



UL 2883

Standard for Sustainability for Disposable Wipers

Standard for Sustainability for Disposable Wipers, UL 2883

First Edition, Dated January 5, 2015

Summary of Topics

This is the First Edition of the Standard for Sustainability for Disposable Wipers, UL 2883

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INTRODUCTION

1 General

1.1 This Disposable Wipers standard establishes human health and environmental criteria for identifying environmentally preferable disposable wipers designed for a range of household, technical and other applications, but excluding personal care wipers.

1.2 This standard was developed using a multi-attribute approach that identifies the most important environmental indicators from all stages of the product's life cycle.

2 Scope

2.1 This Disposable Wipers Standard includes disposable wipers, both woven and nonwoven, made from either natural or synthetic materials and fibers, designed and used primarily for cleaning, dusting or sanitizing surfaces or tools, or for targeted absorbency tasks, including those used for industrial, institutional / health service, food service, household cleansing and technical applications (automotive, etc.).

2.2 This category excludes reusable wipers, and disposable wipers used for personal or skin care such as baby wipes, facial cleansing wipes or wipes designed primarily to deliver a personal care or health product (e.g., sunscreen, insect repellent or aromatherapy). It also excludes wipers designed for use in the care of animals or pets (pet dental wipes, pet eye wipes). Finally, this category also excludes wipers which are made from 100% wood pulp, as these are contemplated by UL 175 Standard for Sustainability for Sanitary Paper. Where a wiper containing wood pulp goes beyond a paper towel or 100% wood pulp wiper – i.e., contains additives, lotions or e.g. mixes the wood fiber with synthetic polymers or other cellulose fibers – this is the appropriate category.

2.3 For each of these environmental indicators identified, criteria have been devised with the goal to identify the top overall environmental performers on the market. These best performers have demonstrated that, compared to others on the market, they have an overall reduced potential burden on the environment per unit of production. Some of this reduced potential burden can be manifested in:

- a) lower energy use and associated air pollutants
- b) lower noxious emissions to water
- c) increased landfill diversion rates
- d) lower emissions of greenhouse gases
- e) higher use of recycled content and other sustainable choices of fibre, maximizing use of valuable wood fibre, supporting diversion of waste from landfills and reducing impacts on forest ecology
- f) responsible management of water use
- g) careful screening for toxicological risks.

2.4 The best performers must demonstrate that their performance reflects their complete pulp and papermaking supply chain's performance on these indicators. This recognizes that part of exceptional environmental performance in this sector is maintaining good controls and knowledge of the pulp and paper supply chain.

2.5 The standard also provides a mechanism for manufacturers to apply for a deduction of one load point under the Landfill Diversion Rate parameter where the manufacturer demonstrates that they have entered into a formal agreement with a qualified waste disposal company to provide commercial clients with a take-back service for the proper disposal of used wipers that will protect human and environmental health.

2.6 The standard also rewards efforts to use high level of recycled content by deducting up to two load points for Landfill Diversion Rate (%) excluding Pre-Slurry Non-Fiber materials from Paper Stock.

2.7 Standards maintenance is an ongoing process. As information and technology change, the product category requirements will be reviewed and possibly amended. Load Points for Greenhouse Gas (GHG) emissions for pulp and paper manufacturing have not been determined during this revision process. As part of objectively determining these load points, the standard requires that data on GHG emission be supplied during the certification process. Once sufficient data is available, the standard will be reviewed in consultation with stakeholders to determine the load points, and the standard will be amended as appropriate.

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 ADMT – Air-dried metric tonne, where air-dried is 10% moisture content.

5.3 AGRICULTURE RESIDUE SOURCE – A system for Evidencing Sourcing where residue means residue of agricultural harvest that is not intended for use as human food.

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

5.5 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 product's intended use.

5.6 BIO-ACCUMULATIVE – Bioaccumulation or bio concentration factor greater than 1000; a log octanol-water partition coefficient greater than or equal to 4, or a log octanol-air partition coefficient greater than or equal to 5 (drawn from California Code of Regulations, Division 4.5, Title 22, Chapter 54 (adopted 21 December 11).

5.7 COD (chemical oxygen demand) – A measure of the amount of oxygen required to oxidize organic and oxidizable inorganic compounds in water. It measures the fraction of organic substances present in plant effluent discharge that the natural environment cannot readily degrade. COD is measured by the ISO 6060 test method, or by method 5220 C or D in "Standard Methods for the Examination of Water and Wastewater", 17th Edition, American Public Health Association, American Water Works Association and Water Pollution Control Federation, 1989, Washington, DC.

