



EcoLogo™

Environmental Standard - Certification Criteria Document

CCD 146: Hard Surface Cleaners Draft 1

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Request for Comments

Feedback from individuals and organizations on this initial review draft of the hard surface cleaner standard is essential to ensure that the criteria represent environmental leadership and are readily achievable for product manufacturers. This first draft incorporates feedback received by EcoLogo since the last revision of the standard, comments received from a public review period that occurred in January 2010, and subsequent follow-up research. A summary of comments received from stakeholders on a discussion document can be accessed at:

http://www.ecologo.org/en/criteria/subpage.asp?page_id=203

EcoLogo encourages you to provide feedback and comment on all aspects of the proposed standard during this time. Should you be interested in providing feedback, please provide a clear rationale and any available evidence in support of your comments whenever possible.

Overarching discussion points include:

- Do you agree with the criteria contained in the proposed standard? If not, please describe any concerns.
- While an effort has been made to harmonize with criteria from other existing standards, are there additional opportunities to harmonize that you would recommend? Are there criteria that were harmonized that you disagree with?
- Will the proposed standard lead to the certification of environmentally preferable products (i.e. environmental leadership as defined by the EcoLogo Program)? Why or why not?
- This standard is being restructured during this revision. While some restructuring has occurred in this Draft, additional structural changes may be forthcoming. Is the current structure an improvement?

The stakeholder comment period will be open for 30 days beginning July 26, 2010. The deadline for public comment on this first draft is August 30, 2010.

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Introduction

The EcoLogo™ Program develops standards designed to reduce environmental impacts by specifying criteria for: safer chemicals and materials, use of recycled and recyclable materials, and minimizing pollution generated by the production, use and disposal of these products and their packaging. EcoLogo is committed to recognizing a wide variety of environmentally preferable chemical-based hard surface cleaners.

This standard establishes human health and environmental criteria for the certification of hard surface cleaners. However, there exist many differing types hard surface cleaners, many of which perform diverse functions and which are chemically unique. Product class-specific certifications that can currently be granted under this standard include the following:

- Bathroom Cleaners
- Boat and Bilge Cleaners
- Cleaners for Cooking Appliances
- Degreasers
- Dish Detergents
- General Purpose Cleaners
- Industrial Cleaners
- Vehicle Cleaners
- Window and Glass Cleaners

Hard surface cleaners not already considered may also be certified under this standard if they meet the following conditions:

- 1) A review of the product by EcoLogo results in a finding that the likely environmental and human health impacts associated with the expected use of the product are sufficiently addressed by the criteria in CCD-146 standard; and,
- 2) the product complies with all base criteria of the standard, including those additional criteria that apply for products intended for household use. Base criteria represent the most stringent thresholds for cleaning products, allowing products outside the above categories that are capable of meeting these criteria to be certified as cleaners under this standard.

Any manufacturer wishing to have a product certified under the CCD-146 standard may also, at additional expense, opt to request that EcoLogo conduct a formal review

of the product for the purposes of evaluating and establishing criteria specific to the new product class. Contact the EcoLogo program for more details.

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 standard:

"ASTM" means American Society for Testing and Materials;

"aerosol" means a cloud or fine spray of particles of a liquid in a gas;

"aromatic solvent" means an organic compound containing at least one ring structure consisting of six carbon atoms joined by alternating single and double bonds. Examples include benzene and toluene with benzene being a known human carcinogen;

"bioaccumulating" means an ingredient has a bioconcentration factor (BCF) greater than 100 (or $\log \text{BCF} > 2$) when tested according to one of the following:

- Code of Federal Regulation 40CFR797.1520, OR
- ASTM E-1022-94 (2007) Standard Guide for conducting bioconcentration test with fishes and salt-water bi-valve mollusk, OR
- OECD Guidelines for Testing of Chemicals, 305C, Bioaccumulation: Degree of Bioconcentration in Fish;

The following ingredients are considered non-bioaccumulative and do not have to be tested for BCF:

- those that are readily biodegradable;
- those that have a water solubility greater than 1500 mg/L when tested using a method consistent with ASTM E1148-87, Standard Test Method for Measurement of Aqueous Solubility, and
- those that have an octanol-water partition coefficient of $\log P$ less than 3 when calculated or tested using the OECD Guidelines for Testing of Chemicals, method 117 or 107;

"bioconcentration factor" means the ratio of chemical concentration in an organism to that in surrounding water;

"builder" means any substance intended to maintain alkalinity, and/or bind dissolved metal ions (soften the water), and/or keep the soil in suspension, increasing the effectiveness of the detergent. Builders include substances such as phosphates, NTA, EDTA, zeolites, sodium citrate and sodium silicate;

"Carcinogen" means any substance that is an agent directly involved in the exacerbation of cancer or in its propagation. In this standard, a carcinogen is any substance classified by IARC (Group 1, 2A, 2B), NTP (Groups 1 and 2), EPA IRIS (Weight – of-evidence A, B1, B2, C, or by OSHA (29CFR 1910.1003(a)1).

