i>	830
Maple, red	<i>Acer rubrum</i>	950
Maple, silver	<i>Acer saccharinum</i>	700
Maple, sugar	<i>Acer saccharum</i>	1450
Oak, all	<i>Quercus spp.</i>	1300
Pine, all	<i>Pinus spp.</i>	600
Red-cedar, eastern	<i>Juniperus virginiana</i>	900
Red -edar, western	<i>Thuja plicata</i>	350
Spruce, all	<i>Picea spp.</i>	500
White-cedar	<i>Thuja occidentalis</i>	320

EcoLogo^{CM} Program Interpretation Document

Abrasion and Hardness Performance Tests: Substitutions and Limit Values



Interpretation:

The EcoLogo^{CM} certification criteria document for Flooring Products (CCD-152) requires that certain types of flooring materials meet or exceed performance requirements when tested according to ASTM D5230 “Taber Abrasion Test” and ASTM D1037 “Hardness Test”. For the types of flooring products that are required to meet these tests, the EcoLogo^{CM} Program will now require the following:

- a wear resistance of 500-600 cycles when tested according to ANSI/NEMA LD 3-2005, “High-Pressure Decorative Laminates”, Section 3.13 Abrasion Test, and
- a hardness (in pounds-force) as defined in the table below, when tested according to ASTM D1037-99, “Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials”, Hardness Test 68-73.

Wood Type		Pounds-force
Alder, red	<i>Alnus rubra</i>	590
Ash, white	<i>Fraxinus Americana</i>	1320
Aspen, quaking	<i>Populus tremuloids</i>	350
Beech, American	<i>Fagus grandifolia</i>	1300
Birch, paper	<i>Betula papyifera</i>	910
Birch, yellow	<i>Betula alleghaniensis</i>	1260
Cottonwood	<i>Populus balsamifera</i>	300
Fir, Douglas	<i>Pseudotsuga menziesii</i>	710
Fir, balsam	<i>Abies balsamea</i>	400
Hemlock, all	<i>Tsuga spp.</i>	550
Larch, western	<i>Larix occidentalis</i>	830
Maple, red	<i>Acer rubrum</i>	950
Maple, silver	<i>Acer saccharimum</i>	700
Maple, sugar	<i>Acer saccharum</i>	1450
Oak, all	<i>Quercus spp.</i>	1300
Pine, all	<i>Pinus spp.</i>	600
Red-cedar, eastern	<i>Juniperus virginiana</i>	900
Red -edar, western	<i>Thuja plicata</i>	350
Spruce, all	<i>Picea spp.</i>	500
White-cedar	<i>Thuja occidentalis</i>	320

Basis for Interpretation:

EcoLogo^{CM} reserves the right to accept test data for equivalent test methods to those specified in a particular criteria document. Equivalency is determined through a review and comparison of:

EcoLogo^{CM} Program Interpretation Document

Abrasion and Hardness Performance Tests: Substitutions and Limit Values



- the methodology and procedures themselves;
- the reliability, repeatability and reproducibility of the methods;
- the materials, equipment and test conditions required;
- the requirements for reporting of data and test results; and
- the consideration of peer and expert review of the methodologies.

The EcoLogo^{CM} Program has noted that the test method ASTM D5230 is not the most appropriate method for this determination. Additionally, testing for hardness and abrasion need threshold / limit values to be appropriate performance requirements.

For abrasion / wear resistance, ANSI/NEMA LD 3-2005, "High-Pressure Decorative Laminates", Section 3.13 Abrasion Test specifies the method that measures the ability of the surface of high-pressure decorative laminate to resist abrasive wear-through of the decorative layer. Wear resistance results are expressed in cycles, which is defined as the algebraic sum of the Initial Point average of the samples and the Final Point average of the samples divided by 2 and multiplied by a correction factor. The EcoLogo^{CM} Program now recognizes a wear Resistance of 500-600 cycles as the threshold / limit value for CCD-152.

For hardness, ASTM D1037-99, "Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials" (Hardness Test 68-73) specifies the method that measures the hardness of wood, produced by a variation on the Brinell hardness test. The test measures the force required to push a steel ball with a diameter of 11.28 millimeters (0.444 inches) into the wood to a depth of half the ball's diameter (the diameter was chosen to produce a circle with an area of 100 square millimeters). In Janka's original test, results were expressed in units of pressure, but when the ASTM called for results in units of force when standardizing the method. Threshold / limit value in pounds-force change according to the type of wood subject to the test. The EcoLogo^{CM} Program recognizes the threshold / limit values according to the table provided in the interpretation above, noting that values for wood not included in the table will be treated on a case-per-case basis.

Affected EcoLogo^{CM} Criteria Documents:

CCD-152: Flooring Products

Additional Notes:

Copies of the above certification criteria documents can be found at www.ecologo.org.

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