The Green Glossary

by **Ernest** Shiwanov

Buzz words like sustainability, compostable and cradle-to-grave are regularly bandied about by authorities and spinmeisters. Many use terms interchangeably or incorrectly. So *Inside Outdoor* decided to parse the greenwash lexicon and take a stab at a short glossary of definitions. The following definitions are as organic as the topics they address. They are more operative than definitive, with the underlying subtext being about the discourse that we hope to continue. Indeed, these definitions are "alive," and we expect them to evolve as new standards are set, technologies are developed and our industry grapples with the "sustainability" (see below) of our businesses. A la Wikipedia, we welcome anyone who would like to add, change or modify definitions to submit their insight to ernest@bekapublishing.com. *The Green Glossary* will continue to appear in future issues of *IO*.

BIODEGRADABLE

Aerobic decomposition of a organic matter through the action of microorganisms or aerobes. There are no standards for eco-toxicity or length of time before degrading to biomass and, in some cases, eco-toxins.

CAP AND TRADE

See Emissions Trading.

CARBON NEUTRAL OR CARBON OFFSET

To offset or neutralize net greenhouse gas emissions.

This can be achieved by planting trees, using renewable energy, energy conservation and emissions trading. Critics contend there is no definitive evidence that carbon offsets work since there are no models or standards that clearly demonstrate the equilibrium.

COMPOSTABLE

The biodegradability of an organic material, mostly to biomass, water and carbon dioxide. Compostable environments include industrial settings and common garden or open space locations. All standards agree on a six-month period for the organic matter to degrade. Most standards support these tests:

- Does it biodegrade to carbon dioxide, water, biomass at the rate paper biodegrades?
- Does the material disintegrate leaving no distinguishable or visible residue?
- Are there any eco-toxic materials left, and can the remaining biomass support plant growth?

American Society for Testing and Materials (ASTM) D6400-99 says to be considered compostable, materials must undergo degradation by biological processes during composting to yield carbon dioxide (CO_2), water, inorganic compounds and biomass at a rate consistent with other compostable materials, leaving no visible, distinguishable or toxic residue.

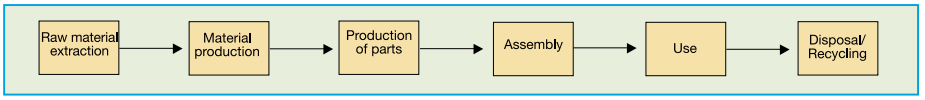
The EN (European Committee for Standardization or Comité Européen de Normalisation) standard is even more specific. EN13432 states that a material is deemed compostable if it will breakdown to the extent of at least 90 percent to H_2O and CO_2 and biomass within six months.

There are other standards as well with DIN V49000 from the German Institute for Standardization being the strictest in the allowance of heavy metals. Many might be familiar with DIN standards for their safe release ski bindings.

CRADLE-TO-CRADLE

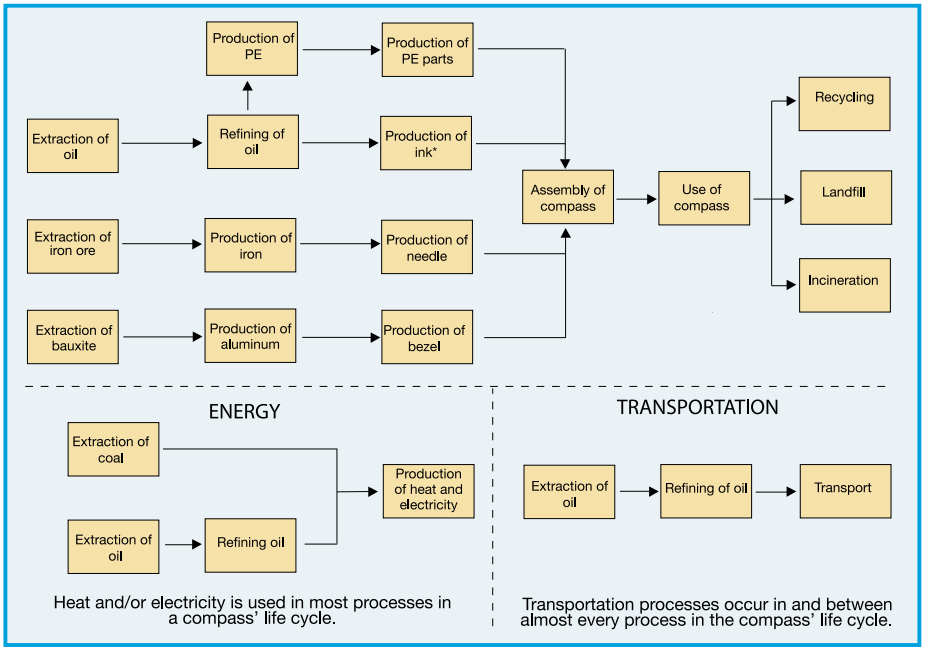
The life cycle of a product from manufacture to re-manufacture.

