Environmental Choice[M] Program

CERTIFICATION CRITERIA DOCUMENT

CCD-146

Product: Hard Surface Cleaners

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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 Environmental Choice Program 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 under Canadian regulations, and pH.

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

Introduction

Environment Canada's Environmental Choice[M] Program is pleased to publish the following national certification criteria document for ***hardsurface cleaners.***

The Environmental Choice Program is designed to support a continuing effort to improve and maintain environmental quality by reducing energy and materials consumption and by minimizing the impacts of pollution generated by the production, use and disposal of goods and services available to Canadians.

This Certification Criteria Document builds on and replaces two previous Environmental Choice Program Guidelines: 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 generic standards, 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.

Certification under the Environmental Choice Program 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.

Note: The approach of the Environmental Choice Program in dividing cleaning product categories means CCD 146 products fall under two main Canadian regulatory frameworks. Under the *Hazardous Products Act* a distinction is made between products sold to individual consumers (Consumer Chemicals and Containers Regulations SOR/2001-269), and those sold for "use in the workplace" (Controlled Products Regulations SOR/88-66).

In addition to meeting general hardsurface cleaners requirements (see Sections 3), cleaning products sold for use in the following categories must meet requirements unique to their product sub-category, in order to receive Environmental Choice Program 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
CCD - 146K – dish cleaners

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 ampiphillic (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).

Notice

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

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

Notice of Intent

It is the intent of the Environmental Choice 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 Certification Criteria Document may:

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

Definitions

1. In the following guidelines: note the following definitions:

"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,
- ASTM E-1022-84 *Standard Practice for conducting bioconcentration test with fishes and salt-water bivalve 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;

"CCCR" means *Consumer Chemicals and Containers Regulations* (SOR/2001-269) of the *Hazardous Products Act*;

"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 which 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_{50}**" is 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" under the Canadian Environmental Protection Act. 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 vapours given off are sufficient to for a flammable mixture with air which will ignite when exposed to an open flame in accordance with the ASTM Test method D93-80or 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 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 which lists known and suspected carcinogens;

"IC_{50}" 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 hardsurfaces;

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

"**LC_{50}**" 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;

"**odour 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 odours;

"**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_6H_5OH)

"**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 vapours in a container which, 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 compounds" "quat" means an active ingredient used in disinfectants, which, 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_2 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 E 1199-92: 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 Asthma Society of Canada, the Canadian Lung Association, the Environmental Illness Society of Canada and Envirodesic;

"recycled " means post-consumer material and pre-consumer material. It does not include byproducts of an industrial process that can be, and regularly are, used in either the same process, or in a different process, except that proportion which originated as post-consumer material and pre-consumer material;

"rheology modifiers" means a group of compounds added to thicken a liquid. Examples include xanthan gum and hydroxylpropyl 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 individual ingredients must not have a LC_{50} 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 ampiphillic (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 ability to cause injury to living organisms as a result of physicochemical interaction. According to Section 64 of the Canadian Environmental Protection Act a substance is "toxic" if it is entering or may enter the environment in a quantity or concentration or under conditions that: have or may have an immediate or long-term harmful effect on the environment or its biological diversity; constitute or may constitute a danger to the environment on which life depends; or constitute or may constitute a danger in Canada to human life or health;

"**volatile organic compound**" or "**VOC**" means any organic compound which participates in atmospheric photochemical reactions to create smog. It excludes those organic compounds which the ECP 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.

"**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[M], all ***hardsurface cleaners*** for household, institutional and industrial use must

   (a) meet or exceed all applicable government and industrial safety and performance standards;

   (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 including, for facilities located in Canada, the Fisheries Act and the Canadian Environmental Protection Act (CEPA);

General Hardsurface Cleaner requirements

3. To be authorized to carry the EcoLogo, all ***hardsurface cleaners*** for household, institutional and industrial use must;

   (a) clean common hard surfaces effectively as measured by a method based on CAN/CGSB 2-GP-11, Method 20.3 "*Methods of Testing and Analysis of Soaps and Detergents*" or demonstrate 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*";

   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) if sold to individual consumers for use in the home, then not require being labelled as being:

      i. harmful, or
      ii. an irritant

   as described in Part 1 and Part 2 the Consumer Chemicals and Containers Regulations (SOR/2001 –269) of the Hazardous Products Act, unless otherwise specified in the sections for products with specific uses;

   Note: The relevant sections of the regulations have been reproduced in Appendix 4

   (c) if sold for use in institutional and industrial settings (e.g., the workplace), then at minimum, not be considered hazardous as described under 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;

Note: The relevant sections of the regulations have been reproduced in Appendix 4

(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

4. To be authorized to carry the EcoLogo, all ***hardsurface cleaners*** for household, institutional and industrial use 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

5. To be authorized to carry the EcoLogo, all ***hardsurface cleaners*** for household, institutional and industrial use 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 degrees Celsius; and

(c) have a maximum temperature usage which does not exceed 17°C below flash point.