"CSMA" means the Chemical Specialities Manufacturers Association, the former name of the Consumer Speciality Products Association (CSPA);

"carwash" means a facility that provides a car washing service by employing an automatic or self-serve system;

"chlorinated plastic materials" means packaging materials made of polyvinyl chloride (PVC) or other chlorinated compounds. Vinyl chloride is a known carcinogen;

"EC₅₀" means the median effective concentration. It is the concentration that is estimated to cause some defined toxic effect to 50% of the test organisms; (e.g., death, immobilization, or serious incapacitation, for instance luminescence in the bacteria test outlined in Appendix 1);

"ethylene glycol ethers" means a group of solvents and plasticizers characterized by the general form of an ethylene glycol (1,2 ethanediol) group bound to an alkyl chain by an ether (oxygen) bond. Ethylene glycol monomethyl ether and ethylene glycol monoethyl ether and their acetates are reproductive toxins. Butoxyethanol (ethylene glycol monobutyl ether) has shown haemolytic (destruction of red blood cells) properties. These three compounds are considered "toxic" and ethylene glycol monopropyl ether also shows haemolytic properties;

"endocrine disruptor" means an exogenous substance or mixture that alters function(s) of the endocrine system and consequently causes adverse health effects in an intact organism, or its progeny, or (sub)populations. Only chemicals listed as category 1 or category 2 on the European Union Priority List of Endocrine Disruptors are considered endocrine disruptors for the purposes of this standard;

"flash point" means the minimum temperature of a liquid at which the vapors given off are sufficient to for a flammable mixture with air that will ignite when exposed to an open flame, when tested in accordance with the ASTM Test methods D93-80, D92-05a, or D3278-82, or ISO Test Methods 13736, or 2719;

"food grade" means compounds safe for use in food, as approved by the U.S. Food and Drug Administration;

"GHS" means the Globally Harmonized System of classification and Labeling of Chemicals, developed by the United Nations.

"HET-CAM" means the Hen's Egg Test on the Chorioallantoic Membrane;

"halogenated solvents" means any solvent containing halogens including fluorine, chlorine, bromine and iodine. Halogens are highly reactive and have a tendency to bioaccumulate and exhibit toxic effects;

"IARC" means International Agency for Research on Cancer, an organization that lists known and suspected carcinogens;

"IC₅₀" means the inhibiting concentration for a 50% effect on the test organisms. It represents a point estimate of the concentration of test materials that can cause a 50% impairment in a quantitative biological function (e.g. reduced growth, impairment of the reproductive, immune or metabolic systems, and decreased ability to survive). These potential impacts do not kill the organism but may reduce the total population over time thereby decreasing aquatic productivity;

"individual consumers" means individuals purchasing products for domestic and household use;

"institution" means office, school, hospital, retail store, and other commercial or public workplace setting where, generally, professional cleaning companies (e.g., janitorial services), provide cleaning of everyday soil from floors, bathrooms, walls and other hard surfaces;

"industrial setting" means manufacturing or processing plant, resource extraction site, auto repair shop, printing press, commercial carwash or any other contained workplace area that requires cleaning of specific and extraordinary soil from hard surfaces;

"LC₅₀" means median lethal concentration. It is the concentration of material that is estimated to be lethal to 50% of the test organisms;

"metal" means an element that forms positive ions when its compounds are in solution and whose oxides form hydroxides rather than acids with water. "Toxic metals" generally are metallic elements that have no known biological function and disrupt essential physiological processes. Examples include, but are not limited to arsenic, cadmium, selenium, mercury, silver, and lead.

"mutagen" means a chemical that produces a mutagenic effect on an exposed human or animal. For the purposes of this standard, a mutagen is defined as a

substance that is evaluated to be a Category 1A, 1B, or 2 substance under the GHS Germ Cell Mutagenicity (2007). Data for all available effects will be evaluated.