Cradle-to-Grave Product Life Cycle Stages



All products pass through different stages in their life cycles. This chart illustrates the primary life cycle stages of a basic compass.

Cradle-to-Grave: Life Cycle of a Basic Compass



*Source: Adapted from the Asian Institute of Technology. *Based on solvent-based paint.*

Feel Better About Those Print Jobs

100% recycled paper

Printing of catalogs, direct mail, retail workbooks and more!

Call 480.503.0770 or
greensheets@bekapublishing.com
for samples, quotes and information

Beka Publishing

CRADLE-TO-GATE

The life cycle of a product or process from manufacture to end user. Also known as environmental product declarations (EPD).

CRADLE-TO-GRAVE

The life cycle of a product from manufacture to end-of-use disposal.

DEGRADABLE

A material that undergoes chemical change and a loss of original characteristics due to environmental conditions. There are no requirements for time, process or toxicity for this method.

EMISSIONS TRADING (CAP AND TRADE)

A practice in which businesses are given an emissions cap, in the form of credits, that allows them to pollute up to a maximum credit level. Businesses that exceed their cap must purchase (or trade) credits from a company that has not exceeded its cap or from trading platforms such as the Chicago Climate Exchange (CCX), the European Climate Exchange (ECX) and/or Montreal Climate Exchange (MCeX).

Problems with the Cap and Trade concept include where to set the initial levels of the caps, retiring old credits, resetting caps and regulatory/compliance standards.

ENVIRONMENTAL PRODUCT DECLARATIONS (EPD)

The life cycle of a product from manufacture to end user. Also know as cradle-to-gate.

GATE-TO-GRAVE

The life cycle of a product from the end user to end-of-use disposal.

LIFE CYCLE ASSESSMENT (LCA)

A comprehensive environmental assessment of the impact of a product or process, from inception to the end of its "life." The assessment includes transportation of raw materials to the manufacturer, manufacturing of materials, transportation of materials to the product manufacturer, manufacturing of product, transportation of product to end users, impact of product by end user including disposal of product at its end of life.

The assessment has been used as a tool to evaluate a product's or company's eco-performance, which in turn can be used to improve it.

There are three different methods used in lifecycle analysis:

1. process or bottom-up LCA using ISO 14040-2006 and 14044-2006 protocols;
2. economic input output or EIO-LCA; and
3. hybrid LCA, a combination of process LCA with economic input output LCA.

LCAs are used as a tool to evaluate a product or company's eco-performance, which in turn can be used to improve it.

LIFE CYCLE MANAGEMENT (LCM)

An integrated approach to sustainable production and consumption through the management of a product's or process' life cycle.

LIFE CYCLE ENERGY ANALYSIS (LCEA)

The total life cycle energy input. Criticism in utilizing LCEAs include the argument that different energy sources have different potential value (exergy). Additionally, critics contend that LCEAs' energy currency cannot supplant economic currency as the determinant in business.

MONTEBELLO AGREEMENT (SEE REACH)

The Security and Prosperity Partnership (SPP) also is known as the Montebello Agreement, so named for the city in Quebec where the summit was held. The SPP Web site states that this is a Bush Administration, White House-led initiative to increase security and economic prosperity in North America. Part of this voluntary framework is to establish risk characterization by 2012 of over 9,000 chemical substances produced in the U.S. in quantities over 25,000 pounds per year. By 2020, Canada, Mexico and the U.S. will "strive to achieve…inventories of all chemical substances in commerce." Many view the Montebello Agreement as a North American reaction to REACH, the European Union's Registration, Evaluation, Authorization and Restriction of Chemicals, which went into EU law last June.

ORGANIC

In textile technology, organic refers to standards ensuring sustainable practices during all phases of fiber production. Beginning with every aspect of cultivation under the National Organic Program (NOP) guidelines, post-harvest wet processes such as dying and bleaching, textile fabrication, manufacturing of goods, transportation, worker environment, labeling/compliance, packaging, exportation and importation are comprehensively addressed.

Presently, there are no processing standards for organic fibers from the U.S. federal government beyond cultivation ending with the consumer.

For standards related to organic food, please see: http://www.ams.usda.gov/nop/indexIE.htm.

OXO-BIODEGRADATION

A two-step process that begins with degradation by oxidation, followed by biodegradation.