Prohibited and restricted components

6. To be authorized to carry the EcoLogo, all ***hardsurface cleaners*** for household, institutional and industrial use 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 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

7. To be authorized to carry the EcoLogo, all ***hardsurface cleaners*** for household, institutional and industrial use 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 opportunity to reduce waste by recommending use of reusable tools (e.g., "squeegee") over single use materials.

1. To be authorized to carry the EcoLogo, the ***window and glass cleaner*** for household, institutional and industrial use 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); and

   (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_{50} >10,000 mg/kg, where each ingredient has been tested according to OECD Test Guidelines for acute mammalian toxicity testing (Test methods 401, 420, 423 or 425).

2. The ECP criteria statement wording for this product type is "***window and glass cleaners***". The licensee may propose other wording for the criteria statement, but any such proposed wording must be approved by the Environmental Choice Program.

CCD 146B – Boat & Bilge Cleaners

The category applies to products designed to clean, and sometimes wax and polish, aluminium, fibreglass 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 bacterial enzymes as active ingredients must use criteria of CCD *110* "*Cleaning and Degreasing Compounds: Biologically-based*."

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.

1. To be authorized to carry the EcoLogo, the boat and/or bilge cleaner for household, institutional and industrial use 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, then not require being labelled as "corrosive" under the Consumer Chemicals and Container Regulations (SOR/2001-269) 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.

2. The ECP criteria statement wording for this product type is "***boat and bilge cleaners***". The licensee may propose other wording for the criteria statement, but any such proposed wording must be approved by the Environmental Choice Program.

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.

1. To be authorized to carry the EcoLogo, 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.

2. The ECP criteria statement wording for this product type is "***vehicle cleaner for household and institutional use***". The licensee may propose other wording for the criteria statement, but any such proposed wording must be approved by the Environmental Choice Program.

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 does not include encompass biologically based degreasers found in ***CCD 110 "Cleaning and Degreasing Compounds: Biologically-based***."".

1. To be authorized to carry the EcoLogo, the ***degreasers*** for household and institutional and use:

   (a) clean metallic and concrete hard surfaces effectively as measured by a method based on CAN/CGSB 2-GP-11, Method 20.3 "*Methods of Testing and Analysis of Soaps and Detergents*" or demonstrate at least 75% cleaning efficiency as measured by test methods A5 "*particulate and oily soil/vinyl tiles*"; or demonstrate performance according to test methods set out in Appendix 2;

   (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).

2. The ECP criteria statement wording for this product type is "***Degreasers***". The licensee may propose other wording for the criteria statement, but any such proposed wording must be approved by the Environmental Choice Program.

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.

1. To be authorized to carry the EcoLogo, the ***industrial cleaner*** must:

(a) clean metallic and concrete hard surfaces effectively as measured by a method based on CAN/CGSB 2-GP-11, Method 20.3 "*Methods of Testing and Analysis of Soaps and Detergents*" or demonstrate performance according to test methods set out in Appendix 2;

(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) 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).

2. The ECP criteria statement wording for this product types "***Industrial Cleaners***". The licensee may propose other wording for the criteria statement, but any such proposed wording must be approved by the Environmental Choice Program.

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.

1. To be authorized to carry the EcoLogo, 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, then not require being labelled as "corrosive" under the Consumer Chemicals and Container Regulations (SOR/2001-269) 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_{50} >4,000 mg/kg, where each ingredient has been tested according to OECD Test Guidelines for acute mammalian toxicity testing (Test methods 401, 420, 423 or 425).

2. The ECP criteria statement wording for this product type is "***cooking appliance cleaners***" The licensee may propose other wording for the criteria statement, but any such proposed wording must be approved by the Environmental Choice Program.

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.

