

Sustainable Product Certification: The Benefits of Producing “Green” Products and the Certification Process

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Traditional Approach to Product Manufacturing

- Linear process – inputs to outputs where many of the sources of chemicals/raw materials and their by-products may be toxic to human health and the environment during the manufacturing process
- The types of energy used in the manufacturing process are generally nonrenewable – oil, gas, and electric
- Companies need to move from traditional end-of-pipe control to newer and safer technologies
- “Cradle to Grave” process - the end of life of the product is generally in a landfill

Green Manufacturing Process

- A method of production that reduces waste and pollution through innovative product and process design, including the use of non-toxic or less toxic raw materials
- “Cradle to Cradle” process - generally circular and incorporates reuse/recycle practices
- Little damage to the environment or to human health during the entire life cycle of the manufacture of the product; lower energy consumption and biologically degradable or reused
- Green manufacturing cuts across every aspect of manufacturing – process technologies, energy consumption, material selection and material flow

Benefits of Green Manufacturing

- Investment in production process improvements versus control technology
- Development of innovative manufacturing systems that are less energy intensive and use and/or discharge less (or none) toxic materials
- Substitute finite resources for renewable ones
- Creates a favorable corporate reputation to the general public, saves unnecessary clean-up costs and promotes research and design of safer systems

Goal of Sustainability

“Sustainability” – characteristic of a process or state that can be maintained at a certain level indefinitely. The potential longevity of vital human and ecological support systems, such as the planet’s climate system, systems of agriculture, industry, forestry, fisheries and human populations and the various systems on which they depend

-- World Commission on Environment and
Development, 1987

What is Driving the Market to Sustainable Products?

- Climate change - the #1 reason that “sustainable thinking” has gone from an interesting concept to a massive market movement
- Pollution change – reduction of CO₂ emissions; cleaning up of the atmosphere via sustainable product manufacturing means cleaning up the water, soil, and air as well as social equity and worker’s rights
- Economic change – Climate change is embedded into every business and investment portfolio; Wall Street is beginning to factor corporate response to climate risk into their corporate evaluations

What Are Sustainable Products?

- Products providing environmental, social, and economic benefits while protecting human health, welfare, and the environment over their full manufacturing cycle, from extraction of raw materials to final disposition
- What benchmark is used to define a sustainable product? The true measure of a product's sustainability needs to consider every stage of the product's life by conducting a Life Cycle Assessment (LCA)
- The LCA is conducted from the extraction of raw materials to the end-of-life of the product.

Green Product Standards

- There is a wide array of product certification and labeling systems from which a manufacturer can choose to certify their product as sustainable
- Is the standard certified by a national and/or international certification body such as ISO or ANSI which require a higher level of consistency than many other systems?
- Multiple attribute vs. single attribute standards – have different achievement levels versus just one to differentiate between the environmental and social impacts of products of the same type
- Third party certification – review by an independent and unbiased third party is the most reliable method of verifying that a product is “green” or “sustainable”

Types of Green Product Identification Systems

- **Certification:** A complex system, usually involving a life cycle assessment (LCA), that has multiple science-based criteria for determining if a product qualifies to be certified as sustainable
- **Directory:** A “yellow-page” type listing of available green products
- **Labeling System:** A simple system in which a blanket, often single-attribute label is applied to all products

The Sustainable Product Certification Process - SMaRT

- A systematic process used to verify that a product meets the claims that it is sustainable from raw material extraction to the manufacturing process to the retailer/consumer and to the end-of life of the product
- SMaRT standard is one such standard – developed through the Institute of Market Transformation to Sustainability (MTS) using the ANSI accredited process
- Transparent – public has access to the certification criteria and the development methodology
- Requires third party auditing by an independent auditor who reviews any aspect of the product certification at their discretion
- Decertification provision with due process for failure to correct material errors including those from the audit

SMaRT Certification Process (con't)

