

# Life Cycle Assessment-based Product Claims

*Prepared for the West Coast Climate and  
Materials Management Forum*



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# Outline

1. Environmental product claims
2. LCA-based claims
3. EPDs and carbon footprints
4. Process of making LCA-based claims
5. Current landscape of LCA-based claims
6. Relevant issues for the future

# Why do we care about products and the environment?

- Managing the environmental burden of production and consumption is integral to sustainable development (WSSD Plan of Action and “The Marrakech Process”)
- By associating impacts with products, purchasers can support more sustainable production and consumption
- Environmental product claims are the mechanism for informing the public about a product’s environmental performance

# Demand for product sustainability information is growing



Agence de l'Environnement  
et de la Maîtrise de l'Energie



# Environmental product claims

Defining claims:

All **public** statements regarding the environmental performance of a product by a manufacturer or third-party, including reports, advertising, labels, certifications, or other communications.

E.g. Product *super-green* “is carbon neutral”; “is green”; “is non-toxic”; “has a carbon footprint of 200g CO<sub>2</sub>-eq.”; or “is Rainforest Alliance certified”



# Environmental product claims

- Claims are proliferating (Watanatada and Lee 2011)
- But what is a “green” product?
- The FTC has attempted to clamp down on “greenwashing” with the Green Guides

63552

Federal Register / Vol. 75, No. 199 / Friday, October 15, 2010 / Proposed Rules

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**FEDERAL TRADE COMMISSION**

**16 CFR Part 260**

**Guides for the Use of Environmental Marketing Claims**

**AGENCY:** Federal Trade Commission.

**ACTION:** Proposed revisions to guidelines.

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**SUMMARY:** The Federal Trade Commission (“FTC” or “Commission”) conducted a comprehensive review of

or service actually possesses the advertised environmental attribute. Because there is a potential for consumer confusion about environmental claims, guidance from the FTC can benefit both businesses and consumers alike.

To help marketers make truthful and substantiated environmental claims, the Federal Trade Commission issued the Guides for the Use of Environmental Marketing Claims (“Green Guides” or “Guides”) in 1992, and revised them in

as renewable materials, renewable energy, and carbon-offsets. The FTC also proposes non-substantive changes throughout the Guides to make them easier to read and use, including simplifying language and reorganizing sections to make information easier to find. The FTC is now seeking further public comment on each of these proposed modifications to the Guides.

First, the FTC proposes strengthening its guidance regarding general environmental benefit claims. The



## Benefits of life cycle-based claims

- For most products, the majority of impact occurs upstream or downstream of product use

Source: EPA OSWER 2009; For popular media see Leonard 2010

- Single-stage claims for products (e.g., recycled content; energy efficient) don't capture the relevance of that attribute in life-cycle environmental performance
- Claims based in an ISO 14040 life cycle assessment of a product provide quantitative performance over the full life cycle from "cradle to grave"

# Single vs. multi-attribute LCA-based claims

- Single-attribute claims may be life cycle-based but miss important types of environment impacts (e.g. human health, resource depletion)
- Multi-attribute life cycle-based claims capture tradeoffs in different parts of the life cycle and among different impacts, but usually provide more than one result which are more difficult to interpret



# ISO nomenclature for environmental product claims

ISO 14020 Environmental Label	Definition (specific ISO standard)
<b>Eco-label (Type I)</b>	Type I (ISO 14024) claims are award-type labels, based on predetermined requirements set by a third party (not by manufacturer or retailer) and are multi-issue, depending on the product's life cycle impacts. The label identifies environmentally preferred products within a product category. (14024)
<b>Self-declaration (Type II)</b>	Product claims are based on self-declarations by manufacturers or retailers. (14021)
<b>Environmental Product Declaration (Type III)</b>	Provides quantified environmental product information for the entire life cycle of a product, issued by a supplier. It is based on independently verified, systematic data and is presented as parameters in a set of categories describing the environmental performance of the product or the service. It is relevant to all products and presents the information in a format that facilitates comparison between products (14025)
<b>Single-issue claim</b>	Environmental claims that address a single environmental issue, to which the general principle of environmental labels (14020) apply, but for which no specific standard exists.