1. To be authorized to carry the EcoLogo[M], the ***cleaning product with low potential for environmental illness and endocrine disruption*** must:

   (a) clean common hard surfaces effectively as measured by a method based on CAN/CGSB 2-GP-11, Method 20.3 "*Methods of Testing and Analysis of Soaps and Detergents*" or demonstrate 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*";

   (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:

      - on Ceriodaphnia according to Biological Test Method: Test of Reproduction and Survival using the Cladoceran Ceriodaphnia dubia, Report EPS 1/RM/21, February 1992, Environment Canada, with a resulting IC_{50} > 4000 mg/L,

- on a fresh water green algae Selenastrum capricornutum, according to Biological Test Method: Growth Inhibition Test Using the Freshwater Alga Selenastrum capricornutum, Report EPS 1/RM/25, November 1992, Environment Canada, with a resulting IC_{50} > 2000 mg/L, and
- on the bacteria Photobacterium phosphoreum, according to Biological Test Method: Toxicity Test Using Luminescent Bacteria (Photobacterium phosphoreum), Report EPS 1/RM/24, November 1992, Environment Canada, with a resulting IC_{50} > 1000 mg/L;

(g) based on the recommended dose, have a calculated oral rat toxicity LD50 >5,000 mg/kg, where each ingredient has been tested according to OECD Test Guidelines for acute mammalian toxicity testing (Test 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.

2. The ECP criteria statement wording for this product type **is "*cleaning product with low potential for environmental illness and endocrine disruption*."** The licensee may propose other wording for the criteria statement, but any such proposed wording must be approved by the Environmental Choice Program.

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 blocks 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).

1. To be authorized to carry the EcoLogo, ***the bathroom cleaner for residential, institutional and industrial use*** 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, then not require being labelled as "corrosive" under the Consumer Chemicals and Container Regulations (SOR/2001-269) 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); and

   (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 food-grade modifers are permitted (e.g., xantham gum, hydroxylpropyl cellulose)

2. The ECP criteria statement wording for this product type is ***"bathroom cleaner".*** The licensee may propose other wording for the criteria statement, but any such proposed wording must be approved by the Environmental Choice Program.

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 dishcleaning agents makes environmental disposal impacts key. CCD 146K has stricter certification requirements on biodegradability and 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.

1. To be authorized to carry the EcoLogo[M], 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 then not require being labelled as "corrosive" under the Consumer Chemicals and Containers Regulations (SOR/2001 –269) of the Hazardous Products Act;

   (e) if sold as a hand dishwashing product, then 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 then not be formulated or manufactured with dyes;

(g) not be formulated of manufactured with chlorinated compounds;

(h) be formulated with ingredients that demonstrate greater than 95% degradability after 28 days; and

(i) if formulated or manufactured with enzymes, then:

i. enzymes must be free of parent microorganisms;
ii. be in compliance with the New Substances Notification Regulations as per the Canadian Environmental Protection Act, 1999;
iii. 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).

2. The ECP criteria statement wording for this product type is ***"dish cleaner."*** The licensee may propose other wording for the criteria statement, but any such proposed wording must be approved by the Environmental Choice Program.

Verification

8. To verify a claim that a product meets the criteria listed in this document, the ECP will require access, as is its normal practice, to relevant purchasing records, quality control and production records and the right of access to production facilities on an announced basis.

9. If applicable, compliance with requirement 2(b) shall be attested to by a signed statement of the Chief Executive Officer or the equivalent officer of the licensee. The ECP shall be advised in writing immediately by the licensee of any non-compliance which may occur during the term of the license. On the occurrence of any non-compliance, the license may be suspended or terminated as stipulated in the license agreement.

Conditions for EcoLogo Use

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

11. All licensees and authorized users must comply with the ECP's Guide to Proper Use of the EcoLogo™ regarding the format and usage of the EcoLogo.

12. Any accompanying advertising must conform with the relevant requirements stipulated in this guideline, the license agreement and the ECP's Guide to Proper Use of the EcoLogo.

13. A criteria statement must appear with the EcoLogo whenever the EcoLogo 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.

    NOTE: Hardsurface cleaners with a multipurpose function (e.g., do not fall into a specific category of cleaning products) the criteria statement is "***multipurpose hardsurface cleaners***". The licensee may propose other wording for the criteria statement, but any such proposed wording must be approved by the Environmental Choice Program. Multipurpose hardsurface cleaners that meet the certification requirements of more specific cleaning uses may also use the wording found in the relevant CCD subcategory.