"OECD" means the Organization for Economic Co-operation and Development;

"octanol/water partition coefficient" means the ratio of a chemical's solubility in n-octanol and water at equilibrium;

"ozone depleting substances" refers to a family of man-made compounds defined by the Montreal Protocol that have been shown to participate in atmospheric reactions that deplete the stratospheric ozone layer;

"phenolic" means a chemical containing a phenol group (C₆H₅OH)

"polish" means a hard surface (e.g., cars) care product designed to provide a protective film that generally may also serve a cleaning (i.e., soil removal) purpose. The terms "wax" and "polish" are commonly used interchangeably (see wax);

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

"potentiation" means the increased effect of a toxic chemical acting concurrently with a "nontoxic" one (see also synergy);

"propellants" means compressed gases or vapors in a container that, upon release of pressure and expansion through a valve, carry another substance from the container. Typical propellants are carbon dioxide, propane, butane, and isobutane;

"quaternary ammonium compound" or "quat" means an active ingredient used in disinfectants, that chemically is an organic nitrogen compound in which a central nitrogen atom is joined to four organic cations and one anionic acid radical. Such compounds include, inter alia, alkyl dimethyl benzyl ammonium chloride and didecyldimethylammonium chloride;

"readily biodegradable" for a component, is determined using any of the six test methods described in OECD Guidelines for Testing of Chemicals, 301A-301F; for a whole formulation, is determined using one of the methods described in OECD Guidelines for the Testing of Chemicals, provided that all measurements and calculations are based on the carbon content of the mixture and its degradation, i.e. dissolved organic carbon (DOC) removal (301A or 301E), CO₂ evolution (301-B) or oxygen consumption in the presence of an inhibitor of nitrogen metabolism (301C, 301D or 301F);

"readily biodegradable under anaerobic conditions" is determined using the test method described in ASTM E1199-92: Standard Test Method for Determining the Anaerobic Biodegradation Potential of Organic Chemicals, or by ASTM 2170-01 (2008)

Standard Test Method for Determining Anaerobic Biodegradation Potential of Organic Chemicals Under Methanogenic Conditions;

"recycled" 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 that originated as post-consumer material and pre-consumer material;

"repeated dose toxicity" sometimes referred to as chronic toxicity, means the degree to which a substance or mixture of substances can harm humans or animals through repeated exposures over an extended period of time. For the purposes of this standard, a substance is considered to be toxic if it contains components that are considered toxic under GHS "Specific Target Organ Systemic Toxicity - Repeated Exposure" (UN, 2007) that do not meet the following 90-day values:

- Oral >100 mg/kg-bw/day
- Dermal >200 mg/kg-bw/day
- Inhalation >250 ppm/6h/day (gas)
- Inhalation >1.0 mg/L/6h/day (vapor)
- Inhalation > 0.2 mg/L/6h/day (mist/dust)

"reproductive toxin" means a substance or agent that can cause adverse effects on the human reproductive system. In this standard, reproductive toxins are chemicals listed as reproductive toxins on the State of California Proposition 65 list under the State of California Safe Drinking Water and Toxic Enforcement Act of 1986.

"rheology modifiers" means a group of compounds added to thicken a liquid. Examples include xanthan gum and hydroxypropyl cellulose, which may be added to toilet bowl cleaners or oven cleaners to maximize cleaning efficiency;

"solvent" means a general term for a chemically diverse range of liquid substances which dissolve other materials;

"surfactant" (surface active agents) means an amphiphilic (dually water repelling and water attracting) substance that reduces the surface tension of water allowing it to rinse and clean surfaces. Surfactants also disperse soil and hold it in solution. They are the key active ingredients in most cleaning products;

"synergy" means the combined toxic effect of two or more chemicals is greater than the sum of the effect of each chemical given alone;

"toxic" means the degree to which a substance or mixture of substances can harm humans or animals. Acute toxicity is the ability of a substance / mixture to cause harmful effects in an organism through a single or short-term exposure. Subchronic

toxicity is the ability of the substance / mixture to cause effects for more than one year but less than the lifetime of the exposed organism.

"volatile organic compound" or "VOC" means any organic compound that participates in atmospheric photochemical reactions to create smog. It excludes those organic compounds that the EcoLogo^{CM} Program designates as having negligible photochemical reactivity found in Appendix 3. The methods to calculate VOC content are:

- EPA Method 24-24A, 40 C.F.R., Part 60, Appendix A (1991),
- Method 18,48 Federal Register 48, no. 202, October 18, 1983,
- Method 1400 NIOSH Manual of Analytical Methods, Volume 1, February 1984,
- Environmental Protection Agency Method 8240 GC/MS Method for Volatile Organics, September 1986, or
- demonstrated through calculation from records of the amounts of constituents used to make the product where volatile means vapour pressure >0.01 KPa at 20°C; and

"wax" means a hard surface (e.g., cars) care product designed to provide a protective film that generally does not serve a cleaning purpose. A wax is an organic mixture or compound with low melting point and high molecular weight, which is solid at room temperature. The terms "wax" and "polish" are commonly used interchangeably (see polish).

