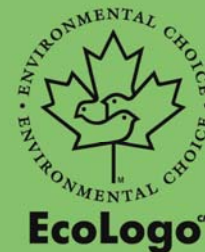


# EcoLogo<sup>CM</sup> Program Certification Criteria Document

CCD-146  
Hardsurface Cleaners



## Introduction

The EcoLogo<sup>CM</sup> 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.

This certification criteria document builds on and replaces two previous EcoLogo<sup>CM</sup> documents: ECP-33 (General Purpose Cleaners) and ECP-57 (Industrial and Commercial Cleaners). Whereas a number of cleaning products designed for a wide range of uses have been certified under these two previous documents, this new document provides specific requirements for cleaning products with specific uses. CCD-146 also introduces new conditions for certification in line with advances in manufacturing, toxicology and ecology.

Hardsurface cleaning products can be designed to remove both organic and inorganic soil from plastic, glass, ceramic, metal, porcelain, rubber, leather, wood, stone, and other hard surfaces. Generally these products are rinsed into sewage systems almost immediately after use and potentially affect aquatic ecosystems. During use they may have environmental impacts on air quality or seep into terrestrial ecosystems. Waste and emission benefits may be realized by retailing concentrated versions of hardsurface cleaners. There may also be opportunity to reduce environmental impact through choice of precursors used in the manufacture of these products.

EcoLogo<sup>CM</sup> certification will be awarded to hard surface cleaning products that demonstrate environmental leadership throughout their life-cycle and meet requirements for:

- performance;
- limited toxicity for aquatic and other organisms, including both acute/lethal toxicity and chronic/sublethal toxicity risks (e.g. endocrine disruption, carcinogens);
- biodegradability and low potential for bioaccumulation;
- limits on ingredients that are considered likely to contribute to specific environmental impacts (e.g., eutrophication of water bodies, ground-level ozone-formation, depletion of stratospheric ozone); and
- limited waste and resource use.

This criteria document applies to the household, industrial and institutional market (HI&I) hardsurface cleaning market. It applies to hardsurface cleaners used by individual consumers, in institutions, and in industrial settings.

In addition to meeting general hardsurface cleaners requirements, cleaning products sold for use in the following products must meet requirements unique to their product subcategory, in order to receive certification.

- CCD-146A - window and glass cleaners,
- CCD-146B – boat and bilge cleaners,

- CCD-146C – vehicle cleaners for household and institutional use,
- CCD-146E – degreasers,
- CCD-146F – industrial cleaners,
- CCD-146G – cooking appliance cleaners,
- CCD-146I – cleaning product with low potential for environmental illness and endocrine disruption,
- CCD-146J – bathroom cleaners, and
- CCD-146K – dish cleaners.

Based on a review of currently available life cycle information, the product category requirements will produce an environmental benefit through limited toxicity for aquatic and other organisms; greater biodegradation; lower potential for bioaccumulation; reduction in eutrophication of water bodies; reduction in ground-level ozone-formation; reduction in the depletion of stratospheric ozone; limited waste creation; and reduction in resource use.

Life cycle review is an ongoing process. As information and technology change, the product category requirements will be reviewed and possibly amended.

## How to Use This Document

This document contains requirements for verifying the environmental preferability of products sold to the household, industrial and institutional (HI&I) hardsurface cleaning market. Any product sold to clean organic or inorganic soil from plastic, glass, ceramic, metal, porcelain, rubber, leather, wood, stone, or any other hard surface must meet these requirements in order to display the EcoLogo.

All hardsurface cleaners intending to be EcoLogo<sup>CM</sup> certified must first meet the general requirements starting on page 10 of the document plus all applicable specific requirements set out for products with specific uses (starting on page 14). For example, a window cleaner must meet general requirements 2 through 7 plus the requirements set out in CCD 146A “Window and Glass Cleaners.”

In some cases the requirements of a specific sub-category differ from the general requirements. For example, boat and bilge cleaners (CCD 146B) must demonstrate lower levels of aquatic toxicity, or cooking appliance cleaners (CCD 146G) may have a pH up to 12.0.

Unless otherwise stated, all products must meet the general requirements.

Multipurpose or general purpose cleaners need only meet the general requirements. However, if these multipurpose cleaners are clearly advertising a second specific use (e.g., “multipurpose cleaner and degreaser”, or “multipurpose cleaner and bathroom cleaner” then the products must meet the requirements set out in the relevant subcategories.

Requirements for products sold to an institutional market compared to the household retail market are virtually identical. There are however, some differences in aquatic toxicity thresholds, requirements for hazard labels, and pH.

Products sold for use solely in industrial settings must meet the general requirements and CCD 146F "Industrial Cleaners".

## Information on the Product Group

Cleaning products are broadly chemically similar and there is potential for environmental leadership throughout the components, including the examples below.

### Surfactants

Surfactants (surface active agents) are amphiphilic (dually water repelling and water attracting) molecules that reduce 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.

Environmental leadership can be demonstrated in the choice of surfactants and the associated intermediate products used in their production. Typical surfactants include linear alkyl benzosulfates, alkane sulfonates, soaps (potassium or sodium salt of a fatty acid), alcohol ethoxylates, and alkyl polyglucosides. Issues include toxicity and biodegradability. Surfactants may also be derived from vegetable oils versus petrochemicals with corresponding resource use and pollution impacts.