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 each of three test organisms at the following concentrations and according to the test methods set out below.

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

- the invertebrate crustacean ***Ceriodaphnia***, according to ***Biological Test Method: Test of Reproduction and Survival using the Cladoceran Ceriodaphnia dubia***, Report EPS 1/RM/21, February 1992, Environment Canada or the invertebrate crustacean ***Daphnia*** according to ***Acute Lethality Test Using Daphnia spp.***, Report EPS 1/RM/11 July 1990, Environment Canada,
- the fresh water green algae ***Selenastrum capricornutum,*** according to ***Biological Test Method: Growth Inhibition Test Using the Freshwater Alga Selenastrum capricornutum***, Report EPS 1/RM/25, November 1992, Environment Canada, and
- the bacteria ***Photobacterium phosphoreum***, according to ***Biological Test Method: Toxicity Test Using Luminescent Bacteria Photobacterium phosphoreum***, Report EPS 1/RM/24, November 1992, Environment Canada.

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 all three species in Part 1, or two of the species in Part 1 and trout according to the test method *Biological Test Method : Acute Lethality Using Rainbow Trout,* Report EPS 1/RM/9, July 1990 Environment Canada,
- acutely toxic (has a LC_{50} > 1 mg/l and <100 mg/l or an EC/IC_{50} >0.02 mg/l and <2mg/l) when tested on three species as 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)

Note: 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
- 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% x 4).

Appendix 2: Procedure to demonstrate product efficacy when recognized standard not available

At the time of publication, the ECP 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 ECP 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 ECP certification;
3. Generated test data must be objective and quantified in recognized metric units; subjective observations are not generally acceptable for ECP 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); and
6. Complete copy of the testing protocol and final report must be made available to the ECP.

Appendix 3: Volatile Organic Compounds with Negligible Photochemical Reactivity

1. The list of volatile organic compounds (VOCs) designated by the Environmental Choice Program as having negligible photochemical reactivity has been taken from Guidelines for Volatile Organic Compounds in Consumer Products, *Canadian Environmental Protection Act* 1999

This ECP designated list includes the following compounds:

(a) methane;
(b) ethane;
(c) methylene chloride (dichloromethane);
(d) 1,1,1-trichloroethane (methyl chloroform);
(e) 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113);
(f) trichlorofluoromethane (CFC-11);
(g) dichlorodifluoromethane (CFC-12);
(h) chlorodifluoromethane (HCFC-22);
(i) trifluoromethane (HFC-23);
(j) 1,2-dichloro 1,1,2,2-tetrafluoroethane (CFC-114);
(k) chloropentafluoroethane (CFC-115);
(l) 1,1,1-trifluoro 2,2-dichloroethane (HCFC-123);
(m) 1,1,1,2-tetrafluoroethane (HFC-134a);
(n) 1,1-dichloro 1-fluoroethane (HCFC-141b);
(o) 1-chloro 1,1-difluoroethane (HCFC-142b);
(p) 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124);
(q) pentafluoroethane (HFC-125);
(r) 1,1,2,2-tetrafluoroethane (HFC-134);
(s) 1,1,1-trifluoroethane (HFC-143a);
(t) 1,1-difluoroethane (HFC-152a);
(u) parachlorobenzotrifluoride (PCBTF);
(v) cyclic, branched or linear completely methylated siloxanes;
(w) acetone;
(x) perchloroethylene (tetrachloroethylene);
(y) 3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca);
(z) 1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb);
(z.1) 1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC 43-10mee);
(z.2) difluoromethane (HFC-32);
(z.3) ethylfluoride (HFC-161);
(z.4) 1,1,1,3,3,3-hexafluoropropane (HFC-236fa);
(z.5) 1,1,2,2,3-pentafluoropropane (HFC-245ca);

(z.6) 1,1,2,3,3-pentafluoropropane (HFC-245ea);

(z.7) 1,1,1,2,3-pentafluoropropane (HFC-245eb);

(z.8) 1,1,1,3,3-pentafluoropropane (HFC-245fa);
(z.9) 1,1,1,2,3,3-hexafluoropropane (HFC-236ea);

