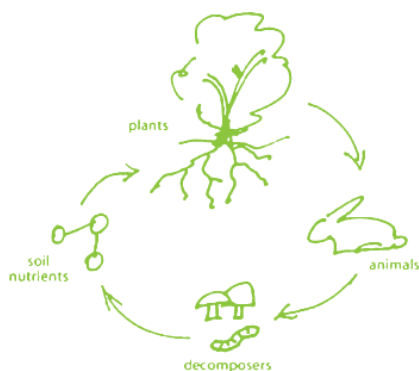
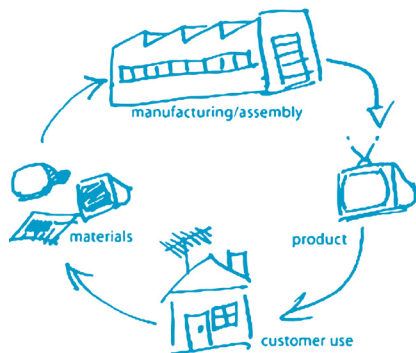




# Cradle to Cradle®



The Cradle to Cradle® design framework moves beyond the goal of only reducing an organization's negative impacts (eco-efficiency) by providing an engaging vision and comprehensive strategies for creating a wholly positive footprint on the planet (eco-effectiveness). Toward this end, products are designed to guard human and environmental health and to remain in infinite closed loop cycles.

'Biological nutrients' are derived from the biosphere and can biodegrade to build healthy soil. 'Technical nutrients' can be continuously recycled into new products of equal value without contaminating the biosphere. Systems are established to continuously and cost-effectively recover these materials from end-of-life products and then safely biodegrade them or recycle them. In addition, manufacturing operations should be powered by 100% renewable energy, maximize water quality and water efficiency, and respect people and ecosystems.

These principles are outlined in the book 'Cradle to Cradle: Remaking the Way We Make Things' written by designer William McDonough and chemist Dr. Michael Braungart.



McDonough Braungart Design Chemistry (MBDC) is a global sustainability consulting firm founded in 1995 by William McDonough and Dr. Michael Braungart.

MBDC helps companies regenerate people, profits, and the planet by implementing the Cradle to Cradle® design framework. MBDC is the originator of and the leading service provider for the Cradle to Cradle Certified<sup>CM</sup> program.

Cradle to Cradle® is a registered trademark of MBDC, LLC.

Cradle to Cradle Certified<sup>CM</sup> is a certification mark licensed by the Cradle to Cradle Products Innovation Institute™.



## Case Study of Climatex® LifeCycle™: Waste Equals Food

The Cradle to Cradle® framework calls for products to be designed to regenerate the ecosystem as biological nutrients or to regenerate industries as technical nutrient. William McDonough and Michael Braungart helped Rohner Textil (now owned by DesignTex) design a completely compostable fabric that can go in a garden after use. Previously product scraps were regulated in Switzerland as hazardous waste due to the problematic dyes used in the product. Using the Cradle to Cradle motto of 'waste equals food,' McDonough and Braungart sought materials to put in the fabric that were 'safe enough to eat.'

They asked suppliers for the full composition of their ingredients in order to assess their degree of healthiness. Ciba-Geigy was the only dye manufacturer to agree to share its proprietary formulations. Out of the hundreds of chemicals analyzed, only 16 nontoxic dyes were selected to rebuild the fabric line.

The resulting fabric, Climatex® LifeCycle™, uses only natural materials (wool and ramie) and nontoxic dyes. Instead of going to a landfill, its scraps are now shredded into a felt-like sheet and sold to local farmers and gardeners as mulch.

## Achievements

- By 2002, Climatex Lifecycle accounted for a third of Rohner's approximately \$8 million in revenues
- Waste disposal costs were drastically reduced, since Rohner Textil no longer had to pay to send trimmings to Spain as hazardous waste or to be burned at a Swiss regulated incinerator or to
- Overall production costs were lowered by simplifying the dye list and eliminating the need for filtering of dyes and chemicals in the production process.



# Cradle to Cradle Certified<sup>CM</sup> Program

Cradle to Cradle Certified<sup>CM</sup> is a multi-attribute ecolabel administered by the Cradle to Cradle Products Innovation Institute<sup>TM</sup> that assesses products for safety to human and environmental health, design for recyclability or compostability, and responsible manufacturing processes. For more information about the Cradle to Cradle Products Innovation Institute, visit [www.C2Ccertified.org](http://www.C2Ccertified.org)



## Criteria Categories

A certified product must meet requirements in five categories:

- MaterialHealth (impact on human & environmental health)
- Material Reutilization (recyclability or compostability)
- Renewable Energy Use
- Water Stewardship
- Social Responsibility



## Levels of Certification

Products can be certified at four levels (Basic, Silver, Gold or Platinum) to reflect a progression of achievements. At each level, the product must meet the criteria for that level in all five categories.