### Organic Solvents

Organic solvents dissolve organic soils and serve to dissolve essential products (e.g., water insoluble waxes and polymers) in solution. Typical organic solvents include glycol ethers, alcohols, amines, and d-limonene.

Environmental issues include air pollution because of the volatility of organic solvents and the production of smog as well as toxicity concerns.

### Builders

Builders (also sequestrants or chelators) bind metal ions in solution and sequester them away from surfactants. Builders can also serve to increase alkalinity and disperse soil. Typical builders include phosphate containing compounds, ethylene diaminetetraacetic acid (EDTA), nitrilotriacetic acid (NTA), and sodium citrate.

Environmental leadership can be demonstrated in the choice of builder and the associated intermediate products used in their production. Because of their ability to bind / chelate metal, environmental issues include biodegradability and a potential to activate metals in aquatic ecosystems upon disposal.

### Acids/Alkalis

Strong acids and alkalis are active ingredients in some cleaners (e.g., hydrochloric acid in toilet cleaners and sodium hydroxide in oven cleaners). They are also used extensively in the production of cleaners. An alkaline

cleaning action can complement or take the place of the action of volatile solvents in degreasers. Strong acids and alkalis are extremely corrosive and rapidly dissociate in water.

Environmental issues include safety to the human user, potential to damage sewer pipes and sewage systems, and toxicity.

#### **Miscellaneous Ingredients: Dyes, Fragrances, Preservatives**

Hardsurface cleaning products may contain miscellaneous ingredients not directly associated with the cleaning action of the product. For example, window cleaners often have dyes added to increase the aesthetic appeal of the product and to ease dilution, or some products may contain preservatives to prolong their shelf life. Some ingredients that serve a cleaning purpose may also impart a scent to the product.

From a life cycle perspective these ingredients may add additional, and potentially unnecessary, energy, resource use and disposal impacts to the product. There also may be potential ecological or health risks associated with some ingredients (e.g., the use of the probable carcinogen formaldehyde as a preservative). Cleaning products are broadly chemically similar and there is potential for environmental leadership throughout the components, including the examples below.

## **Notice**

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

The EcoLogo<sup>CM</sup> Program reserves the right to accept equivalent test data for the test methods specified in this document.

## **Notice of Intent**

It is the intent of the EcoLogo<sup>CM</sup> Program to re-evaluate from time to time the relevance of requirements in light of emerging scientific evidence of environmental impacts, manufacturing advances, and changes in the marketplace.

Future revisions of this document may:

- require whole-formula testing of aquatic toxicity,
- require a minimum post-consumer recycled content in packaging,
- broaden the list of proscribed ethylene glycol ethers (for instance to include diethylene glycol ethers and propylene glycol ethers),
- prohibit petroleum based solvents,
- require evidence of anaerobic degradation of the cleaner or its ingredients, and
- update test methods to demonstrate product performance.

## Interpretation

1. In this criteria document:

"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  $\log BCF > 2$ ) when tested according to one of the following:

- Code of Federal Regulation 40CFR797.1520, OR
- ASTM E-1022-84 Standard Practice 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;

"CGSB" means Canadian General Standards Board;

"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;

"**dose**" means the quantity of hardsurface cleaner recommended by the manufacturer for normal cleaning conditions to obtain the desired performance.

"**EC<sub>50</sub>**" 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. Candidate endocrine disruptors are listed in Appendix 1 of Towards the Establishment of a Priority List of Substances for Further Evaluation of Their Role in Endocrine Disruption prepared for the European Union;

"**flash point**" means the minimum temperature of a liquid at which the vapors given off are sufficient to form a flammable mixture with air that will ignite when exposed to an open flame, when tested in accordance with the ASTM Test method D93-80 or D3278-82;

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

"**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;

"**IC<sub>50</sub>**" 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;

**"LC<sub>50</sub>"** 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.

**"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;

**"odor neutralizing"** means the product contains ingredients (e.g., zinc recineolate, zeolite, "metazene") that capture, destroy and remove malodours through a physio-chemical process that is not simply masking and overpowering odors;

**"ozone depleting potential"** means the ratio of calculated ozone column change for each mass unit of a gas emitted into the atmosphere relative to the calculated depletion for a mass unit of the reference gas CFC-11;

**"phenolic"** means a chemical containing a phenol group (C<sub>6</sub>H<sub>5</sub>OH)

**"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);

"**potentially bioaccumulating**" mean an ingredient that meets one of the following:

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

"**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), CO<sub>2</sub> 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;

"**recalcitrant metabolites**" means persistent organic molecules formed during the biodegradation of a substance that possess the potential to be absorbed by the cells of living organisms. At least some metabolites are thought to be potential endocrine-disruptors. The potential of a chemical substance to form recalcitrant metabolites upon degradation may be determined through a modification of OECD 301 A: Coupled Units Test, as described by Gerike, et al in Alkyl Polyglucosides by Hill, et al, VCH Publishers Inc., New York, 1997;

"**recognized environmental health organization**" means an established research or advocacy organization or government agency that is considered a credible source of information on environmental illnesses. Such organizations include, *inter alia*, the Lung Association, the Asthma Society, the Environmental Illness Society of Canada and Envirodesic;

"**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;

**"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;

**"safety factor"** means a number by which aquatic toxicity thresholds are multiplied and made more stringent in order to better safeguard against harmful products entering aquatic ecosystems without prior treatment. In the case of boat and bilge cleaners, a safety factor of 2 will be applied to aquatic toxicity thresholds. This means, for example, these products must not inhibit 50% of test organisms at a whole formulation concentration of 1,000 mg/l or for individual ingredients a LC<sub>50</sub> at less than 2 mg/l;

**"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. Chronic toxicity is the ability of a substance / mixture to cause harmful effects over an extended period, usually upon repeated or continuous exposure sometimes lasting for the entire life 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<sup>CM</sup> 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).