5.8 COMPOSTABLE PLASTIC – a plastic that undergoes degradation by biological processes during composting to yield CO₂, water, inorganic compounds, and biomass at a rate consistent with other known compostable materials and leave no visible, distinguishable or toxic residue (from ASTM D6400).

5.9 COMPOSTING – A managed process that controls the biological decomposition and transformation of biodegradable materials into a humus-like substance called compost: the aerobic mesophilic and thermophilic degradation of organic matter to make compost; the transformation of biologically decomposable material through a controlled process of biooxidation that proceed through mesophilic and thermophilic phases and results in the production of carbon dioxide, water, minerals, and stabilized organic matter (compost or humus) (from ASTM D6400).

5.10 CONTAMINANT – Any chemical or compound present in greater than 0.01% by weight in the product and which was not intentionally added.

5.11 DRY WIPE – A wiper that is substantially dry when sold as a finished product in its packaging.

5.12 EFFLUENT DISCHARGE – Water discharged from the waste treatment facility from the plant or mill. For the purpose of this standard, the effluent discharge measure is an average of the discharges for the plant or mill.

5.13 FSC (Forest Stewardship Council) – means the independent, non-governmental, not-for-profit organization established in 1993 to promote the responsible management of the world's forests.

5.14 GHS – The Globally Harmonized System of classification and Labeling of Chemicals, developed by the United Nations. All aspects of the GHS process are to be followed in this standard, including relevant cut off values.

5.15 GREENHOUSE GAS EMISSIONS RATIO – As defined in Appendix I.

5.16 IC₂₅ – The inhibiting concentration that will affect 25% of the test organisms.

5.17 ISO – The International Organization for Standardization.

5.18 LANDFILL DIVERSION RATE – As defined in Appendix I.

5.19 LEGAL + FOREST SOURCE – A system for Evidencing Sourcing where fibers are harvested in compliance with all national, state, provincial or local laws, compliant with CITES, sourced from a country that has national, state or provincial laws re: forest management, labour and human rights, occupational health and safety, and indigenous tenure and use rights, and harvested where the owner holds legal use rights to the forest.

5.20 LIQUID – The fluid (e.g. water or a lotion) applied to the substrate to produce a wet wiper, and it includes the ingredients in a dry wipe that are activated through the addition of water or another fluid to create the wet wipe.

5.21 **NANOMATERIALS** – Engineered particles (carbon nanotubes, metal oxides) under 100 nm in size.

5.22 **POLYMER MATERIAL** – The long chain-like compounds with high molecular weight used to create manufactured fibers.

5.23 **PEFC** – Programme for the Endorsement of Forest Certification) - means the international non-profit, non-governmental organization established in 1999 dedicated to promoting Sustainable Forest Management (SFM) through independent third-party certification.

5.24 **PRE-CONSUMER RECYCLED CONTENT** – Material diverted from the waste stream during a manufacturing process having never reached the end user. Excluded is the reutilization of materials generated in a manufacturing process and capable of being reused as a substitute for raw material without being modified in any way.

5.25 **POST-CONSUMER RECYCLED CONTENT** – Material used by an end-user which is no longer being used for its intended purpose.

5.26 **PRIMARY PACKAGING** – The packaging that is in direct contact with the product. An example is the box that holds/dispenses the wipers.

5.27 **PULP** – The cellulose fiber material separated by mechanical or (usually) chemical processes from wood/fibrous plants, or sourced from recycled paper, and used as an input in the production of wipers.

5.28 **RECYCLED SOURCE** – A system for Evidencing Sourcing. This is fiber that is pre- or post-consumer recycled fiber.

5.29 **RENEWABLE ENERGY** – Energy derived from resources that are naturally replenished and can be sustained indefinitely. Potential sources include, but are not limited to, solar electric (photovoltaic), solar thermal, wind, geothermal, bio-gas, biomass, low-impact hydro and renewable cogeneration on- or off-site, on- or off-grid.

5.30 **SECONDARY PACKAGING** – The packaging that encloses the primary packaging that may group product in primary packaging together.

5.31 **SFI** – Sustainable Forest Initiative - means an independent, nonprofit organization that is solely responsible for maintaining, overseeing and improving the internationally recognized Sustainable Forestry Initiative® (SFI®) program.

5.32 **SOURCE-REDUCED PACKAGE** – A package that represents at least 20% reduction in material, by weight, as compared to those which are commonly used to contain the product.

5.33 **SUBLETHAL TOXICITY** – The effects that a substance has on a test organism over a significant portion of the test organism's life (10% or more), such as growth, reproductive or metabolic inhibition.

5.34 **SUBSTRATE** – The woven or nonwoven material used to produce the wiper.