(z.10) 1,1,1,3,3-pentafluorobutane (HFC-365mfc);
(z.11) chlorofluoromethane (HCFC-31);
(z.12) 1 chloro-1-fluoroethane (HCFC-151a);
(z.13) 1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a);
(z.14) 1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane (C4F 9OCH3);
(z.15) 2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane ((CF3)2CFCF2OCH3);
(z.16) 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane (C4F9OC2H5);
(z.17) 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane ((CF3)2CFCF2OC2H5); and

(z.18) methyl acetate and perfluorocarbon compounds that fall into the following classes, namely, (i) cyclic, branched or linear completely fluorinated alkanes,
(ii) cyclic, branched, or linear completely fluorinated ethers with no unsaturation,
(iii) cyclic, branched or linear completely fluorinated tertiary amines with no unsaturation, and
(iv) sulfur containing perfluorocarbons with no unsaturation and with sulfur bonds only to carbon and fluorine. (composés organiques volatils (ou COV))

Appendix 4: Thresholds for Hazard Labels Under Canadian Regulations

Excerpts taken from online versions of the Consumer Chemical Container Regulations, 2001 http://laws.justice.gc.ca/en/H-3/SOR-2001-269/text.html and the Controlled Products Regulations http://laws.justice.gc.ca/en/H-3/SOR-88-66/text.html both of the *Hazardous Products Act*

Consumer Chemical Container Regulations

PART 1
TOXIC PRODUCTS

SUB-CATEGORIES -- SUBSTANCE OF SPECIAL CONCERN

	Column 1	Column 2	Column 3
Item	Substance of special concern*	Concentration	Sub-category
1.	Carbon tetrachloride	any concentration	Very Toxic
2.	Diethylene glycol	5% or more	Harmful
3.	Ethyl acetate	5% or more	Harmful
4.	Ethylene glycol	(a) 5% or more but less than 10%	Harmful
		(b) 10% or more	Toxic
5.	Hydrocyanic acid or a hydrocyanate salt	any concentration	Very Toxic
6.	Methyl alcohol	1% or more and a total quantity of 5 mL or more	Toxic
7.	Nitrobenzene	5 mg/kg or more	Very Toxic
8.	1,1,2,2-tetrachloroethane	any concentration	Very Toxic
9.	1,2-dichloroethane	(a) 5% or more but less than 10%	Harmful
		(b) 10% or more	Toxic
10.	1,1,1-trichloroethane	5% or more	Harmful

SUB-CATEGORIES -- ORAL EXPOSURE

	Column 1	Column 2
Item	LD_{50}	Sub-category
1.	not more than 50 mg/kg	Very Toxic
2.	more than 50 mg/kg but not more than 500 mg/kg	Toxic
3.	more than 500 mg/kg but not more than 2 000 mg/kg	Harmful

SUB-CATEGORIES -- DERMAL EXPOSURE

	Column 1	Column 2
Item	LD_{50}	Sub-category
1.	not more than 200 mg/kg	Very Toxic
2.	more than 200 mg/kg but not more than 1 000 mg/kg	Toxic
3.	more than 1 000 mg/kg but not more than 2 000 mg/kg	Harmful

SUB-CATEGORIES -- INHALATION EXPOSURE

	Column 1	Column 2	Column 3
Item	State of the chemical product	4-hour LC_{50}	Sub-category
1.	Gas	(a) not more than 2 500 mg/m^3	Very Toxic
		(b) more than 2 500 mg/m^3 but not more than 5 000 mg/m^3	Harmful
2.	Vapour	(a) not more than 1 500 mg/m^3	Very Toxic
		(b) more than 1 500 mg/m^3 but not more than 2 500 mg/m^3	Toxic
		(c) more than 2 500 mg/m^3 but not more than 10 000 mg/m^3	Harmful
3.	Dust, mist or fume	(a) not more than 0.5 mg/L	Very Toxic
		(b) more than 0.5 mg/L but not more than 2.5 mg/L	Toxic
		(c) more than 2.5 mg/L but not more than 5.0 mg/L	Harmful

Sub-category -- aspiration hazard

(5) A chemical product must be classified in the sub-category "toxic" if it has a viscosity of 14 mm^2/s or less at 40°C and 10% or more of the product is composed of hazardous ingredients that pose an aspiration hazard, including, in particular, any of the following substances:

(*a*) an n-primary alcohol with a composition of at least 3 carbon atoms but not more than 13;
(*b*) an isobutyl alcohol;
(*c*) a terpene alcohol;
(*d*) a ketone with a composition of at least 3 carbon atoms but not more than 13;
(*e*) a hydrocarbon with a composition of at least 3 carbon atoms but not more than 13; or
(*f*) a substance that has been determined to be an aspiration hazard based on its viscosity, surface tension and water solubility through the application of generally accepted standards of good scientific practices.