## Category Definition

2. This category includes all hardsurface cleaners as further defined in the subcategories in this section. These subcategories are:
  - (a) CCD-146A - window and glass cleaners;
  - (b) CCD-146B – boat and bilge cleaners;
  - (c) CCD-146C – vehicle cleaners for household and institutional use;
  - (d) CCD-146E – degreasers;
  - (e) CCD-146F – industrial cleaners;
  - (f) CCD-146G – cooking appliance cleaners;
  - (g) CCD-146I – cleaning product with low potential for environmental illness and endocrine disruption;
  - (h) CCD-146J – bathroom cleaners; and
  - (i) CCD-146K – dish cleaners.

## General Requirements

3. To be authorized to carry the EcoLogo<sup>CM</sup>, all hardsurface cleaners 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.

## General Hardsurface Cleaner Requirements

4. To be authorized to carry the EcoLogo<sup>CM</sup>, all hardsurface cleaners must:
  - (a) clean common hard surfaces effectively:
    - 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”.

Note: cleaners sold for specific uses may need to meet specific performance criteria (as outlined in CCD-146A through CCD-146K) in lieu of these methods;

- (b) unless otherwise specified in the sections for products with specific uses, if sold to individual consumers for use in the home, not require being labelled as harmful or an irritant under:
  - in the US, the Federal Hazardous Substances Act (16 CFR Part 1500), and/or
  - in Canada, Part 1 and Part 2 of the Consumer Chemicals and Containers Regulations of the Hazardous Products Act;
- (c) if sold for use in institutional and/or industrial settings (e.g. the workplace), at a minimum not be considered hazardous under:
  - in the US, the Federal Hazardous Substances Act (16 CFR Part 1500), and/or
  - 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; and
- (d) be accompanied by detailed instructions on maximizing product performance, and indications for the proper waste disposal and the recyclability of the container and/or packaging materials.

### Packaging requirements

- 5. To be authorized to carry the EcoLogo<sup>CM</sup>, all hardsurface cleaners must:
  - (a) 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;
  - (b) as demonstrated by due diligence of the hardsurface cleaner manufacturer,
    - (i) not be packaged in chlorinated plastic materials, and
    - (ii) efforts have been made to ensure packaging with post-consumer recycled content;
  - (c) not be manufactured or formulated with propellants; and
  - (d) not be sold in a disposable wipe format.

### Requirements of physical properties

6. To be authorized to carry the EcoLogo<sup>CM</sup>, all hardsurface cleaners must, as sold (e.g., before dilution if applicable):
- (a) have a pH of not lower than 3.0 and not higher than 11.0, unless otherwise specified in the sections for products with specific uses;
  - (b) have a flash point > 61°C; and
  - (c) have a maximum temperature usage which does not exceed 17°C below flash point.

### Prohibited and restricted components

7. To be authorized to carry the EcoLogo<sup>CM</sup>, all hardsurface cleaners must:
- (a) not be formulated or manufactured with solvents belonging to any of the following group:
    - (i) aromatic solvents,
    - (ii) halogenated solvents,
    - (iii) the following ethylene glycol ethers or their acetates:
      - ethylene glycol monomethyl ether/methoxyethanol,
      - ethylene glycol monoethyl ether/ ethoxyethanol,
      - ethylene glycol monobutyl ether/ butoxyethanol, and
      - ethylene glycol monopropyl ether /propoxyethanol;
  - (b) not be formulated or manufactured with surfactants belonging to any of the following groups:
    - (i) alkylphenol ethoxylates, (including nonylphenol, octylphenol and their ethoxylates);
  - (c) not be formulated or manufactured with builders belonging to any of the following groups:
    - (i) phosphates, and
    - (ii) ethylene diaminetetracetic acid, ethylene dinitrilotetracetic acid, nitrilotriacetic acid
    - (iii) or the salts of these compounds;
  - (d) not contain more than 1% by weight of volatile organic compounds as used (e.g., after dilution if applicable), unless otherwise specified in the sections for products with specific uses;
  - (e) not contain more than 12% by weight of volatile organic compounds as sold (e.g., in concentrated form if applicable), unless otherwise specified in the sections for products with specific uses;
  - (f) have an ozone depleting potential of zero;

- (g) not be formulated or manufactured with any 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;
- (h) not be formulated or manufactured with any chemicals identified as priority for research by the European Union as endocrine disruptors;
- (i) unless otherwise specified in the sections from products with specific uses, not be formulated or manufactured with ingredients with a sole purpose of changing the scent of the product. Fragrant ingredients that serve a cleaning, odour neutralizing or disinfecting purpose should be essential oils, and not synthetic, multi-component chemicals;
- (j) 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; and
- (k) not be formulated or manufactured with toxic metals, including but not limited to, arsenic, cadmium, chromium, lead, silver and mercury.