General Requirements

- 2) To be authorized to carry the EcoLogo, all hard surface cleaners for household, institutional, and industrial use must 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 there from, will meet the requirements of all applicable governmental acts, bylaws and regulations.

Hard Surface Cleaner requirements

Human Health and Environmental Impacts

- 3) To be authorized to carry the EcoLogo, all hard surface cleaners intended for institutional and industrial use must:

- a) demonstrate that the undiluted product is not toxic to humans, as calculated by weighted average of individual ingredients, for each of the following routes of exposure:
- i) for oral exposures, have a oral rat toxicity $LD_{50} > 5,000$ mg/kg, where each ingredient has been tested according to OECD test guidelines for acute mammalian toxicity testing defined in OECD test methods 401, 420, 423, or 425 or by US EPA OPPTS Harmonized Guideline: 870.1200 Acute dermal toxicity 870.1100;
 - ii) for dermal exposures, have an $LD_{50} > 4,000$ mg/kg, where each ingredient has been tested according to OECD test guidelines for acute mammalian toxicity testing defined in OECD test method 402 or US EPA OPPTS Harmonized Guideline: 870.1200;
 - iii) for inhalation exposures (4-hr), have;
 - $LC_{50} > 5,000$ mg/m³ (gas)
 - $LC_{50} > 10,000$ mg/m³ (vapor)
 - $LC_{50} > 5,000$ mg/m³ (dust)Each ingredient must have been tested according to OECD test guidelines for acute mammalian toxicity testing defined in OECD test method 403 or US EPA OPPTS Harmonized Guideline: 870.1300;
 - iv) If a glass cleaner, have a calculated oral rat toxicity $LD_{50} > 10,000$ mg/kg, where each ingredient has been tested according to OECD Test Guidelines for acute mammalian toxicity testing (Methods 401, 420, 423 or 425).

If insufficient data exist to characterize all ingredients greater than 0.1 percent of the formulation, the product may demonstrate conformance to the above values through whole product testing.

- b) not be toxic to humans through repeated dose exposures.
- c) In addition to the toxicity criteria (3a,) also not be considered hazardous under:
- i) in the US, the Federal Hazardous Substances Act (16 CFR Part 1500), and/or
 - ii) in Canada, Class D (Division 1 Subdivision A and Division 2 Subdivision A) or Class E of the Controlled Products Regulations (SOR/88-66) of the Hazardous Products Act;
- d) Asthmagens – Under review by Advisory Committee
- e) Skin Absorption – Under review by Advisory Committee
- f) demonstrate low potential for skin irritancy through an appropriate test of either the whole formulation or active ingredients. An acceptable standard would be an irritation index score of < 12.0 , as determined from the HET-CAM test;



- g) have limited effects on aquatic life based on whole formulation short-term sensitivity toxicity testing of the recommended dose. In lieu of such data, evidence on the limited toxicity of individual ingredients on a number of aquatic organisms, may be accepted (see Appendix 1 for exact details);
- h) be readily biodegradable under both aerobic and anaerobic conditions as determined by whole formulation testing. In lieu of such testing, evidence of ready biodegradability at the component level will be accepted if sufficient evidence exists of the ready biodegradability of each component within the formulation. In the absence of published data, QSAR data from EPA's EpiSuite may be considered.
- i) not be formulated or manufactured with organic ingredients that are bioaccumulating.
- j) If formulated with fragrances, use only fragrances that conform with the Code of Practice for the International Fragrance Association. In addition, all ingredients must be disclosed and each ingredient must comply with all criteria within this standard.
- k) if formulated or manufactured with dyes, only contain food grade dyes that comprise no more than 0.1% by weight of the total, undiluted formulation;
- l) If formulated with an optical brightener, the compound must comprise no more than 0.1% by weight of the total undiluted formulation and the ingredient must comply with all criteria within the standard.
- m) be manufactured and tested without harming animals. In lieu of whole product toxicity testing using animals, pre-existing toxicity information will be accepted for individual chemicals if sufficient data exist to characterize the entire chemical formulation.

Physical Properties

- 4) To be authorized to carry the EcoLogo^{CM}, all hard surface cleaners must, as sold (e.g., before dilution if applicable):



- a) have a pH of not lower than 2.0 and not higher than 11.5, unless otherwise specified for products with specific uses below:
 - i) Cooking Appliance Cleaners – pH less than 12
 - ii) Degreasers – pH less than 12.5

- b) have a flash point > 61°C, as determined when tested in accordance with the ASTM Test methods D93-80, D92-05a, or D3278-82, or ISO Test Methods 13736, or 2719. Product must have a maximum temperature usage which does not exceed 17°C below flash point.

