



UL 2759

Standard for Sustainability for Hard Surface Cleaners

Standard for Sustainability for Hard Surface Cleaners, UL 2759

First Edition, Dated September 26, 2011

Summary of Topics

This revision to UL 2759 includes the following:

Revisions are made to incorporate additional requirements from the original EcoLogo (CCD) 146: Sustainability for Hard Surface Cleaners.

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Standard for Sustainability for Hard Surface Cleaners

First Edition

September 26, 2011

This UL Standard for Safety consists of the First Edition including revisions through March 30, 2016.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at <http://csds.ul.com>.

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INTRODUCTION

1 General

1.1 This standard is designed to reduce environmental impacts by specifying criteria for safer chemicals and materials, use of recycled and recyclable materials, and minimizing pollution generated by the production, use and disposal of these products and their packaging.

1.2 This standard is a republication of Ecologo Certification Criteria Document (CCD) 146: Hard Surface Cleaners. The criteria have been reformatted for consistency with the Style Manual for UL Standards.

2 Scope

2.1 This standard establishes human health and environmental criteria for hard surface cleaners. There exist many differing types of hard surface cleaners, many of which perform diverse functions and which are chemically unique. Class-specific products covered by this standard include the following:

- a) Bathroom Cleaners,
- b) Boat and Bilge Cleaners,
- c) Cleaners for Cooking Appliances,
- d) Degreasers,
- e) Dish Washing Detergents,
- f) General Purpose Cleaners,
- g) Industrial Cleaners,
- h) Vehicle Cleaners, and
- i) Window and Glass Cleaners.

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

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

2.3 Cleaning and degreasing products that are biologically-based and those products requiring registration under the Federal Insecticide, Fungicide and Rodenticide Act in the United States are outside the scope of this standard.

3 Units of Measurement

3.1 For the purposes of these requirements, values shall be reported in accordance with the requirements of the specific criteria and shall be in metric units. If a manufacturer's choice of units deviates, that change shall be documented and justified as to the reason and relevance for that change.

4 Undated References

4.1 Any undated reference to a code or standard appearing in the criteria of these requirements shall be interpreted as referring to the latest edition of that code or standard. The exception shall be in the case where the criterion explicitly states a certain version or date to be used.

5 Glossary

5.1 For the purpose of these requirements, the following definitions apply.

5.2 AEROSOL – A cloud or fine spray of particles of a liquid in a gas.

5.3 ACTIVE INGREDIENT – An ingredient that contributes to the intended function of the product.

5.4 AOEC – Association of Occupational and Environmental Clinics.

5.5 AROMATIC SOLVENT – Those organic compounds containing:

a) At least one ring structure consisting of six carbon atoms joined by alternating single and double bonds, and

b) Two or less simple substitutions (additional chemical groups) to the basic benzene ring.

Examples of aromatic compounds under this definition include but are not limited to benzene, toluene, phenol, xylenes, and benzyl alcohol.

5.6 AS SOLD – The most concentrated form of the product produced by the manufacturer (i.e. undiluted) that is packaged for sale.

5.7 ASTHMA – A condition of variable airflow obstruction, commonly resulting in coughing, wheezing, dyspnea, or chest tightness.

5.8 ASTHMAGEN – Any substance that through inhalation exposure contributes to the development of asthma in a human. In this standard, an asthmagen is any substance classified by the AOEC as generally accepted (G), and those reviewed and meeting criteria for sensitizer-induced (Rs).

5.9 ASTM INTERNATIONAL – A standard setting organization formerly known as the American Society for Testing and Materials.

5.10 AS USED – The form of the product after it has been diluted to the lowest dilution rate (i.e. most concentrated) indicated on the label by the manufacturer for the products intended use.

5.11 **BIOACCUMULATING** – The biological sequestering of a substance at a higher concentration than that at which it occurs in the surrounding environment or medium. Within this standard an ingredient is considered bioaccumulating if it has a bioconcentration factor (BCF) greater than 100 (or $\log \text{BCF} > 2$) when tested according to one of the following:

- a) Code of Federal Regulation 40 CFR797.1520, or
- b) ASTM E1022-94 (2007) Standard Guide for Conducting Bioconcentration Tests with Fishes and Saltwater Bivalve Mollusks, or
- c) OECD Guidelines for Testing of Chemicals, 305, Bioaccumulation: Degree of Bioconcentration in Fish.

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

- a) Those that are readily biodegradable,
- b) 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
- c) Those that have an octanol-water partition coefficient, K_{ow} , of less than 3 when calculated or tested using the OECD Guidelines for Testing of Chemicals, method 117 or 107.