#### Toxicity, biodegradability, bioaccumulation requirements

8. To be authorized to carry the EcoLogo<sup>CM</sup>, all hardsurface cleaners must:
- (a) 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);
  - (b) be readily biodegradable under aerobic conditions as determined by whole formulation testing. In lieu of such data, evidence on the ready biodegradability of each component will be accepted if consistent tests have been applied for each component; and
  - (c) not be formulated or manufactured with organic ingredients that are bioaccumulating.

#### Specific Hardsurface Cleaner Requirements

##### CCD 146A – Window & Glass Cleaner

The category applies to products designed to clean glass or other highly polished surfaces, including *inter alia*, windows, mirrors, and metallic surfaces. It excludes cleaners intended for use in situations where a highly germicidal action is required, such as in hospital and food processing areas. While it is understood that such cleaners are generally marketed as ready-to-use products, they may also be sold as concentrates.

Environmental impacts particular to window and glass cleaners include inhalation risks of chemicals dangerous to humans during use (e.g., ammonia) and the exposure of the product to terrestrial ecosystems when outdoor faces of windows are cleaned and when rags/ towels dirtied with the cleaner are disposed of. There is an opportunity to reduce waste by recommending use of reusable tools (e.g., "squeegee") over single use materials.

9. To be authorized to carry the EcoLogo<sup>CM</sup>, the window and glass cleaner must:
- (a) 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);
  - (b) not damage or degrade polymer-based solar screens or other window treatments, as demonstrated by an acceptable test method (see Appendix 2);
  - (c) 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);
  - (d) not contain more than 3% by weight of volatile organic compounds as used (e.g., after dilution if applicable);
  - (e) not contain more than 25% by weight of volatile organic compounds as sold (e.g., in concentrated form if applicable);
  - (f) not be formulated or manufactured with ammonia nor any ammonium compounds; and
  - (g) based on the recommended dose, have a calculated oral rat toxicity LD<sub>50</sub> > 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).

#### CCD 146B – Boat & Bilge Cleaners

The category applies to products designed to clean, and sometimes wax and polish, aluminium, fiberglass and wood surfaces of boats. They are designed to remove algae and marine residues, grease, and rust. The category also applies to formulations poured into bilges and designed to emulsify oil, grease, fuel, mould and bacteria away from the inner surfaces of boat bottoms in solution and later be pumped out. Note that bilge cleaners that include bacteria as active ingredients must use criteria document CCD-110 (Cleaning and Degreasing Compounds: Biologically-based) for certification.

Environmental impacts particular to boat and bilge cleaners are a high risk of being directly discharged into aquatic environments. The wax content of some cleaners may not be easily biodegradable and may potentially bioaccumulate.

10. To be authorized to carry the EcoLogo<sup>CM</sup>, the boat and/or bilge cleaner must:
- (a) 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";
  - (b) 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" or as measured by an acceptable test method (see Appendix 2);
  - (c) if sold to individual consumers for use in the home, not require being labelled as corrosive under:
    - in the US, the Federal Hazardous Substances Act (16 CFR Part 1500), and/or
    - in Canada, the Consumer Chemicals and Containers Regulations of the Hazardous Products Act;
  - (d) 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;
  - (e) have a pH of not lower than 2.0 and not higher than 12.5; and
  - (f) exceed the generic hardsurface cleaner toxicity limits by a "safety factor" of 2 fold.

#### CCD 146C – Vehicle Cleaner for Household and Institutional Use

The category applies to a variety of detergents, shampoos, rinses, waxes, polishes, wheel cleaners, tire cleaners, rust inhibitors, and multipurpose cleaners used to clean and maintain cars, trucks, motorcycles, and other vehicles. They are designed for application by hand and not for automated commercial car wash services.

Environmental impacts particular to the vehicle cleaners for household and institutional use category include disposal of wash water (including dirt and possibly metals) to storm sewers and directly to aquatic ecosystems, superfluous use of aerosol propellants, and limited biodegradability of waxes and polishes.

11. To be authorized to carry the EcoLogo<sup>CM</sup>, the vehicle cleaner for household and institutional use must:
- (a) 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

- (b) have limited effects on aquatic life based on whole formulation short-term sensitivity toxicity testing of the recommended dose as described in Appendix 1, noting that proxy data on individual ingredients are not accepted for this category.

### CCD 146E- Degreasers

The degreasers category applies to products designed to remove grease, oil, fats and other similar soil from household and institutional hardsurfaces including tools, engine parts, drains, countertops, floors and kitchen surfaces.

Environmental impacts particular to degreasers and cleaners for household and institutional use include impact on air and water quality through high VOC content, extreme pH ranges and the cleaning residue left by some degreasers (e.g., from oily tools or engine parts). The category does not include biologically based degreasers found in CCD-110 (Cleaning and Degreasing Compounds: Biologically-based).

12. To be authorized to carry the EcoLogo<sup>CM</sup>, the degreasers must:

- (a) clean metallic and concrete hard surfaces effectively:
- 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";
- (b) if sold to the institutional market, have a pH of not more than 12.5;
- (c) not contain more than 3% by weight of volatile organic compounds as used (e.g., after dilution if applicable);
- (d) not contain more than 25% by weight of volatile organic compounds as sold (e.g., in concentrated form if applicable); and
- (e) if advertised for use in drains then not adversely affect biologically-based drain cleaners (e.g., not contain antimicrobial compounds such as formaldehyde, or bleach).