## Eligibility

Products or materials from any industry that are sold to either consumers or businesses are eligible for certification. Certification criteria are the same for all product types. The Cradle to Cradle Certified<sup>TM</sup> program does not apply to people, businesses, buildings, or processes.



## Results

- External verification of a product's design for future life cycles and safety for human and environmental health
- Expert assessment of toxicity hazards of all product ingredients throughout the supply chain
- Defined trajectory for optimizing product design and manufacturing processes
- Differentiation from competitors and enhancement of brand value

# Cradle to Cradle Certified<sup>CM</sup> Criteria Categories



Each product will be evaluated in five criteria categories with increasing requirements for higher levels of certification. A summary of each category is described below.

For a list of the full program criteria, go to [www.C2Ccertified.org](http://www.C2Ccertified.org).

## Material Health

Every chemical in a product above 0.01% (100ppm) is inventoried and then assessed against 19 human and environmental health criteria. Each material is then given a hazard rating of Green, Yellow, Red or Grey. All manufacturers are required to optimize the healthiness of their products with the goal of eliminating all toxic and unidentified chemicals.

## Material Reutilization

Each product must have the ability to biodegrade safely as a biological nutrient or be recycled into new products as a technical nutrient. All manufacturers are required to develop and implement a strategy to close the loop on the product at the end of its useful life with the goal of 100% product recovery and reuse.

## Renewable Energy Use

The energy requirements to manufacture a product during its final assembly must be calculated. All manufacturers must commit to increasing the use of renewable energy during the manufacturing process with the goal of using 100% renewable energy throughout the supply chain.

## Water Stewardship

Product manufacturers are expected to operate in a way that respects the need for all living things to have clean water with the ultimate goal of water leaving the factory cleaner than when it came in.

## Social Responsibility

Manufacturers are expected to practice business in a way that respects the health, safety, and diversity of all living things and strives towards a wholly positive impact on their communities.

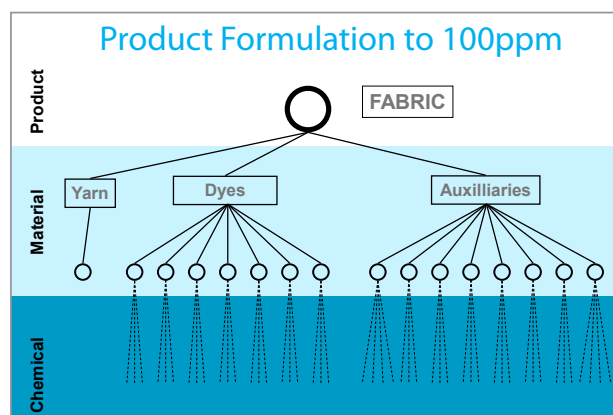
# Cradle to Cradle Certified<sup>CM</sup> Process



The process to evaluate a product for certification involves **Inventory, Assessment, and Optimization** in each of the five criteria categories with increasing requirements for optimization at the higher levels of certification. The process is outlined below for the **Material Health Category**.

## Inventory

The product formulation of each product down to 0.01% (100ppm) must be obtained. As a service provider, MBDC works with a manufacturer to collect formulation information throughout the supply chain.



## Assessment


Each chemical in the product is assessed against 19 human and environmental health criteria, and then given a color-coded rating:

- **Green:** Little or no risk, Preferred for use
- **Yellow:** Moderate to Low risk, Acceptable for use
- **Red:** High risk, Must be phased out
- **Grey:** Incomplete Data, Not fully characterized

## Optimization

In order to be certified, each material in the product must be inventoried and assessed. If a product contains any Red or Grey materials, the manufacturer must commit to phasing out the material. At the Gold and Platinum levels of certification, a product must only contain Yellow and Green

# Benefits of Cradle to Cradle Certified<sup>CM</sup>

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- Use of the Cradle to Cradle Certified<sup>CM</sup> marks and promotion of certified products by MBDC and its partners
  - Eligibility for points in USGBC's LEED Rating Systems ([www.usgbc.org/leed](http://www.usgbc.org/leed))
    - Environmentally Preferable Material Point in LEED for Existing Buildings: Operations and Maintenance under the Sustainable Purchasing category
    - Innovation in Design Credit under all LEED Rating Systems
  - Eligibility to sell to federal agencies through the U.S. EPA Environmentally Preferable Purchasing Program ([www.epa.gov/epp](http://www.epa.gov/epp))
  - Eligibility to sell on eBay's site for socially and environmentally just products ([www.worldofgood.ebay.com](http://www.worldofgood.ebay.com))
  - Eligibility to be listed in GreenWizard's web-based software, which is used by architects, engineers, and contractors to compare green building materials ([www.greenwizard.com](http://www.greenwizard.com))
  - Eligibility to be included in Material ConneXion's virtual and physical material libraries ([www.materialconnexion.com](http://www.materialconnexion.com))
  - Ability to earn points towards becoming a Certified B Corporation and join a community of companies that use the power of business to solve social and environmental problems ([www.bcorporation.net](http://www.bcorporation.net))