Part 2
CORROSIVE PRODUCTS

SUB-CATEGORIES -- SUBSTANCE OF SPECIAL CONCERN

	Column 1	Column 2	Column 3
Item	Substance of special concern	Concentration	Sub-category
1.	Ethyl bromoacetate	any concentration	Very Corrosive
2.	Fluoride	0.5% or more of available fluoride ions	Very Corrosive

SUB-CATEGORIES -- ONE OR MORE ACIDS

	Column 1	Column 2	Column 3
Item	State	Properties	Sub-category
1.	Liquid	(a) a pH of not more than 1.0	Corrosive
		(b) a pH of more than 1.0 but not more than 3.0, and an acid reserve of 5.0 or more	Corrosive
		(c) a pH of more than 1.0 but not more than 3.0, and an acid reserve of 3.0 or more but less than 5.0	Irritant
2.	Solid, paste or gel	(a) a pH of not more than 1.0 (b) a pH of more than 1.0 but not more than 3.0, and an acid reserve of 10.0 or more (c) a pH of more than 1.0 but not more than 3.0, and an acid reserve of 5.0 or more but less than 10.0	Corrosive Corrosive Irritant

SUB-CATEGORIES -- ONE OR MORE BASES

	Column 1	Column 2	Column 3
Item	State	Properties	Sub-category
1.	Liquid	(a) a pH of 13.0 or more	Corrosive
		(b) a pH of less than 13.0 but not less than 11.0, and an alkali reserve of 5.0 or more	Corrosive
		(c) a pH of less than 13.0 but not less than 12.0, and an alkali reserve of less than 5.0	Irritant
		(d) a pH of less than 12.0 but not less than 11.0, and an alkali reserve of less than 5.0 but not less than 3.0	Irritant
2.	Solid, paste or gel	(a) a pH of 13.0 or more (b) a pH of less than 13.0 but not less than 11.0, and an alkali reserve of 10.0 or more (c) a pH of less than 13.0 but not less than 12.0, and an alkali reserve of less than 10.0	Corrosive Corrosive Irritant
		(d) a pH of less than 12.0 but not less than 11.0, and an alkali reserve of less than 10.0 but not less than 5.0	Irritant

SUB-CATEGORIES -- SUBSTANCES CAUSING NECROSIS OR ULCERATION

	Column 1	Column 2
Item	Total concentration of the substances	Sub-category
1.	5% or more	Corrosive
2.	1% or more but less than 5%	Irritant

42. (5) A chemical product that contains substances that are capable of causing an effect described in paragraph 41(1)(*e*) in a total concentration of 5% or more must be classified in the sub-category "irritant".

41(1)(e)

(i) an erythema or edema of the skin graded at 2 or more,
(ii) corneal damage graded at 2 or more,
(iii) iris damage graded at 1 or more, or
(iv) conjunctival swelling or redness graded at 2.5 or more.

Note:

6. (1) The person responsible must determine the hazards arising from the reasonably foreseeable use of the chemical product or container from one or more of the following data sources in the following order of precedence:

(*a*) human experience data pertaining to the product or container;
(*b*) data, set out in peer-reviewed, scientific literature, from tests conducted using the product in accordance with the OECD Test Guidelines;
(*c*) if tests using the product have not been conducted in accordance with the OECD Test Guidelines,

(i) the peer-reviewed results of tests conducted with the product in accordance with

(A) these Regulations,
(B) a National Standard or an international standard recognized by the Standards Council of Canada, or
(C) a generally accepted procedure that accorded with good scientific practices at the time the tests were conducted,

(ii) the peer-reviewed results of tests conducted with a chemical product that has properties similar to those of the product under examination, in accordance with

(A) OECD Test Guidelines,
(B) a National Standard or an international standard recognized by the Standards Council of Canada, or
(C) a generally accepted procedure that accorded with good scientific practices at the time the tests were conducted, or

(iii) other current, peer-reviewed information about the product;

(*e*) the results of tests conducted by the person responsible in accordance with a test methodology that conforms with good scientific practices.