### CCD 146F – Industrial Cleaners

Industrial cleaners have a different environmental impact and use than hardsurface cleaners used in household or institutional settings. They are used to remove extraordinary organic or inorganic soil from metallic, concrete

or other hard surfaces typical of a particular industrial process and/or equipment (e.g., manufacturing, resource extraction, processing, printing, automotive repair shops, sewage lift stations, agricultural facilities). They are used mainly in a contained environment where a minimum level of training regarding handling and disposal of hazardous chemicals is expected. Because of these reasons, the certification requirements for industrial cleaners are less severe than other hardsurface cleaning categories. For example CCD-146F sets higher limits on volatile content, lower limits on aquatic toxicity, and a greater pH range.

Environmental impacts particular to degreasers and cleaners for industrial use include impact on air, water quality and aquatic life through VOC content and extreme pH ranges. The cleaning residue left by some degreasers (e.g., auto parts washer) should be disposed off as hazardous waste. Other impacts include superfluous use of aerosol propellants.

13. To be authorized to carry the EcoLogo<sup>CM</sup>, the industrial cleaner must:
- (a) clean metallic and concrete hard surfaces effectively:
    - 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";
  - (b) be clearly identified as a product not intended or to be sold for domestic, household or institutional use;
  - (c) 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) have a pH not less than 2.0 and not more than 12.5;
  - (e) not contain more than 5% by weight of volatile organic compounds as used (e.g., after dilution if applicable); and
  - (f) not contain more than 25% by weight of volatile organic compounds as sold (e.g., in concentrated form if applicable).

### CCD-146G - Cooking Appliance Cleaners

The category applies to cleaning products that are intended, advertised and formulated for use in removing organic soil (i.e., grease, baked on food, etc.) from metallic surfaces of ovens, barbeques, fryers and grills.

Environmental impacts particular to cooking appliance cleaner include inhalation risk during use (especially spray-on oven cleaners), superfluous use of aerosol propellants, high alkalinity and corrosivity, and disposal of rags/ towels dirtied with the cleaner to terrestrial ecosystems.

14. To be authorized to carry the EcoLogo<sup>CM</sup>, the cooking appliance cleaner must:
- (a) 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" or by another acceptable test method (see Appendix 2);
  - (b) not exceed a pH limit of 12.0;
  - (c) if sold to individual consumers for use in the home, not require being labelled as corrosive under:
    - in the US, the Federal Hazardous Substances Act (16 CFR Part 1500), and/or
    - in Canada, the Consumer Chemicals and Containers Regulations of the Hazardous Products Act;
  - (d) if containing rheology modifiers (thickeners), then only be manufactured or formulated with food grade thickeners; and
  - (e) based on the recommended dose, have a calculated oral rat toxicity LD<sub>50</sub> >4,000 mg/kg, where each ingredient has been tested according to OECD Test Guidelines for acute mammalian toxicity testing (methods 401, 420, 423 or 425).

#### CCD 146I – Cleaning Product with Low Potential for Environmental Illness and Endocrine Disruption

This category applies to cleaners designed to perform on a variety of hard surfaces for household, institutional and/or recreational purposes, that are specifically manufactured to minimize the exposure to chemicals and allergens harmful to environmental illness sufferers and reduce the potential release of endocrine-disruptors into the environment.

Environmental Illness (EI) encompasses a number of related conditions including, *inter alia*, Sick Building Syndrome, Multiple Chemical Sensitivity (MCS), Chemical Hypersensitivity, and Environmental Sensitivity Disorder. In all cases, EI means an acquired hypersensitivity to chemical and allergenic sources triggered by prolonged exposure to a variety of common consumer/industrial substances including, *inter alia*, household cleaners, perfumes, photocopy toners and pesticides.

Avoidance of the chemical/allergenic source is considered to be crucial to mitigating the health effects of EI.

15. To be authorized to carry the EcoLogo<sup>CM</sup>, the cleaning product with low potential for environmental illness and endocrine disruption must:

- (a) clean common hard surfaces effectively:
- 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";
- (b) 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;
- (c) not utilize ethylene oxide in the manufacture of either the whole formulation nor any component thereof;
- (d) not contain volatile organic compounds in excess of 0.05% by weight, for products for which the label specifies dilution with water prior to use, the VOC limit shall apply on the concentrated form (i.e. before any dilution has taken place);
- (e) be readily biodegradable under both aerobic and anaerobic conditions as determined by whole formulation testing;
- (f) based on the recommended dose, not be toxic to aquatic life as measured by whole formulation short-term sensitive toxicity test performed on all of the following:
- $IC_{50} > 4000$  mg/L on an aquatic invertebrates species using **one** of the following:
    - EPA-821-R02-013, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" (*Ceriodaphnia dubia*), US Environmental Protection Agency, 2002; or
    - EPA-600-R95-136, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms", US Environmental Protection Agency, 1995; or
    - Report OECD/OCDE-211, "*Daphnia magna* Reproduction Test", Organization for Economic Cooperation and Development, September 1998; or
    - Report EPS 1/RM/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.
  - $IC_{50} > 2000$  mg/L on a 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.
- $IC_{50} > 1000$  mg/L on 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.
- (g) based on the recommended dose, have a calculated 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 (methods 401, 420, 423 or 425);
- (h) demonstrate a minimal potential for the introduction of endocrine-disrupting by-products into the receiving environment, through a complete absence of detectable recalcitrant metabolites formed during biodegradation tests;
- (i) 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; and
- (j) be listed with a recognized environmental health organization as a product not harmful and/or potentially beneficial to people suffering from, or prone to, environmental illness.