5.35 **SUSTAINABLE FOREST SOURCE** – Fiber source forest is managed and harvested in adherence with principles and practices of sustainability that are well defined (as below) and which emanate from a process that has multiple balanced stakeholder interests (economic, environmental and

social interests) shaping it. A public report issued by an accredited certification body demonstrating conformance to SFI, FSC or PEFC can be used as evidence of meeting the following criteria for Sustainable Forest Source:

a) Principles and practices of sustainability - defined as:

- 1)) Use a definition of sustainable forest management at the forest management unit level that is internationally widely accepted;
- 2) Implement internationally widely accepted objective performance measures for planning and implemented management systems designed to:
 - i) maintain biodiversity
 - ii) reduce harm to ecosystems
 - iii) ensure sustainable forest productivity
 - iv) ensure sustainable forest health.
- 3) Implement sustainability systems and principles that are internationally widely accepted, to address such management issues as: minimizing impacts (water, air, soil, species and habitat); yield and harvesting levels that are sustainable; integrated pest management; protection of rare, threatened and endangered species; management of natural processes (fire, pests, disease); protection of key ecosystems or habitats (leave in natural state); species and habitat protection for exceptional value features and species; sites of exceptional cultural value;
- 4) Use adequate data and feedback loops for continuous improvement in planning and management for sustainability;
- 5) Harvested in compliance with all national, state, provincial or local laws
- 6) Comply with CITES;
- 7) Employ and contract with adequately trained and qualified forest and ecosystem professionals to both plan and implement the sustainable forest management program;
- 8) Implement systems to identify, document and respect legal, customary and traditional tenure and use rights of indigenous peoples and local communities;
- 9) Employ accessible and effective processes for resolving disputes of all kinds;
- 10) Respect internationally widely accepted labour, human rights, and occupational health and safety standards, and protect rights of workers;

b) Evidence of implementation of the sustainable forest management system that includes publicly available documentation of regular, independent auditing for compliance and remediation of non-compliance;

c) System for Evidencing Sourcing.

5.36 SYSTEM FOR EVIDENCING SOURCING – A public report issued by an accredited certification body demonstrating conformance to SFI, FSC or PEFC can be used as evidence of meeting the following criteria for a system for evidencing sourcing:

- a) Established policy, procedures and controls for tracking and documenting supply quantity and quality and segregating supply inputs and outputs, as needed;
- b) Established procedures and documentation for implementing a due diligence system (risk analysis, onsite inspection and external assessments) to mitigate risk of controversial or illegal source wood or fiber;
- c) Employs trained management representative and staff with responsibility for ensuring the establishment, implementation and maintenance of the system;
- d) Has up to date records and information tracing the source of origin of a fiber supply, including country of harvest, species, quantity, quality, and details of supplier and compliance with legislation or with a particular program of forest management;
- e) Independent, regular auditing of the tracking system for compliance with its tracking system program.

5.37 TEXTILE – A type of material composed of natural or synthetic fibers that is woven or nonwoven. The fibers may be newly fabricated, natural and/or recycled.

5.38 TOXIC – The degree to which a substance or mixture of substances can harm humans or animals. Acute toxicity is the ability of a substance / mixture to cause harmful effects in an organism through a single or short-term exposure. Subchronic toxicity is the ability of the substance / mixture to cause effects for more than one year but less than the lifetime of the exposed organism. Chronic toxicity is the ability of a substance or mixture of substances to cause harmful effects over an extended period, usually upon repeated or continuous exposure, sometimes lasting for the entire life of the exposed organism.

5.39 VIRGIN FIBER – Wood (or agricultural) fiber which has not previously been pulped.

5.40 VOLATILE ORGANIC COMPOUND (VOC) – Any organic compound which participates in atmospheric photochemical reactions. It excludes those organic compounds, also referred to as “exempt” compounds that UL designates as having negligible photochemical reactivity (see Appendix I).

The VOC content shall be determined in accordance with the California’s Air Resources Board (CARB) ARB Method 310, modified not to allow exemption for fragrances. Organic compounds with vapour pressure less than 0.1 mm mercury and boiling points greater than 216°C as determined by ARB Method 310 are exempted

5.41 WATER INPUT Water coming into the mill from inter alia wood and other raw fiber, ground water, surface water and/or recycling water.

5.42 WATER MANAGEMENT SYSTEM – An environmental management system, compliant with ISO 14001, or ISO 9001, or an equivalent standard that is focused on sustainable management of water resources.

5.43 WATER OUTPUT – Water leaving the mill in inter alia products, wood chips, evaporation losses from drying and/or hot pressing and/or otherwise, and energy generation.