Prohibited and Restricted Compounds

- 5) To be authorized to carry the EcoLogo^{CM}, all hard surface cleaners must:
 - a) not be formulated or manufactured with any chemicals that are carcinogens, mutagens, or reproductive toxins, nor any compounds known to produce or release carcinogens, mutagens, or reproductive toxins;

 - b) not be formulated or manufactured with endocrine disruptors.

 - c) not contain more than 1% by weight of volatile organic compounds as used (e.g., after dilution if applicable), or more than 12% by weight as sold (e.g., in concentrated form if applicable), with the following exceptions:
 - i) Degreasers must contain less than 3% by wt. VOC as sold, and less than 25% as sold.

 - d) not be formulated or manufactured with solvents belonging to any of the following group:
 - i) aromatic solvents or halogenated solvents
 - ii) the following ethers or their acetates:
 - a) ethylene glycol ethers;
 - b) diethylene glycol ethers;
 - c) propylene glycol ethers;

 - e) not be formulated or manufactured with any of the following:
 - i) ethylene diaminetetracetic acid, ethylene dinitrilotetracetic acid, nitrilotriacetic acid, or salts of these compounds
 - ii) inorganic phosphates



- iii) phthalates
 - iv) 2-butoxy ethanol
 - v) ozone depleting substances
 - vi) toxic metals, either in elemental form or in compounds.
- f) if a glass or window cleaner, not be formulated or manufactured with ammonia or ammonium compounds;
- g) If advertised for use in drains then not ingredients such as anti-microbials such as formaldehyde or bleach that are known to adversely affect biologically-based drain cleaners;
- h) If formulated using thickeners, use only thickeners classified a food grade by the U.S. Food and Drug Administration;
- i) If sold as a bathroom cleaner not be formulated or manufactured with:
- i) quaternary ammonium compounds
 - ii) sodium or calcium hypochlorites

Packaging

- 6) To be authorized to carry the EcoLogo^{CM}, all hard surface cleaners must:
- a) Be packaged in materials, including primary and secondary packaging, that:
 - i) do not contain PVC or other types of chlorinated materials;
 - ii) do not contain intentionally added heavy metals of lead, mercury, cadmium, and hexavalent chromium, excepting those added as a result of using recycled content, the sum of which shall not exceed 100 ppm by weight;
 - iii) contain a minimum post-consumer content of 25%;
 - iv) if plastic, are clearly marked with the appropriate Society of Plastics Industry recycling classification; and
 - v) are comprised of a minimum of 90% by weight recyclable or compostable materials.
 - b) provide the product and refills in concentrate with explicit instructions for safe dilution and use, and if concentrate versions are not appropriate, ensure bulk versions are sold;



- c) if sold in bulk, have available at no additional cost to the customer, an option for the take back and reuse of empty totes and drums;
- d) have a packaging efficiency ratio, as described in Appendix A, of greater than 180
- e) not be manufactured or formulated in an aerosol that uses propellants;
- f) if concentrated, not be sold in ready to use packaging such as wipes or spray bottles;
- g) be accompanied by detailed instructions on proper product use, and indications for the proper waste disposal and the recyclability of the container and/or packaging materials.

Product Performance

- 7) To be authorized to carry the EcoLogo^{CM}, all hardsurface cleaners:
 - a) must clean common soils in its category effectively as determined by the appropriate category test method(s) specified in Appendix 2- Part 1;
 - b) in a category without a specified test method, must demonstrate the effective removal of soil or other contaminants from the intended surface as well as two other functionally equivalent products, using a test method that complies with the specifications listed in Appendix 2- Part 2.

Product Labelling

- 8) To be authorized to carry the EcoLogo^{CM}, all hardsurface cleaners must:
 - a) If sold as a glass or window cleaner, be accompanied by detailed instructions which specifically recommend the use of a reusable media or tools (e.g., cloths or rubber "squeegee" over the use of disposable materials;



- b) If sold as a boat and bilge cleaner, be labelled with explicit instructions that bilges should be pumped out at marina facilities and not overboard, and that the boat should be cleaned away from shorelines;
- c) If sold as an industrial cleaner, must be clearly identified as a product not intended or to be sold for domestic, household or institutional use, and be accompanied by detailed instructions to treat remains of degreasing baths, rags carrying the product and other waste materials as hazardous waste to be disposed of at locally appropriate facilities;
- d) whenever intended to be diluted with water by the consumer prior to use, be labelled with a clear and prominent statement saying that tepid water should be used for dilution;