#### CCD 146J – Bathroom Cleaners

The bathroom cleaners category applies to products used to clean a variety of hard surfaces found in the bathroom including tubs, tiles, fixtures, showers, urinals and toilet bowls. Products sold as bathroom cleaners

and advertised for other uses in kitchens and laundry rooms may fall under this category. Both institutional products, and products sold to ordinary consumers, are in this category.

Bathroom cleaners can be sold in a concentrated liquid format that requires dilution prior to use, or in a ready to use format. They are often sold as a cream or powdered cleanser where scouring properties can aid cleaning action. Toilet bowl cleaners may be sold in liquid or in tablet form, liquid versions are often dyed and contain added thickeners. Tablet toilet bowl cleaners and urinal pucks are not covered by these criteria.

Bathroom cleaning products generally contain more active ingredients, are more acidic than other hardsurface cleaners and are used to remove inorganic (rust, scale, calcium) soil. They are disposed of directly to sewage treatment plants. Environmental impacts particular to bathroom cleaners include extreme acidity, potentially unnecessary use of dyes and fragrances, regular and potential overuse of toxic biocides (disinfectants) and disposal of potentially damaging halogens (e.g., chlorine bleach).

16. To be authorized to carry the EcoLogo<sup>CM</sup>, the bathroom cleaner must:

- (a) 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" or as measured by an acceptable test method (see Appendix 2);
- (b) 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);
- (c) if sold to individual consumers for use in the home, not require being labelled as corrosive under:
  - in the US, the Federal Hazardous Substances Act (16 CFR Part 1500), and/or
  - in Canada, the Consumer Chemicals and Containers Regulations of the Hazardous Products Act;
- (d) have a pH not less than 2.0 and not more than 12.0 as measured in concentrate, unless it can be demonstrated that the product is not corrosive;
- (e) not contain more than 25% by weight of volatile organic compounds as sold (e.g., in concentrated form if applicable);
- (f) not be formulated or manufactured with sodium or calcium hypochlorite (e.g., bleach);
- (g) not be formulated or manufactured with quaternary ammonium compounds;
- (h) if formulated or manufactured with a fragrance then demonstrate that the fragrance has been manufactured according to the code of practise of the International Fragrance Association; and

- (i) if formulated or manufactured with rheology modifiers (thickeners), then only foodgrade modifiers are permitted (e.g., xantham gum, hydroxylpropyl cellulose)

### CCD 146K – Dish Cleaners

This category applies to products intended to clean dishes in residential, institutional and industrial settings. Both products used to clean dishes by hand, and products intended for use in an automatic dishwasher can be certified. Dish cleaners may be sold as liquid, gels or granules. Rinse aids used in automatic dishwashers also fall into this category.

Hand dishwashing cleaners and automatic dishwashing agents differ in formulation but both are a high volume used cleaners that are disposed of directly to sewers on a daily basis. Hand dishwashing cleaners can be expected to be more than a third surfactants and formulated without builders.

Automatic dishwasher cleaners, on the other hand, can contain builders in more than half of the product and very low amounts of surfactants. They may also include bleaching agents, and biologically derived enzymes to aid in cleaning.

The daily use of dish cleaning agents makes environmental disposal impacts key. CCD-146K has stricter certification requirements on the recycled content of containers. Other environmental impacts include superfluous use of fragrances in hand-dishwashing products, and heavy use of potentially metal activating builders (e.g., EDTA) and ecosystem disrupting phosphates.

17. To be authorized to carry the EcoLogo<sup>CM</sup>, the dish cleaner must:
- (a) 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";
  - (b) 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";
  - (c) not be advertised as an "antibacterial" product or contain extra ingredients intended to confer an antimicrobial ability on the product (e.g., quaternary ammonium compounds, iodine);
  - (d) if sold for use in an automatic dishwasher, not require being labelled as corrosive under:
    - in the US, the Federal Hazardous Substances Act (16 CFR Part 1500), and/or
    - in Canada, the Consumer Chemicals and Containers Regulations of the Hazardous Products Act;

- (e) if sold as a hand dishwashing product, the typical dose recommended on the product label must not exceed 10ml per 5 litres. Note: The 1:500 rate is also to be used to determine the toxicity of hand dishwashing products. Automatic dishwashing products are assumed to be diluted in 50 litres of water for the purposes of determining toxicity.
- (f) if sold for use in an automatic dishwasher, not be formulated or manufactured with dyes;
- (g) not be formulated or manufactured with chlorinated compounds;
- (h) be formulated with ingredients that are readily biodegradable under aerobic conditions as determined by whole formulation testing. In lieu of such data, evidence on the ready biodegradability of each component will be accepted if consistent tests have been applied for each component; and
- (i) if formulated or manufactured with enzymes, then:
  - enzymes must be free of parent microorganisms,
  - be in compliance with federal legislation regarding toxicity and biodegradation, including, for Canada, the New Substances Notification Regulations as per the Canadian Environmental Protection Act, 1999, and
  - if derived from or using bacterial cultures, use only those bacterial cultures that are derived from a Biosafety Level 1 ATCC microbial culture (or equivalent).