# Type I



EU Flower

# Type II



Example product with self-declared „Eco-friendly“ label

# Type III



Cover page and excerpt from an EPD from the International EPD System

# Comparison of ISO claims

	Type I-like (seal of approval)	Type II-like (self-declaration)	Type III (EPD)
<b>Neutral</b>	No	No	Yes
<b>Valid for any product in a category</b>	No	No	Yes
<b>Requires specific practices</b>	Yes	No	No
<b>Prohibits use of certain inputs</b>	Yes	Yes	No
<b>Considers the entire life cycle</b>	Only recommended	No	Yes
<b>Requires independent verification</b>	Yes	No	Yes
<b>Ease of understanding</b>	Yes	Depends on producer	Depends on presentation
<b>Permits differentiation from other products with the same label</b>	No	No	Yes
<b>Quantitative</b>	Little	Not required	Very

## In summary, LCA-based claims are

*Quantitative*

*Modular*

*Transparent*

*Neutral*

*Comprehensive*

*Comparable*

*Flexible*

# Additional LCA-based claim standards

***Product carbon footprints as specified by one of the standards:***

PAS 2050: 2009

WRI/WBCSD GHG Protocol Product Standard: 2011

ISO 14067 (draft)

Japanese Carbon Footprint of Products



A label based on  
PAS 2050 by  
Carbon Trust

***Other multi-attribute standards:***

ISO 21930: 2007/EN 15804:2011 (EPDs for building products)

French standard (BPX30-323: 2011)

Draft European Product Environmental Footprint Guide (2012)