A variation of this developed for polymers, such as polyethylene, add a degradability component during the material's manufacturing. The added component allows the polymer to thermo- (heat), photo- (light) or hydro- (water) degrade within 90 days in a commercial composting environment.

It is purported that in non-commercial composting environments, the biodegradation will take place but at a much slower rate.

THE PRECAUTIONARY PRINCIPLE

The EEB (European Environmental Bureau 1999) defines the Precautionary Principle as follows:

2.1 The Precautionary Principle justifies early action to prevent harm and an unacceptable impact to the environment and human health in the face of scientific uncertainty

2.2 Precaution places the burden of proof on the proponents of the activity.

2.3 Precaution applies the substitution principle, seeking safer alternatives to potentially harmful activities, including the assessment of needs.

2.4 Precaution requires public participation in decision-making.

REACH (SEE MONTEBELLO AGREEMENT)

Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)

The European Union's REACH EC 1907/2006 regulation was established on December 18, 2006 and became law on June 1, 2007. The regulation's intent "should ensure a high level of protection of human health and the environment as well as the free movement of substances, on their own, in preparations and in articles, while enhancing competitiveness and innovation. This Regulation should also promote the development of alternative methods for the assessment of hazards of substances."

RECYCLING

The U.S. Department of Energy defines recycling as "the process of converting materials that are no longer useful as designed or intended into a new product."

RENEWABLE ENERGY

The U.S. Department of Energy defines renewable energy as "energy derived from resources that are regenerative or for all practical purposes cannot be depleted.

"Types of renewable energy resources include moving water (hydro, tidal and wave power), thermal gradients in ocean water, biomass, geothermal energy, solar energy and wind energy.

SPI Resin Identification Code

Recycling No.	Abbreviation	Polymer Name	Uses
1	PETE or PET	Polyethylene Terephthalate	Recycled to produce polyester fibres, thermoformed sheet, strapping, soft drink bottles.
2	HDPE	High-Density Polyethylene	Recycled to become various bottles, grocery bags, recycling bins, agricultural pipe, base cups, car stops, playground equipment and plastic lumber.
3	PVC or V	Polyvinyl Chloride	Recycled to become pipe, fencing and non-food bottles.
4	LDPE	Low-Density Polyethylene	Recycled to become plastic bags, various containers, dispensing bottles, wash bottles, tubing and various molded laboratory equipment.
5	PP	Polypropylene	Recycled into auto parts and industrial fibers.
6	PS	Polystyrene	Recycled into a wide range of products including office accessories, cafeteria trays, toys, video cassettes and cases, insulation board and expanded polystyrene products (e.g. styrofoam).
7	OTHER	Other plastics, including acrylic, polycarbonate, polylactic acid, nylon and fiberglass.	PLA or Polylactic acid plastics at 100% content are compostable in a biologically active environment in 180 days.

Source: The Society of the Plastics Industry, Inc.

This law is the most comprehensive legislation ever completed regulating all chemical substances. A full 401 pages of this 849 page document are 10 appendices that mostly call out carcinogens, mutagens and substances toxic to reproduction. The rest of the document outlines and defines the requirements of compliance.

REACH will affect chemical industries worldwide by requiring testing and registration with the European Chemicals Agency on any imported chemical substance over 1,000 kg in weight. Chemical substances manufactured in the European Union are subject to the same regulation.

RoHS

An acronym for Restriction of Hazardous Substances Directive (the lead-free directive).

Although not a law, the European Union passed this directive in 2006, limiting the use of six materials in any part of electronic and electrical products. The six materials limited by RoHS are: lead, mercury, cadmium, hexavalent chromium (chromium VI or Cr6+), polybrominated biphenyls (PBB) and polybrominated diphenyl ether (PBDE). PBB and PBDE are flame retardants used in some plastics.

Similar standards have been adopted in China, Japan, Korea and California. The U.S. federal government currently has no plans to adopt a similar directive.

"Municipal solid waste (MSW) is also considered to be a renewable energy resource."

SUSTAINABLE DEVELOPMENT

Economic, social (political) and environmental development that is harmonized for the good of all interests.

Many, including the United Nations, use the definition from the Brundtland Report *Our Common Future* that "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Others contend that this is not an operational definition and that the concept is best defined as "a socio-ecological process characterized by ideal-seeking behavior on the part of its human component," which is adapted from the work of Russell Ackoff and Fred Emery, among others.

Nevertheless, there are some that consider the phrase a greenwash oxymoron. To many, the concept of growth and depleting non-renewable resources are mutually exclusive.

ZERO WASTE

An approach to the cradle-to-cradle concept that includes reduction of product or process waste and consumption, plus advancing the notion of reuse, repair or return to the environment.