## Verification

- 18. To verify a claim that a product meets the criteria listed in the document, the EcoLogo<sup>CM</sup> 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.
- 19. 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<sup>CM</sup> 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<sup>CM</sup> Use

- 20. The EcoLogo<sup>CM</sup> may appear on wholesale or retail packaging, or on the product itself, provided that the product meets the requirements in this document.

21. It is required that a criteria statement appear with the EcoLogo<sup>CM</sup> whenever the EcoLogo<sup>CM</sup> is used in association with the hardsurface cleaner. 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 hardsurface cleaners relates to the certification subcategory:

- multipurpose or general purpose, "Multipurpose Cleaner",
- CCD-146A - window and glass cleaners,
- CCD-146B, "Boat and Bilge Cleaner",
- CCD-146C, "Vehicle Cleaners for Household / Institutional Use",
- CCD-146E, "Degreasers",
- CCD-146F, "Industrial Cleaner",
- CCD-146G, "Cooking Appliance Cleaner",
- CCD-146I, "Cleaning Product with Low Potential for Environmental Illness and Endocrine Disruption",
- CCD-146J, "Bathroom Cleaner", and
- CCD-146K, "Dish Cleaner".

The licensee may propose other wording for the criteria statement, but any such proposed wording must be approved by the EcoLogo<sup>CM</sup> Program.

22. All licensees and authorized users must comply with the Program's *Guide to Proper Use of the EcoLogo<sup>CM</sup>* regarding the format and usage of the EcoLogo<sup>CM</sup>.
23. Any accompanying advertising must conform with the relevant requirements stipulated in this document, the license agreement and the Program's *Guide to Proper Use of the EcoLogo<sup>CM</sup>*.

**For additional copies of this criteria document or for more information about the EcoLogo<sup>CM</sup> Program, please contact:  
TerraChoice Environmental Marketing Inc.  
Toll free: 1-800-478-0399, Telephone: (613) 247-1900, Email: [ecoinfo@terrachoice.com](mailto:ecoinfo@terrachoice.com)**

## 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:

- 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 50 mg/l for bathroom cleaners
- Industrial cleaners: 200 mg/l (e.g.,  $IC_{50} > 200$  mg/l)

#### Methods:

- 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.
- Aquatic invertebrates species using **one** of the following:
  - EPA-821-R02-013, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" (*Ceriodaphnia dubia*), US Environmental Protection Agency, 2002; or
  - EPA-600-R95-136, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms", US Environmental Protection Agency, 1995; or
  - Report OECD/OCDE-211, "*Daphnia magna* Reproduction Test", Organization for Economic Cooperation and Development, September 1998; or

- Report EPS 1/RM/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.
- 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.
- 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: Procedure to Demonstrate Product Efficacy When Recognized Standard Not Available

At the time of publication, the EcoLogo<sup>CM</sup> Program had yet to confirm the existence of one, single, internationally and/or nationally accepted test method available to evaluate the efficacy of a number of cleaning products with specific uses. The EcoLogo<sup>CM</sup> Program will thus 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:

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

### Appendix 3: Volatile Organic Compounds with Negligible Photochemical Reactivity

The list of volatile organic compounds (VOCs) designated by the EcoLogo<sup>CM</sup> 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<sup>CM</sup> 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-111)                            |  |
| (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)                         |  |

# EcoLogo<sup>CM</sup> Program Interpretation Document

## IKW Method for Ascertaining the Cleaning Performance of Dishwasher Detergents



### Interpretation:

The EcoLogo<sup>CM</sup> certification criteria document for automatic dish detergent (CCD 146 Section 146 k requirement 1.b) requires that the product cleans 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."

The IKW (German Industrial Association of the Manufacturers of Toiletries and Detergents) *Method for Ascertaining the Cleaning Performance of Dishwasher Detergents* is an alternative method that can be used to provide results acceptable for EcoLogo<sup>M</sup> evaluation.

Note that in this testing, the conditions below must be followed:

- All four soil types specified in the method should be used
- The pass/ fail criterion for this test shall be better or equivalent performance to a functionally equivalent nationally available product for each soil type

### Basis for Interpretation:

Once a certification criteria document has been published, EcoLogo<sup>CM</sup> may be requested to clarify the intention behind a particular criterion, the relevance of a particular criterion to a particular market segment, and/or how an applicant product will be assessed for compliance against a particular criterion. Furthermore, EcoLogo<sup>CM</sup> reserves the right to determine what evidence is both appropriate and adequate to prove compliance.

The IKW method addresses all of the principle considerations of the ISO 7535 standard namely: performance characteristics, soiled articles and the washing process.

### Affected EcoLogo<sup>M</sup> Criteria Documents:

CCD-146K "Hard Surface Cleaners: Dish Detergents" criterion 1.b.