5.12 **BIOCONCENTRATION FACTOR** – The ratio of chemical concentration in an organism to that in surrounding water;.

5.13 **BUILDER** – Any substance intended to maintain alkalinity, and/or bind dissolved metal ions (soften the water), increasing the effectiveness of the detergent. Builders include substances such as phosphates, NTA, EDTA, zeolites, sodium citrate and sodium silicate.

5.14 **BULK** – For industrial or institutional products, means products sold in drums or totes of 15 gallons or more in volume. For household applications, means a product sold in a quantity or volume greater than 3 times the typical non-bulk product.

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

5.16 **CCCR** – Canadian Consumer Chemicals and Containers Regulations.

5.17 **CSMA** – The Chemical Specialties Manufacturers Association, the former name of the Consumer Specialty Products Association (CSPA).

5.18 **CHLORINATED PLASTIC MATERIALS** – Packaging materials made of polyvinyl chloride (PVC) or other chlorinated compounds. Vinyl chloride is a known carcinogen.

5.19 **DISINFECTANTS** – As defined by U.S. EPA, those which are used on hard, inanimate surfaces and objects to destroy or irreversibly inactivate infectious fungi and bacteria, but not necessarily their spores.

5.20 EC_{50} – 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., immobilization, or serious incapacitation, for instance luminescence in the bacteria test outlined in Section 10, Determining Aquatic Toxicity).

5.21 ETHYLENE GLYCOL ETHERS – 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.

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

5.23 FLASH POINT – The minimum temperature of a liquid at which the vapors given off are sufficient to create a flammable mixture with air that will ignite when exposed to an open flame, when tested in accordance with ASTM D93-10a, ASTM D92-05a, or ASTM D3278-82, or ISO Test Methods 13736, or 2719.

5.24 FD&C – Compounds approved by the U.S. Food and Drug Administration as safe for use in foods, drugs, and cosmetics.

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

5.26 HET-CAM – Hen’s Egg Test on the Chorioallantoic Membrane.

5.27 HALOGENATED SOLVENTS – Any solvent containing halogens including fluorine, chlorine, bromine and iodine. Halogens are highly reactive and have a tendency to bioaccumulate and exhibit toxic effects.

5.28 IARC – International Agency for Research on Cancer, an organization that lists known and suspected carcinogens.

5.29 IC_{50} – 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 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.

5.30 INDIVIDUAL CONSUMERS – Individuals purchasing products for domestic and household use.

5.31 INGREDIENT – Any chemical or compound present in greater than 0.01% by weight in a product formulation.

5.32 INSTITUTION – Office, school, hospital, large retail 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.

5.33 **INDUSTRIAL SETTING** – 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.

5.34 **LC₅₀** – Median lethal concentration. It is the concentration of material that is estimated to be lethal to 50% of the test organisms.

5.35 **METAL** – An element that forms positive ions when its compounds are in solution and whose oxides form hydroxides rather than acids with water. “Toxic metals” are metallic elements that disrupt essential physiological processes. Examples of “toxic metals” and those with the potential for toxicity include, but are not limited to arsenic, cadmium, cobalt, hexavalent chromium, manganese, mercury, nickel, selenium, silver, and lead.

5.36 **MUTAGEN** – A chemical that produces a mutagenic effect on an exposed human or animal. For the purposes of this standard, a mutagen is defined as a substance that is evaluated to be a Category 1A, 1B, or 2 substance as per the GHS Germ Cell Mutagenicity (2007).

5.37 **OECD** – Organization for Economic Co-operation and Development

5.38 **OCTANOL/WATER PARTITION COEFFICIENT** – Describes the ratio of a chemical's distribution (e.g. solubility) in n-octanol and water at equilibrium.

5.39 **OZONE DEPLETING SUBSTANCES** – Refers to a family of man-made compounds defined by the Montreal Protocol that have been shown to participate in atmospheric reactions that deplete the stratospheric ozone layer.

5.40 **POLISH** – 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).

5.41 **POST-CONSUMER** – 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.

5.42 **POTENTIATION** – The increased effect of a toxic chemical acting concurrently with a “nontoxic” one.

5.43 **PRIMARY PACKAGING** – The packaging elements that are in direct contact with the product. Examples of primary packing include the bottle, cap and all labels attached to a bottle of dish liquid.

5.44 **PROPELLANTS** – 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.

5.45 **QUATERNARY AMMONIUM COMPOUND (or QUAT)** – A compound, often found 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.

5.46 **READILY BIODEGRADABLE** – For an ingredient, 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 for each ingredient, provided that all measurements and calculations are based on the carbon content of