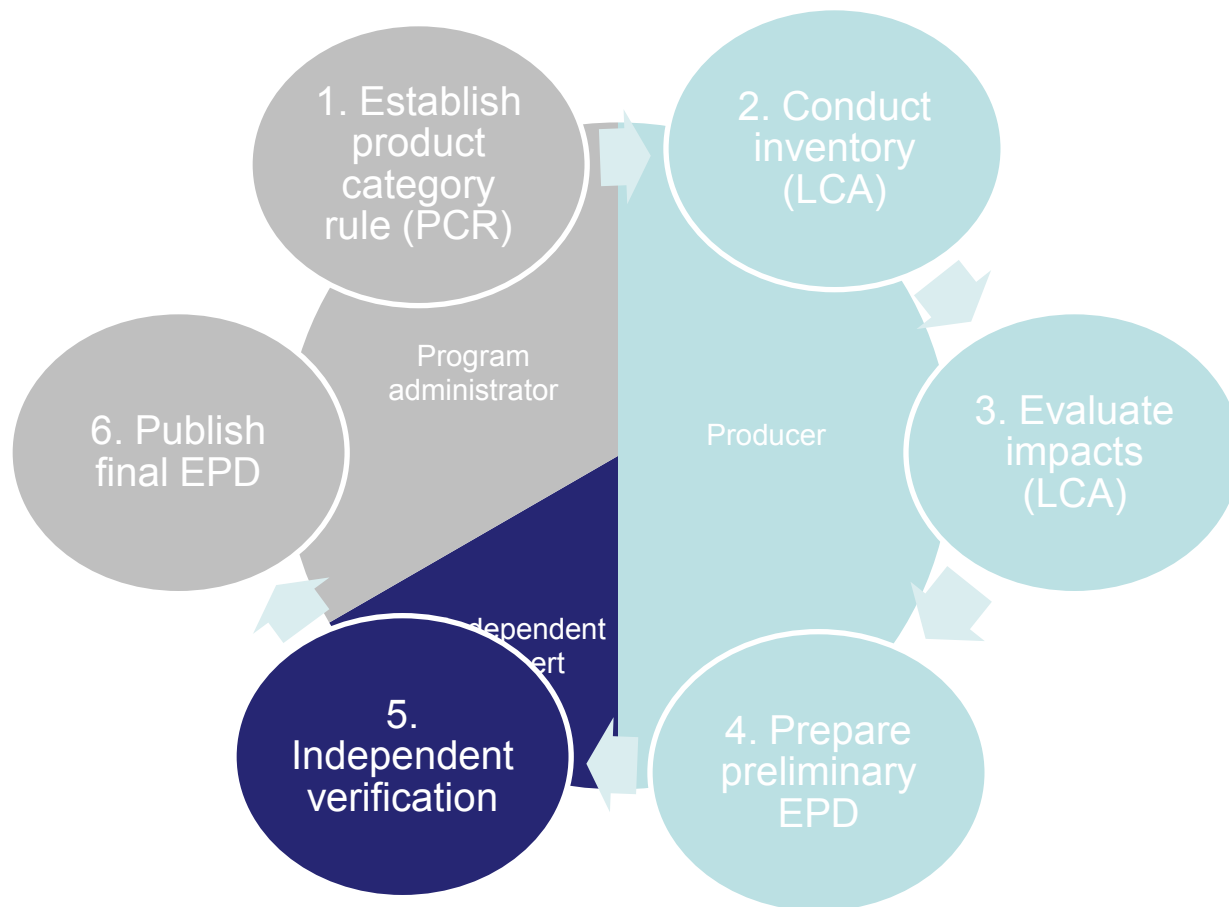
# Process of making LCA-based claims

- LCA is complex!
- Chances are that no two LCAs of the same product will look alike
- Rules are required if LCA results can be compared

## Product category rules

- ISO 14025 specifies that rules are required for EPDs. PCRs specify how impacts are calculated and reported for a category of products
- Although the product carbon footprint standards use other terms („sector guidance“ or „product rules“), for creation of comparable claims the standards acknowledge their necessity

# ISO 14025 process for EPDs





# International landscape of LCA-based claims

- Europe and Japan are hotspots of activity
- Sweden and Norway have had programs in place for over a decade
- Japan has over 1,000 products with registered carbon footprints as well as a national EPD program
- France has just completed a national level pilot program for EPDs of high volume consumer products

# International landscape of LCA-based claims

Table 1. PCRs published by government-sponsored CFP/EPD programs (as of March 2011).

Program Name	Founded By	Operator	Type	Country of program origin	No. of PCRs	Categorical Areas of PCRs
International EPD System	Swedish Environmental Ministry	International EPD Consortium	EPD	Sweden	139	Agriculture, forestry and fishery products, Ores & minerals, Energy and water, Food and beverages, Textile and furniture, Wood and paper, Rubber, plastics, glass and, chemicals, Metals, Machinery and appliances, Transport equipment and services, Services, Construction goods and services
Ecoleaf	Japanese Ministry of Economy, Trade and Industry (MEIT)	Japan Environmental Management Association for Industry (JEMAI)	EPD	Japan	53	Electronics, Office Machines, Utilities, Durable home goods
Carbon Footprint of Products	Japanese Ministry of Economy, Trade and Industry (MEIT)	Japan Environmental Management Association for Industry (JEMAI)	CFP	Japan	57	Food, Printed Materials, Office products, Home products, Furniture, Intermediate goods and services, IT services
Environmental Declarations of Products	Korean Ministry of Environment	Korean Environmental Industry & Technology Institute (KEITI)	EPD	S.Korea	29	Electronics, Food, Utilities, Household appliances
Display of environmental characteristics of consumer products	National Environmental Law 'Grenelle de Environment' 2010	ADEME and AFNOR	EPD	France	11	Food, Cleaning products, Personal products, Clothing, Furniture, Cookware, Office products.
Environmental and Development Foundation (EDF)	Environmental Protection Administration of the Republic of China	Environmental and Development Foundation (EDF)	PCR	Taiwan	35	Consumer & Commercial Electronics, Home Appliances, Motors & Power Supply, Steel Coils, Solar Cells, Carbon Steel, Corrugated Paper and Cabinetry

Source: Ingwersen and Stevenson

## US landscape

- LCA-based claims are rapidly emerging with ISO-14025 EPDs and other variations
- There is no central program operator in the US
- Some related standards have been drafted but none have been finalized yet

# US landscape: EPD program operators

- UL Environment
- NSF International
- Earthsure (IERE)
- ASTM International
- Carbon Leadership Forum
- Others?