### Additional Notes:

Copies of the above certification criteria documents can be found at [www.ecologo.org](http://www.ecologo.org)

Direct inquiries or comments to TerraChoice Environmental Marketing Inc.  
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# EcoLogo<sup>M</sup> Program Interpretation Document

## Cleaning Products for the Retail Market Concentrate and Bulk Version Requirements



### Interpretation:

Several EcoLogo<sup>M</sup> certification criteria documents for cleaning products require that the product either be provided in a concentrated format or in a bulk format should a concentrated version not be appropriate. Specifically, these documents state: "...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".

For cleaning products that are offered in the retail consumer (household consumer) market, the EcoLogo<sup>M</sup> Program interprets this to mean that these product packaging formats must meet one of the following:

- (1) Be provided a concentrated format, OR
- (2) Be provided in a ready-to-use (non-concentrated) format that is accompanied by information on the product label identifying
  - bulk versions and/or concentrated versions are available, and
  - exactly how consumers can obtain the bulk and/or concentrated versions.

### Basis for Interpretation:

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Concentrated packaging versions of hard surface cleaners and cleaner-disinfectants are sufficiently rare in the retail consumer market to permit EcoLogo<sup>M</sup> to issue this interpretation that allows ready-to-use packaging formats with the added requirement of proven availability of concentrate or bulk versions.

### Affected EcoLogo<sup>M</sup> Criteria Documents:

CCD 146 "Hard Surface Cleaners" criterion 4(a); and  
CCD 166 "Disinfectant and Disinfectant Cleaner" criterion 4(h).

### Additional Notes:

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# EcoLogo<sup>M</sup> Program Interpretation Document

## Definition of Aromatic Solvents Certification Criteria Documents for Cleaning Products



### Interpretation:

EcoLogo<sup>M</sup> certification criteria documents may include requirements that address aromatic solvents. These documents generally define aromatic solvents as organic compounds containing at least one ring structure consisting of six carbon atoms joined by alternating single and double bonds. To further refine this definition for certification criteria documents for cleaning products, the EcoLogo<sup>M</sup> Program has added a second clause:

Aromatic solvents means those organic compounds containing:

- at least one ring structure consisting of six carbon atoms joined by alternating single and double bonds AND
- two or less simple substitutions (additional chemical groups) to the basic benzene ring

### Basis for Interpretation:

Once a certification criteria document has been published, EcoLogo<sup>M</sup> may be requested to clarify the intention behind a particular criterion, the relevance of a particular criterion to a particular market segment, and/or how an applicant product will be assessed for compliance against a particular criterion. Furthermore, EcoLogo<sup>M</sup> reserves the right to determine what evidence is both appropriate and adequate to prove compliance.

The rationale for prohibiting aromatic solvents is to limit highly volatile solvents that are very close in chemical structure to aromatic carcinogens (e.g. benzene) or to those with reproductive effects (e.g. toluene, xylene). In general, the more substituted an aromatic compound is, the lower its volatility (or the more chemical group substitutions on the basic ring structure, the more likely the compound will not volatilize).

For example, the following compounds would be considered aromatic:

- Benzene (C<sub>6</sub>H<sub>6</sub>). This is the basic aromatic ring structure with zero substitutions. Therefore it would be considered aromatic.
- Toluene (C<sub>7</sub>H<sub>8</sub>). This compound has one substitution – methyl (CH<sub>3</sub>). Although methyl is considered a simple substitution, there is still only one. Therefore, the solvent is considered aromatic.
- Phenol (C<sub>6</sub>H<sub>6</sub>O). This compound has one substitution – alcohol (OH). Although alcohol is considered a simple substitution, there is still only one. Therefore, the solvent is considered aromatic.
- Xylenes (C<sub>8</sub>H<sub>10</sub>). This group of compounds includes o-Xylene, m-Xylene and p-Xylene. These compounds have two additional substitutions of methyl (CH<sub>3</sub>). Although methyl is considered a simple substitution, there are still only two. Therefore, the solvent is considered aromatic.
- Benzyl alcohol (C<sub>7</sub>H<sub>8</sub>O). This compound has two substitutions – one alcohol (OH) and one methyl (CH<sub>3</sub>). Although both are considered to be simple substitutions, there are still only two. Therefore, the solvent is considered aromatic.

The following compounds would not be considered aromatic:

- Phenyl ethyl alcohol (C<sub>8</sub>H<sub>10</sub>O). This compound has two substitutions - one ethyl (C<sub>2</sub>H<sub>5</sub>) and one alcohol (OH). Ethyl is not considered a simple substitution. Therefore, the solvent is not considered aromatic.
- Phenoxyethanol (C<sub>8</sub>H<sub>10</sub>O<sub>2</sub>). This compound has three substitutions - one ether (R–O–R), one alcohol (OH) and one methyl (CH<sub>3</sub>). Although all substitutions are simple, there are more than two. Therefore the solvent is not

# EcoLogo<sup>M</sup> Program Interpretation Document

## Definition of Aromatic Solvents Certification Criteria Documents for Cleaning Products



considered aromatic.

### Affected EcoLogo<sup>M</sup> Criteria Documents:

CCD-110 "Cleaning and De-greasing Compounds: Biologically-based,"

CCD-146 "Hard Surface Cleaners,"

CCD-147 "Hard Floor Care Products,"

CCD-148 "Carpet and Upholstery Products," and

CCD-166 "Disinfectant and Disinfectant Cleaners."

### Additional Notes:

Copies of the above certification criteria documents can be found at [www.ecologo.org](http://www.ecologo.org)

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