Controlled Products Regulations

CLASS D--POISONOUS AND INFECTIOUS MATERIAL
Division 1: Materials Causing Immediate and Serious Toxic Effects
Subdivision A: Very Toxic Material
Pure Substances and Tested Mixtures
Acute Lethality

46. A pure substance or tested mixture falls into Subdivision A of Division 1 of Class D--Poisonous and Infectious Material if, in an animal assay for acute lethality, it has an

(*a*) LD_{50} not exceeding 50 milligrams per kilogram of body weight of the animal when tested in accordance with OECD Test Guideline No. 401, "Acute Oral Toxicity", dated May 12, 1981;
(*b*) LD_{50} not exceeding 200 milligrams per kilogram of body weight of the animal when tested in accordance with OECD Test Guideline No. 402, "Acute Dermal Toxicity", dated May 12, 1981;
(*c*) LC_{50} not exceeding 2,500 parts per million by volume of gas when tested for four hours in accordance with OECD Test Guideline No. 403, "Acute Inhalation Toxicity", dated May 12, 1981;

(*d*) LC_{50} not exceeding 1,500 parts per million by volume of vapour when tested for four hours in accordance with OECD Test Guideline No. 403, "Acute Inhalation Toxicity", dated May 12, 1981, and a saturated vapour concentration at normal atmospheric pressure greater than two times the value of that LC_{50}; or
(*e*) LC_{50} not exceeding 0.5 milligrams per litre or 500 milligrams per cubic metre of dust, mist or fume when tested for four hours in accordance with OECD Test Guideline No. 403, "Acute Inhalation Toxicity", dated May 12, 1981.
48. An untested mixture falls into Subdivision A of Division 1 of Class D--Poisonous and Infectious Material if it contains a product, material or substance that meets any of the criteria applicable to a pure substance or tested mixture referred to in section 46 or 47 and is present at a concentration of one per cent or more.

Division 2: Materials Causing Other Toxic Effects
Subdivision A: Very Toxic Material
Pure Substances and Tested Mixtures
Chronic Toxic Effects

52. A pure substance or tested mixture falls into Subdivision A of Division 2 of Class D -- Poisonous and Infectious Material if, in an animal assay for chronic toxic effects, it elicits a response of sufficient severity to threaten life or cause serious permanent impairment in a statistically significant proportion of the test population at

(*a*) a dose not exceeding 10 milligrams per kilogram of body weight of the animal per day when tested in accordance with
(i) OECD Test Guideline No. 408, "Subchronic Oral Toxicity--Rodent: 90-day", dated May 12, 1981,
(ii) OECD Test Guideline No. 409, "Subchronic Oral Toxicity--Non-Rodent: 90-day", dated May 12, 1981, or
(iii) the oral route test in OECD Test Guideline No. 452, "Chronic Toxicity Studies", dated May 12, 1981;
(*b*) a dose not exceeding 20 milligrams per kilogram of body weight of the animal per day when tested in accordance with
(i) OECD Test Guideline No. 411, "Subchronic Dermal Toxicity: 90-day", dated May 12, 1981, or
(ii) the dermal route test in OECD Test Guideline No. 452, "Chronic Toxicity Studies", dated May 12, 1981; or
(*c*) a concentration not exceeding 25 parts per million by volume of gas or vapour, or not exceeding 10 micrograms per litre or 10 milligrams per cubic metre of dust, mist or fume when tested in accordance with
(i) OECD Test Guideline No. 413, "Subchronic Inhalation Toxicity: 90-day", dated May 12, 1981, or
(ii) the inhalation route test in OECD Test Guideline No. 452, "Chronic Toxicity Studies", dated May 12, 1981.

Teratogenicity and Embryotoxicity

53. (1) A pure substance or tested mixture falls into Subdivision A of Division 2 of Class D--Poisonous and Infectious Material if, in an animal assay for teratogenicity and embryotoxicity, it is shown to cause injury to the embryo or fetus in a statistically significant proportion of the test population at a concentration that has no adverse effect on the pregnant female when tested in accordance with
(*a*) OECD Test Guideline No. 414, "Teratogenicity", dated May 12, 1981;
(*b*) OECD Test Guideline No. 415, "One-Generation Reproduction Toxicity", dated May 26, 1983; or
(*c*) OECD Test Guideline No. 416, "Two-Generation Reproduction Toxicity", dated May 26, 1983.
(2) In this section, "injury" includes death, malformation, permanent metabolic or physiological disfunction, growth retardation or psychological or behavioural alteration that occurs during pregnancy, at birth or in the postnatal period.