Household Hard Surfaces Requirements

- 9) To be authorized to carry the EcoLogo^{CM}, all hard surface cleaners intended for use in the household must:
 - a) meet each of the criteria previously defined for products sold for institutional or industrial use, unless otherwise specified in this section below;
 - b) in addition to meeting the specific requirement of section 3, not require being labeled as harmful or an irritant under:
 - i) in the US, the Federal Hazardous Substances Act (16 CFR Part 1500), and/or
 - ii) in Canada, Part 1 and Part 2 of the Consumer Chemicals and Containers Regulations of the Hazardous Products Act;
 - c) if sold as a boat and bilge cleaner or a cooking appliance cleaner, not require being labeled as corrosive under:
 - i) in the US, the Federal Hazardous Substances Act (16 CFR Part 1500), and/or
 - ii) in Canada, the Consumer Chemicals and Containers Regulations of the Hazardous Products Act;
 - d) have a pH no less than 3 and no greater than 11;



- e) have a packaging efficiency ratio, as described in Appendix A, of greater than 10.

Verification

- 10) 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.
- 11) Compliance with section 2(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 Use of EcoLogo

- 12) The EcoLogo mark may appear on wholesale or retail packaging, or on the product itself, provided that the product meets the requirements in this guideline.
- 13) A criteria statement must appear with the EcoLogo whenever it is used in association with hard surface products. 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 statements for select product categories covered under this standard are as follows:

- Glass and Window Cleaners – “window and glass cleaners”
- Boat and Bilge Cleaner – “Boat and Bilge Cleaner”,
- Vehicle Cleaner - “Vehicle Cleaners for Household / Institutional Use”
- Degreasers - “Degreasers”,
- Industrial Cleaners - “Industrial Cleaner”
- Cooking Appliance Cleaner - “Cooking Appliance Cleaner”,
- Bathroom Cleaner - “Bathroom Cleaner”,



- Dish washing detergents – “Dish Cleaner”, and
- General Purpose Cleaners – “General Purpose Cleaner”.

The suggested criteria statement wording for products type is “Multi-purpose Cleaner.” The licensee may propose other wording for the criteria statement, but any such proposed wording must be approved by the EcoLogo Program.

- 14) All licensees and authorized users must comply with the U.S. Federal Trade Commission's *Guides for the Use of Environmental Marketing Claims*, the Canadian Competition Bureau's *Environmental Claims: A Guide for Industry and Advertisers*, and the EcoLogo Program's *Guide to Proper Use of the EcoLogo™* regarding the format and usage of the EcoLogo.
- 15) Any accompanying advertising must conform with the relevant requirements stipulated in this guideline, the license agreement, the U.S. Federal Trade Commission's *Guides for the Use of Environmental Marketing Claims*, the Canadian Competition Bureau's *Environmental Claims: A Guide for Industry and Advertisers*, and the EcoLogo Program's *Guide to Proper Use of the EcoLogo™* regarding the format and usage of the EcoLogo™.

Contact Information

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

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Appendix 1: Determining Aquatic Toxicity

CCD-146 has requirements to test the whole formulation of the product on a range of metabolically diverse aquatic organisms (animal, plant, bacteria) in order to more accurately capture the potential impact as the product enters the aquatic ecosystem. This approach is also intended to reflect the potential for synergy and potentiation between ingredients.

However, since whole formulation test results may not be readily or easily available, other data will be accepted if it meets the requirements outlined in Part 2.

Part 1 - Whole Formulation Testing

Based on the recommended dose for typical use, the whole formulation must not adversely inhibit three different species of divergent taxonomic and ecological ranks. These species should be physiologically and ecologically similar to organisms that reside in North American ecosystems. Listed below are required thresholds and acceptable methods.

Thresholds:

The following thresholds apply only to the products

- Household cleaners: 1,000 mg/l (e.g., $IC_{50} > 1,000$ mg/l) and 100 mg/l for bathroom cleaners
- Institutional cleaners: 500 mg/l (e.g., $IC_{50} > 500$ mg/l) and 100 mg/l for bathroom cleaners
- Industrial cleaners: 200 mg/l (e.g., $IC_{50} > 200$ mg/l)

Methods:

- a) 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; or
 - Report OECD/OCDE-203, "Fish, Acute Toxicity Test", Organization for Economic Cooperation and Development, 1992; or
 - ISO 7346-2, "Water quality – Determination of the acute lethal toxicity of substances to a fresh water fish", 1996.