CARBON LEADERSHIP FORUM

# Building sector-related EPD efforts in the US

- Proposed LEED credits for including building components with EPDs
- ASTM Draft „Standard Practice for Development of Product Category Rules for Use in Development of Environmental Declarations for Building Products and Systems“
- Architecture 2030 promotes use of EPDs
- „Leadership Principles for Construction LCAs & PCRs“ from side panel at GreenBuild 2012
- Numerous PCRs through NSF, UL and the CLF



# Carpet EPD from Interface

Environment

## EPD Transparency Brief

**COMPANY NAME** Interface

**PRODUCT TYPE** CARPET TILE: GLASBAC®, TYPE 6 NYLON

**PRODUCT NAME** MODULAR CARPET TILE WITH GLASBAC® BACKING & SOLUTION DYED TYPE 6 NYLON

**PRODUCT DEFINITION** Modular carpet with recycled solution dyed Nylon 6 yarn face cloth (yarn weight: 21 oz/sq yd) combined with GlasBac® backing. The products are manufactured by Interface in LaGrange, Georgia USA.

**PRODUCT CATEGORY RULE (PCR)** PCR -- Floorcoverings  
Harmonised Rules for Textile, Laminate and ResilientFloor Coverings

**CERTIFICATION PERIOD** 9/19/2011-9/19/2016

**DECLARATION NUMBER** 110919.11CA29311.101.1



### LIFECYCLE IMPACT CATEGORIES

The environmental impacts listed below were assessed throughout the product's lifecycle – including raw material extraction, transportation, manufacturing, packaging, use, and disposal at end of life.

	ATMOSPHERE		WATER		EARTH	
	<p><b>Global Warming Potential</b> refers to long-term changes in global weather patterns – including temperature and precipitation – that are caused by increased concentrations of greenhouse gases in the atmosphere.</p>		<p><b>Ozone Depletion Potential</b> is the destruction of the stratospheric ozone layer, which shields the earth from ultraviolet radiation that's harmful to life, caused by human-made air pollution.</p>		<p><b>Photochemical Ozone Creation Potential</b> happens when sunlight reacts with hydrocarbons, nitrogen oxides, and volatile organic compounds, to produce a type of air pollution known as smog.</p>	
			<p><b>Acidification Potential</b> is the result of human-made emissions and refers to the decrease in pH and increase in acidity of oceans, lakes, rivers, and streams – a phenomenon that pollutes groundwater and harms aquatic life.</p>		<p><b>Eutrophication Potential</b> occurs when excessive nutrients cause increased algae growth in lakes, blocking the underwater penetration of sunlight needed to produce oxygen and resulting in the loss of aquatic life.</p>	
					<p><b>Depletion of Abiotic Resources (Elements)</b> refers to the reduction of available non-renewable resources, such as metals and gases, that are found on the periodic table of elements, due to human activity.</p>	
					<p><b>Depletion of Abiotic Resources (Fossil Fuels)</b> refers to the decreasing availability of non-renewable carbon-based compounds, such as oil and coal, due to human activity.</p>	
<b>TRACI</b>	10.28 kg CO <sub>2</sub> -Equiv.	0.0000013 kg CFC 11-Equiv.	0.000018 kg NO <sub>x</sub> -Equiv.	1.8 mol H <sup>+</sup> -Equiv.	0.003 kg N-Equiv.	
<b>CMAL</b>	10.57 kg CO <sub>2</sub> -Equiv.	0.0000013 kg R11-Equiv.	0.006 kg Ethene-Equiv.	0.040 kg SO <sub>2</sub> -Equiv.	0.008 kg Phosphate-Equiv.	0.000011 kg Sb-Equiv.

**FUNCTIONAL UNIT** One square meter of installed modular carpet for heavy use. The use stage is considered for one year of service life. The reference flow is one square meter of modular carpet.