Carcinogenicity

54. A pure substance or tested mixture falls into Subdivision A of Division 2 of Class D--Poisonous and Infectious Material if it is listed in
(*a*) section Ala, Alb or A2 of Appendix A of the *Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment*, published by the ACGIH, as amended from time to time; or
(*b*) Group 1 or Group 2 in the *IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans*, published by the World Health Organization, as amended from time to time.
Reproductive Toxicity

55. A pure substance or tested mixture falls into Subdivision A of Division 2 of Class D -- Poisonous and Infectious Material if
(*a*) there is evidence that shows that it causes sterility or an adverse effect on reproductive capability in persons following exposure to it in the work place; or
(*b*) sterility or an adverse effect on reproductive capability is shown in an animal assay for reproductive toxicity carried out in accordance with
(i) OECD Test Guideline No. 415, "One-Generation Reproduction Toxicity", dated May 26, 1983, or
(ii) OECD Test Guideline No. 416, "Two-Generation Reproduction Toxicity", dated May 26, 1983.
Respiratory Tract Sensitization

56. A pure substance or tested mixture falls into Subdivision A of Division 2 of Class D -- Poisonous and Infectious Material if there is evidence that shows that it causes respiratory tract sensitization in persons following exposure to it in the work place.
Mutagenicity

57. (1) A pure substance or tested mixture falls into Subdivision A of Division 2 of Class D -- Poisonous and Infectious Material if
(*a*) there is epidemiological evidence that shows a causal connection between exposure of persons to the substance or mixture and heritable genetic effects; or
(*b*) there is evidence of mutagenicity in mammalian germ cells *in vivo* as shown by
(i) positive results in a study that measures mutations transmitted to offspring, or
(ii) positive results in an *in vivo* study showing chemical interaction with the genetic materials of mammalian germ cells and positive results in an *in vivo* study assessing either gene mutation or chromosomal aberration in somatic cells.
(2) The evidence referred to in paragraph (1)(*b*) shall be obtained
(*a*) in accordance with test methods described in the "Introduction to the OECD Guidelines on Genetic Toxicology Testing and Guidance on the Selection and Application of Assays", dated March 1, 1987, published in the Third Addendum to the *OECD Guidelines for Testing of Chemicals*; and
(*b*) using testing strategies described in the *Guidelines on the Use of Mutagenicity Tests in the Toxicological Evaluation of Chemicals*, dated 1986, published under the authority of the Minister of National Health and Welfare and the Minister of the Environment. SOR/97-543, s. 23(F).
Untested Mixtures

58. An untested mixture falls into Subdivision A of Division 2 of Class D -- Poisonous and Infectious Material if it contains a product, material or substance that meets the criteria applicable to a pure substance or tested mixture referred to in
(*a*) any of sections 53 to 57, if the product, material or substance is present at a concentration of 0.1 per cent or more; or
(*b*) section 52, if the product, material or substance is present at a concentration of one per cent or more.

CLASS E--CORROSIVE MATERIAL

65. A product, material or substance shall be included in Class E--Corrosive Material listed in Schedule II to the Act if

(*a*) it corrodes SAE 1020 steel or 7075-T6 non-clad aluminum surfaces at a rate exceeding 6.25 millimetres per year at a test temperature of 55°C when tested in accordance with *Test Method, Laboratory Corrosion Testing of Metals for the Process Industries*, NACE Standard TM-01-69 (1976 Revision);
(*b*) it is corrosive to skin when tested in accordance with OECD Test Guideline No. 404, "Acute Dermal Irritation/Corrosion", dated May 12, 1981;
(*c*) it is included in Class 8 in Part III of the *Transportation of Dangerous Goods Regulations*;
(*d*) it is a gas included in Division 4 of Class 2 in Part III of the *Transportation of Dangerous Goods Regulations*;
(*e*) there is evidence that it causes visible necrosis of human skin tissue; or
(*f*) it is an untested mixture containing a product, material or substance that meets the criteria referred to in paragraph (*b*) or (*e*) and is present at a concentration of at least one per cent.