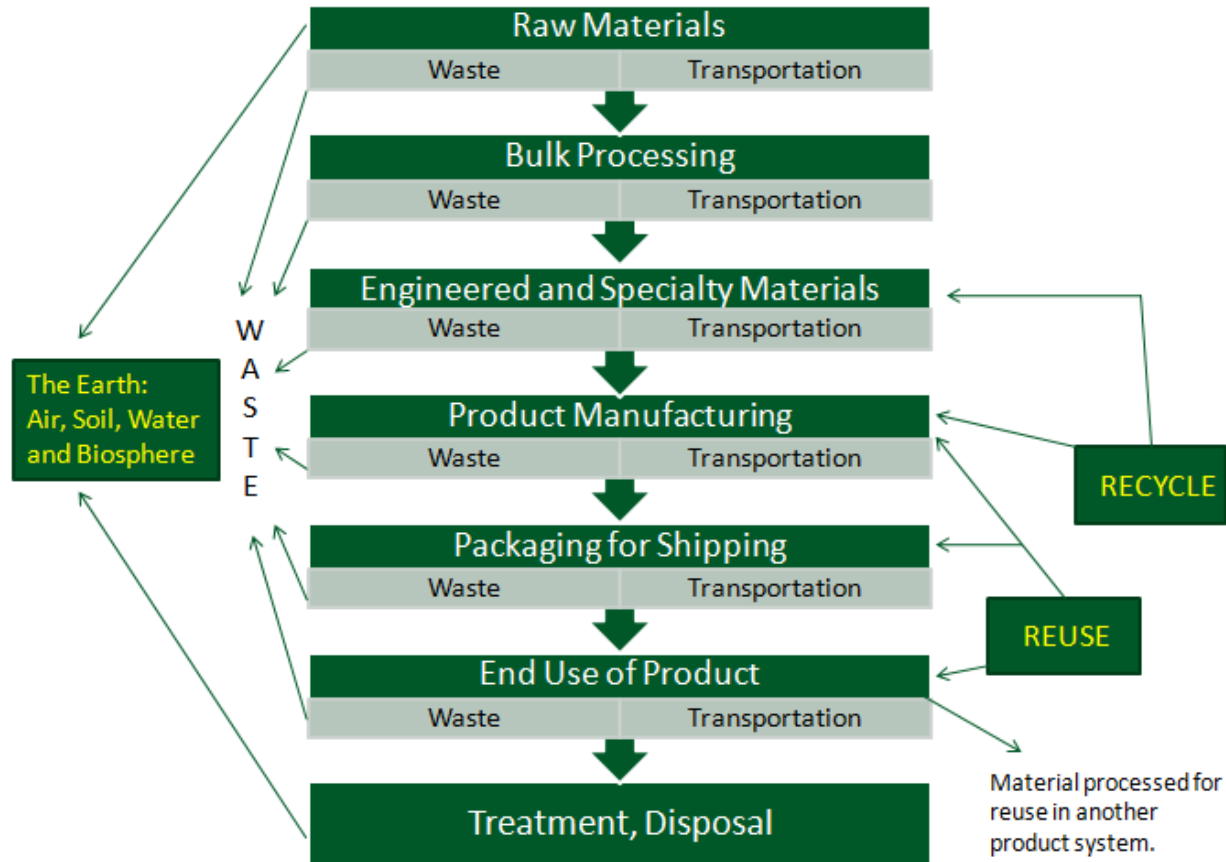
- Any product can be certified or assessed vs. standards designed for one particular product
- Specific provision for periodic improvement in the manufacturing process
- Multi-attribute standard - ensures multiple environmental, social, and economic benefits over the supply chain versus a single-attribute standard
- Uses an LCA in the certification process

LCA Process

- A quantitative decision-making tool that analyzes the economic and environmental impacts of manufacturing processes over their entire life cycles from cradle to end-of-life.