- b) 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-202, "*Daphnia magna* Acute Toxicity Test", Organization for Economic Cooperation and Development, 2004; or
 - Report EPS 1/RM/21, "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.
- c) Freshwater microalgae using **one** of the following:
- Report EPA-821-R02-013 (section 14), "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms", October 2002, U.S. Environment Protection Agency or
 - Report EPS-1-RM-25, "Biological Test Method: Growth Inhibition Test Using a Freshwater Algae", March 2007, Environment Canada; or
 - Freshwater Alga and Cyanobacteria, Growth and Inhibition Test, Report OECD/OCDE-201, March 2006, Organization for Economic Cooperation and Development; or
 - ISO 8692: 2004, "Water quality – Freshwater algal growth inhibition test with unicellular green algae", International Organization for Standardization.
- d) Bacteria using **one** of the following:
- ASTM D5660-96(2004), "Standard Test Method for Assessing the Microbial Detoxification of Chemically Contaminated Water and Soil Using a Toxicity Test with a Luminescent Marine Bacterium", 2004, or
 - ISO 11348-1:2007, "Water quality -- Determination of the inhibitory effect of water samples on the light emission of *Vibrio fischeri* (Luminescent bacteria test) -- Part 1: Method using freshly prepared bacteria", International Organization for Standardization, 2007, or
 - Report EPS 1/RM/24,"Biological Test Method: Toxicity Test Using Luminescent Bacteria *Photobacterium phosphoreum*", Environment Canada, November 1992.

If user instructions for concentrated cleaners (i.e. those that are diluted for normal use) recommend use at full strength for specific cleaning applications, then the full strength

dose must have a $LC_{50} > 100$ mg/l on all of the above species (institutional bathroom cleaners excepted).

Part 2- Requirements of Individual Ingredients

No single ingredient present in at least 0.1% of the product as sold must be:

- very acutely toxic (has a LC_{50} of < 1 mg/l or an EC/IC_{50} of < 0.02 mg/l) when tested on three different species of divergent taxonomic and ecological ranks. These species should be physiologically and ecologically similar to organisms that reside in North American ecosystems. The methods listed in Part 1 should be used;
- acutely toxic (has a $LC_{50} > 1$ mg/l and < 100 mg/l or an $EC/IC_{50} > 0.02$ mg/l and < 2 mg/l) when tested on three species as described above, and potentially bioaccumulating; or
- data from other aquatic toxicity tests deemed acceptable to the ECP

However, to address potential synergistic impacts the entire whole product formulation must be tested against the requirements in Part 1 if:

- more than 5% of the product as sold is made up of ingredients considered acutely toxic, or
- if the product contains more than 8 active ingredients (surfactants, builders, solvents, acid, and alkalis that act to remove soil)

Exceptions:

- for CCD-146A " Window and Glass Cleaners" , CCD-146G " Cooking Appliance Cleaners", and CCD-146I " Cleaners with Low Potential for Environmental Illness and Endocrine Disruption", appropriate toxicity requirements can be found in the subcategory; and
- whole product formulation toxicity testing is required if the amount of acutely toxic ingredients is above 5% multiplied by a proportion factor for concentration above 64:1. For example, a product with a recommended typical dilution of 256:1, the proportion factor is 4 ($256/64 = 4$). Therefore, the amount of acutely toxic ingredients above which whole formulation testing required is 20% ($5\% \times 4$).

Appendix 2: Determining Product Efficacy

CCD-146 requires that products demonstrate the effective cleaning of soil and other contamination from their intended surfaces in order to be awarded the EcoLogo^{CM}. A list of test protocols identified and deemed acceptable to the EcoLogo Program is presented in Part 1 of this Appendix 2. A procedure for demonstrating the cleaning efficacy of products in categories with no defined test procedure is presented in Part 2.

Part 1- Procedures to Demonstrate Product Efficacy

Products must demonstrate their ability to clean the intended surfaces by removing common soils and surface contaminants. Test procedures acceptable for demonstrating the effectiveness of the product for individual product categories include those listed below. All testing must be performed at the most dilute, least concentrated level recommended by the manufacturer for common cleaning applications unless otherwise specified by the test protocol.