5.44 WET WIPE – A wiper consisting of a substrate and a liquid, with the wiper being used when the substrate is made wet or an added chemical activated by the liquid (which is added either at the time of production or by the consumer).

5.45 WIPE OR WIPER – The finished product as sold.

COMPLIANCE EVALUATION

6 Product Specific Requirements

6.1 The disposable wipes must be manufactured from a process such that the total load points assessed for the environmental indicators of Energy Consumption, Chemical Oxygen Demand, Sublethal Toxicity, and Landfill Diversion Rate, as determined from the Table 6.1.1, along with the load points from the % of source material reported from Table 6.1.2, do not exceed 5 points. No single environmental indicator may exceed 3 load points.

6.2 Load Points are assigned for each environmental indicator listed in the table below. The Load Points for each respective indicator are summed up to calculate the total Load Point value for the product. The data collection and calculation methodology provided in Appendix I must be completed for each product that is to be certified. Appendix I provides detailed load point calculation methodology and will be provided on request to those who wish to calculate Load Points for a given product. Note that a "0" load point value does not indicate "0" impact.

Table 6.1.1
ENVIRONMENTAL INDICATORS AND LOAD POINTS

ENVIRONMENTAL INDICATOR		LOAD POINT				
		0	1	2	3	4
Energy Consumption(GJ/ADMT)		<18	18 to 30	>30 to 41	>41 to 51	>51
COD (kg/ADMT)		<3	3 to 9	>9 to 15	>15 to 20	>20
(units TEFsub)		<33	33 to 67	>67 to 100	>100 to 133	>133
Landfill Diversion Rate (%) excluding Pre-Slurry, Non-Fiber Materials from Paper Stock.	If >50% to 70% Recycled Content	>90	>75 to 90	>50 to 75	>30 to 50	<30
	If >70% to 90% Recycled Content	>75	>50 to 75	>30 to 50	<30	–
	If >90% Recycled Content	>50	>30 to 50	<30	–	–
Landfill Diversion Rate of Pre-Slurry, Non-Fiber Materials from Paper Stock (%)		>75	>25 to 75	0 to 25	–	–

6.3 Effluent discharge water quality data in relation to both the production of the substrate and lotion is to be provided, whether the substrate and lotion are produced in-house or by a third party manufacturer.

TABLE 6.1.2
SOURCE MATERIAL REPORTED (ADMT) LOAD POINT ADJUSTMENT

ENVIRONMENTAL INDICATOR	SOURCE MATERIAL REPORTED LOAD POINT ADJUSTMENT				
	0	1	2	3	4
Amount of source material reported (ADMT)	≥75% of Supply Data known	<75 to ≥60% of Supply Data known	<60 to ≥40% of Supply Data known	≥40 to <20% All Supply Data known	<20% All Supply Data known

6.4 For Greenhouse Gas (GHG) Emissions, this is required as part of the data collection process as outlined in Section 2.6. Data collection and calculation methodology provided in Appendix II or other GHG calculation protocols can be used and these must be reported.

6.5 The disposable wipe must have a minimum of 55% recycled textile content if manufactured from textile material.

6.6 The disposable wipe must meet the following criteria if manufactured from wood or agricultural fiber:

- a) A minimum 50% of the fiber content must be Recycled Source and/or Agricultural Residue Source; and then
- b) A minimum 30% of the balance of the fiber content must be Sustainable Forest Source; and after that,
- c) The remaining balance of the fiber content must be Legal+ Forest Source.
- d) Fiber sourcing must be verified with a System for Evidencing Sourcing

6.7 The disposable wipes must be manufactured such that if a whitening process is used:

- a) the fiber must have been whitened using an Elemental Chlorine Free (ECF) or TCF Total Chlorine Free (TCF) process; or
- b) the final effluent from the facility must not contain a measurable concentration of 2,3,7,8-TCDD or a measurable concentration of 2,3,7,8-TCDF (within limits of the test method, typically less than 15ppq.). Approved test methods are either:
 - 1) Method 1613 Tetra - through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS in "Guidelines Establishing Test Procedures for the Analysis of Pollutants"; US Environmental Protection Agency, October 1994, or
 - 2) Report EPS 1/RM/19, "Reference Method for the Determination of Polychlorinated Dibenzo-para-dioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) in Pulp Mill Effluents", Environment Canada, 1991.

6.8 The disposable wipes must be manufactured such that if optical brighteners are intentionally added, that they meet the requirements of Annex A of ISO 7827 for inherent biodegradability. Applicable test methods include ISO 7827, 9439, 10707, 10708, 9408, and 14593; OECD Methods 301A-F; or OECD 310.