- Measures a product's environmental footprint against 12 environmental impact categories:
 - Global warming
 - Eutrophication
 - Natural Resource Depletion
 - Ecological Toxicity
 - Ozone Depletion
 - Indoor Air Quality
 - Acidification
 - Habitat Alteration
 - Solid Waste Generation
 - Human Toxicity
 - Smog Formation
 - Embodied Energy Content

LCA Diagrammatic Process



SMaRT Certification Process

- Phased Approach using a point-based system:
 - Phase 1: Discovery Planning
 - Phase 2: Compile Level 1 Prerequisite Documentation
 - Phase 3: Compile Levels 2 – 6 Credit Documentation
 - Phase 4: Completion of Manufacturers Application, Scorecard, Certified Sustainable Product Summary Sheet

Phase 1 – Discovery/Planning

- Identify certification goals, the process, and feasibility of achieving certification for the product
- Is a “product platform” certification desired and achievable vs. a single product certification?
- Outline documentation requirement of the certification standard
- Identify key project team members and client contact person

Phase 1 – Discovery/Planning (cont'd)

- Has an LCA already been conducted?
- Is there existing data and is it currently being tracked?
- Is there specific supply-chain data?
- Establish project schedule
- Establish certification budget based on the results of Phase 1

Phase 2 – Compile Level 1 Prerequisite Documentation

- Compile Level 1 prerequisite documentation - based on six matrix achievement levels defined in the SMaRT standard:
 - Safe for Public Health & Environment
 - Renewable Energy & Energy Efficiency
 - Bio-based or Recycled Materials
 - Facility or Company Based
 - Reclamation, Sustainable Reuse, End-of-Life Management
 - Innovation

- Conduct ISO-compliant LCA concurrently – can be done internally, by an LCA-contractor; takes several months to complete

Phase 3 – Compile Levels 2-6 Documentation

- Continue compiling documentation and determine total number of points achievable using SMaRT Scorecard

- Based on this scoring, achievement/certification level awarded to the product/product platform
 - Sustainable (28 to 40 points)
 - Silver Sustainable (41 to 60 points)
 - Gold/EPP Sustainable (61 to 89 points)
 - Platinum/EPP Sustainable (90 to 95 points)

Phase 4 – Completion of Certification Documentation

- Manufacturers Application
- SMaRT Scorecard
- Certified Sustainable Product Summary Sheet
- Submit to MTS with applicable fee according to certification level
- Third party audit conducted