### MATERIAL CONTENT

Material content measured to 1%.

COMPONENT	MATERIAL	AVAILABILITY	MASS%	ORIGIN
Face Cloth/Yarn	Nylon 6 Post Industrial & Post Consumer Recycled	Recycled material, abundant	17%	IT
Tufting Primary	Polyester	Fossil resource, limited	3%	US
Latex	Ethylene vinyl acetate	Fossil resource, limited	5%	US
Filler	CaCO <sub>3</sub>	Mineral resource, non renewable, abundant	15%	US
Fiberglass	Silica	Mineral resource, non renewable, abundant	1%	US
GlasBac® Backing	Polyvinyl chloride copolymer	Ethylene – Fossil resource, limited and Salt – Mineral resource, non renewable abundant	10%	US
GlasBac® Backing	Di-isononyl phthalate	Fossil resource, limited	10%	US
GlasBac® Backing	Calcium alumina glass spheres, post industrial	Recycled material, abundant	39%	US

### ADDITIONAL ENVIRONMENTAL INFORMATION

PRE-CONSUMER RECYCLED CONTENT	56 %
POST-CONSUMER RECYCLED CONTENT	%
VOC EMISSIONS	CRI GLP Certified
WATER CONSUMPTION	0.06 m <sup>3</sup>

### RECYCLING OR REUSE

Product should be recycled through Interface's ReEntry® 2.0 process by contacting Interface ReEntry® 2.0 at 888-733-6873 (US) or 866-398-3191 (Canada).

### ENERGY

RENEWABLE ENERGY	2 %	2.9 MJ
NON-RENEWABLE ENERGY	98 %	141.7 MJ

### MANUFACTURER CONTACT INFO

NAME	Interface
PHONE	888-733-6873 (US) or 866-398-3191 (Canada)
EMAIL	sustainability@interface.com
WEBSITE	www.interface.com

### STANDARDS

- ISO9001 Quality Management System
- ISO14001 Environmental Management System
- Gold NSF140 Sustainable Carpet Assessment
- CRI Green Label Plus
- NVLAP Accreditation, NIST

### CERTIFICATIONS










Environment

Available at <http://www.interfaceflor.com/EPD>

# Carpet EPD from Interface (impacts)

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### FUNCTIONAL UNIT

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# Issues for the future of LCA-based claims: *General*

Who is the target audience?

How should LCA-based information be presented?

Are single-attribute claims sufficient?





# Issues for the future of LCA-based claims: *Feasibility*

Sufficient data does not yet exist at the consumer product level. How and when will the data be available?

The initial process of PCR development is intensive and potentially costly. Who will lead and support this?

# Issues for the future of LCA-based claims: *Administrative*

Who must be involved to have legitimate claims?

Who will assure that common PCRs are used?

## Issues for the future of LCA-based claims: *PCRs*

How many PCRs are needed?

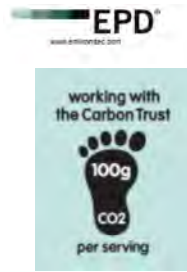
Can PCRs be global?

Can the same PCRs be used to support more than one standard?

## PCR Guidance

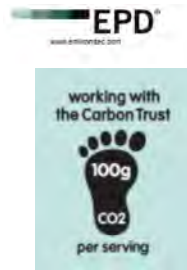
- A Guidance document to provide further instruction on product category rule development to promote alignment, use of best LCA practices, and a transparent and participatory process
- Written by an international group representing 46 organizations in 13 countries
- Expect to be released for public comment by Jan 18!

[For more info, see <http://www.pcrguidance.org>](http://www.pcrguidance.org)



## Summary on LCA-based claims

- A desirable form of claims – quantitative, transparent, neutral, flexible and comparable
- EPDs and product carbon footprints are the primary forms
- PCRs are needed for product comparability



# Needs for LCA-based claims to succeed

- Defining criteria, format, audience, and uses
- Data
- Alignment of product category rules
- Mechanisms to assure legitimacy



## Contact information

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