Procedures

- a) General Hard Surface Cleaners
 - CSPA DCC-15 "Guidelines for Measuring Degree of Surface Abrasion by Abrasive Cleaners";
 - CSPA DCC-17 "Greasy Soil Test Method for Evaluating Spray-and-Wipe Cleaners Used on Hard, Non-Glossy Surfaces";
- b) Bathroom Cleaners
 - If sold as a soap scum remover, then demonstrate at least 75% efficiency in removing soil (soap scum) in ASTM method d5343 "Standard Guide for Evaluating Cleaning Performance of Ceramic Tile Cleaners";
 - if sold as a toilet bowl or urinal cleaner, then demonstrate efficiency in removing mineral stains as measured by an acceptable test method (see Appendix 2- Part 2);
 - CSPA DCC-16 "Guidelines for Evaluating the Efficacy of Bathroom Cleaners" – Spot, Soap Scum, or Lime Soap removal
- c) Boat and Bilge Cleaners
 - if sold as a wax, perform as well as the control product in a test based on ASTM D4330-94(2002) "Standard Practice for Evaluation of Fiberglass Boat Polish and Wax";
 - if sold as a bilge cleaner, meet cleaning efficiency requirements outlined in Section 4.5 of the U.S. military specification document MIL-C-22230 "Cleaning Compound, Fuel Tank & Bilge";
- d) Cooking Appliance Cleaners

- clean oven, grill and barbeque surfaces effectively as measured by the Federal specification document A-A-7A "Cleaning Compound, Solvent-Detergent (Alkaline Cleaner – Degreaser for Ovens, Grills and Washable Surfaces)";
 - CSPA DCC-12 "Guidelines for Screening the Efficacy of Oven Cleaners"
- e) Degreasers and Industrial Cleaners
- by demonstrating at least 75% cleaning efficiency as measured by test methods A5 "particulate and oily soil/vinyl tiles" or A6 "oil, carbon, black and clay/white enamel painted stainless-steel panels" in ASTM D4488- 95(2001)e1 01-Jan-1995 "Standard Guide for Testing Cleaning Performance of Products Intended for Use on Resilient Flooring and Washable Walls", or
 - by a method based on CAN/CGSB 2-GP-11, Method 20.3 "Methods of Testing and Analysis of Soaps and Detergents";
- f) Dishwashing Detergents
- if sold as a hand dishwashing product then clean dishes effectively as measured by a method in line with the International Organisation for Standardization (ISO) document 4198 "Surface active agents -- Detergents for hand dishwashing -- Guide for comparative testing of performance";
 - if sold for use in an automatic dishwasher product then clean dishes effectively as measured by a method in line with the International Organisation for Standardization (ISO) document 7535 "Surface active agents -- Detergents for domestic machine dishwashing -- Guide for comparative testing of performance";
 - CSPA DCC-01 Machine Dishwashing Estimation of Foam
 - CSPA DCC-05A Deposition on Glassware during Machine Dishwashing
 - CSPA DCC-10 Foam Stability for Hand Dishwashing detergent
- g) Vehicle Cleaners
- if sold as a polish, perform better than the control in a performance test based on ASTM D6625-01-Jan-2001 "Standard Practice for Conducting a Test of Protective Properties of Polish Applied to a Painted Panel Using Fluorescent UV-Condensation Light- and Water-Exposure Apparatus"; and
- h) Window and Glass Cleaners
- as used, clean common glass and other highly-polished surfaces effectively as determined by either a minimum "3" rating for cleaning, streaking and smearing, when assessed with CSMA DCC-09: Glass Cleaners, or as measured by an acceptable test method (see Appendix 2);
 - not damage or degrade polymer-based solar screens or other window treatments, as demonstrated by an acceptable test method (see Appendix 2);
 - CSPA DCC-09 Glass Cleaners and
 - CSPA DCC-09(a) "standard guide for evaluating the filming and Streaking of Glass Cleaners" .



Part 2- Demonstrating Product Efficacy When Recognized Standard Not Available

For products without an authoritative test protocol identified in Part 1, the EcoLogo^{CM} Program will accept efficacy test data that indicate the product is able to clean (or polish, if advertised) the intended surface as well as at least two functionally equivalent products.

Whatever method is employed, efficacy testing must comply with the following general conditions:

- i) Testing must be performed by a third party accredited laboratory.
- j) Testing must be carried out under controlled, replicable conditions; in situ or anecdotal data is not acceptable for EcoLogo^{CM} certification.
- k) Generated test data must be objective and quantified in recognized metric units; subjective observations are not generally acceptable for EcoLogo^{CM} certification, unless accompanied by at least one independent objective measure.
- l) All control conditions must be specified.
- m) The product must be tested at its maximum recommended dilution (i.e., minimum concentration).
- n) Complete copy of the testing protocol and final report must be made available to the EcoLogo^{CM} Program.

Appendix 3: 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 | | cyclic, branched, or linear, completely fluorinated alkanes |
| (h) | methylene chloride (dichloromethane) | | cyclic, branched, or linear, completely fluorinated ethers with no unsaturations |
| (i) | cyclic, branched, or linear completely methylated siloxanes | (A) | cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations |
| (j) | parachlorobenzotrifluoride (PCBTF) | (B) | 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) | | |