The SMaRT Scorecard

SMART [®]		Sustainable Materials Rating Technology [®]		MTS	
SMART BUILDING PRODUCT STANDARD [®] SCORECARD					
Yes	?	No			
			Safe for Public Health & Environment (PHE)		31 Points
<input type="checkbox"/>			PHE 1-1	Feedstock Inventory Documentation	Required
<input type="checkbox"/>			PHE 1-2	Input Stockholm Chemicals	Required
<input type="checkbox"/>			PHE 1-3	Output Stockholm Chemicals	Required
<input type="checkbox"/>			PHE 3-2	Minimize Indoor Air VOCs	1
<input type="checkbox"/>			PHE 3-3	Minimize Indoor Air Carcinogenic VOCs	1
<input type="checkbox"/>			PHE 3-4	Green Cleaning Procedures	1
<input type="checkbox"/>			PHE 4-2	Minimize Indoor Formaldehyde Emissions	1
<input type="checkbox"/>			PHE 2-1	Inventory human and ecological health chemical emissions	2
<input type="checkbox"/>			PHE 2-2	Inventory Air, Water & Waste Pollutants	2
<input type="checkbox"/>			PHE 2-4	Reductions Beyond Compliance	8
<input type="checkbox"/>			PHE 3-1	10-25% Reduction in Toxic Chemicals & Media Pollutants	2
<input type="checkbox"/>			PHE 4-1	28-50% Reduction in Toxic Chemicals & Media Pollutants	2
<input type="checkbox"/>			PHE 5-1	51-75% Reduction in Toxic Chemicals & Media Pollutants	2
<input type="checkbox"/>			PHE 5-2	Supply Chain inventory and limit on Stockholm Chemicals	3
<input type="checkbox"/>			PHE 6-1	No or De Minimis Toxic Chemicals & Media Pollutants	3
			Renewable Energy & Energy Reduction (RE&ER)		36 Points
Manufacturing Facility Only:					
<input type="checkbox"/>			RE&ER 1-1	Energy Inventory	Required
<input type="checkbox"/>			RE&ER 2-1	1% Renewable Energy or 0.2-0.5% Energy Reduction (From Inventory Baseline) [*]	2
<input type="checkbox"/>			RE&ER 2-2	Cleaner & Greener Certification Level 2	1
<input type="checkbox"/>			RE&ER 3-1	2% Renewable Energy or 0.5-1% Energy Reduction	2
<input type="checkbox"/>			RE&ER 3-2	5% Renewable Energy or 1.1-2% Energy Reduction	2
<input type="checkbox"/>			RE&ER 3-3	8% Renewable Energy or 2.1-4% Energy Reduction	2
<input type="checkbox"/>			RE&ER 3-4	Certification of Climate Change Emission Reductions	1
<input type="checkbox"/>			RE&ER 4-1	11% Renewable Energy or 5-7% Energy Reduction	2
<input type="checkbox"/>			RE&ER 4-2	15% Renewable Energy or 8-20% Energy Reduction	2
<input type="checkbox"/>			RE&ER 4-3	20% Renewable Energy or 21-30% Energy Reduction	2
<input type="checkbox"/>			RE&ER 5-1	28% Renewable Energy or 31-40% Energy Reduction	2
<input type="checkbox"/>			RE&ER 5-2	35% Renewable Energy or 41-50% Energy Reduction	2
<input type="checkbox"/>			RE&ER 5-3	50% or More Renewable Energy or 51-100% Energy Reduction	4
Upstream Stages:					
<input type="checkbox"/>			RE&ER 5-5	1-9% Renewable Energy or 0.5-7% Energy Reduction	3
<input type="checkbox"/>			RE&ER 5-6	10-18% Renewable Energy or 8-20% Energy Reduction	2
<input type="checkbox"/>			RE&ER 6-1	19-27% Renewable Energy or 21-40% Energy Reduction	2
<input type="checkbox"/>			RE&ER 6-2	28-35% or More Renewable Energy or 41-100% Energy Reduction	4

^{*} For all Renewable Energy & Energy Efficiency (RE) percentages: Future energy reductions as measured by total energy reduced per square yard of product or over an entire facility involved in making the certified product. Point totals are additive for all percentages above 1%.

Certification Costs

- Certification application fee
 - Sustainable \$7500
 - Silver \$7500
 - Gold/EPP \$7500
 - Platinum/EPP \$10,000

- Cost of LCA – approximately \$10,000 to \$15,000 depending on level of complexity and amount of available product data

How Long Does it Take?

- Average time is 6 months depending on quantity and quality of required documentation
- LCA may be a limiting factor
- Certification application review and approval which includes third party audit – 60 days
- Third party certification establishes a high level database covering all aspects of the product assessment

Cost/Benefit of Sustainable Products

- It is often cheaper, at least in the short term, to produce a product with no regard for the environment than it is to produce a sustainable product
- Over the long-term, changes in process design, energy usage, and a lesser need for end-of-pipe controls ultimately save money and promote a healthier environment
- Sustainable products are becoming more popular to a growing sector of the population that is giving primary consideration to sustainability and the health of the planet

The Need For Sustainable Policy

- A sustainable policy must be introduced at all levels as every human being and every organization can make an impact of some kind. At the global level, the implementation of such policy has now become crucial to the continued survival of the species.
- If we continue to consume resources at a faster rate than they can be replenished, we will run out. We are just starting to see commitment globally to developing sustainable policy.