Ecochain

Methodology document – Life Cycle Assessments (LCA) of Green Ray products

This document outlines the approach to create transparency regarding the environmental benefits of Green Ray products.

Objective

Green Ray products are products with a proven environmental performance, backed up by scientific calculations. The measurement method used for these results, is called Life Cycle Assessment (LCA) - performed in Ecochain's tool Helix. An LCA is a scientific methodology for assessing environmental impacts associated with all the stages of the life cycle of a commercial product, process, or service. For example, in the case of a manufactured product, environmental impacts are assessed from raw material extraction and processing (cradle), through the product's manufacture, distribution and use, to the recycling or final disposal of the materials composing it (grave).

There are many levers to enhance the environmental performance of consumer products such as:
(1) working with suppliers that use renewable energy,
(2) using circular materials for its products,
(3) innovative technologies that extend the lifetime of products,
(4) logistics optimization.

All these measures may lead to improved environmental performance, although each measure has its own impact characteristics. By means of a Life Cycle Assessment, the environmental benefits of a product can be measured as it uses a holistic view that considers the entire value chain - as well as the complete spectrum of environmental impacts.

Impact Assessment with Ecochain

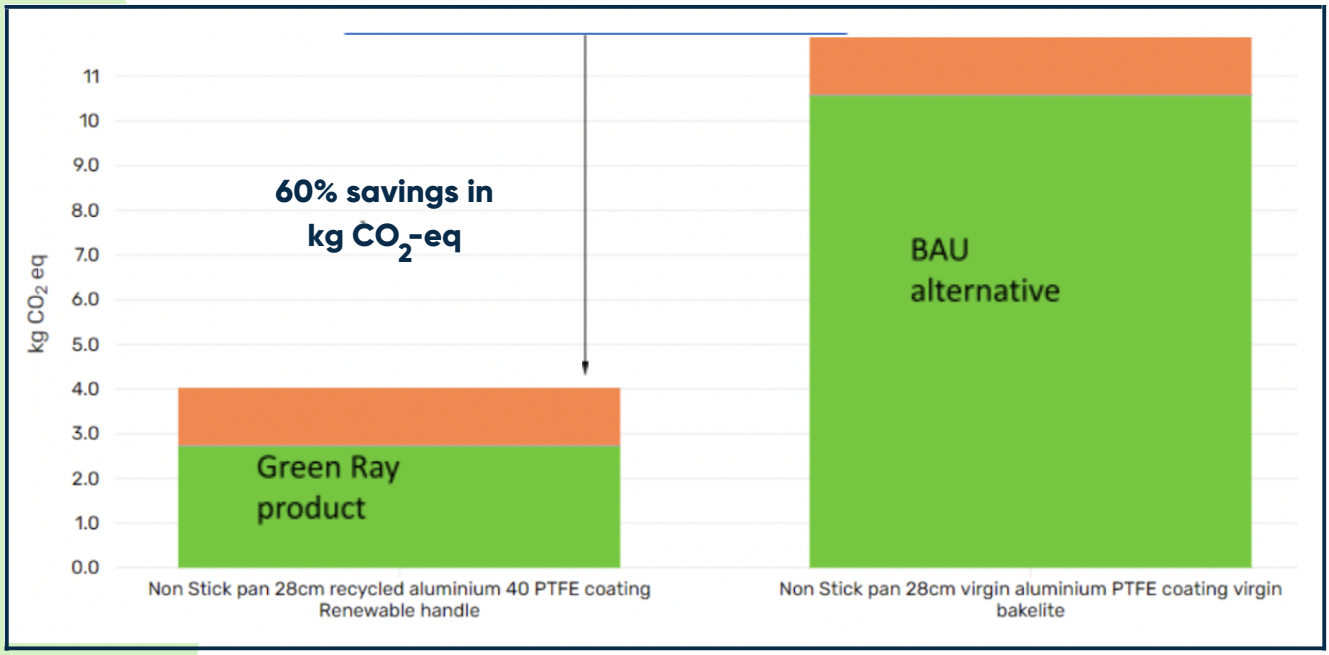
Ecochain

Green Ray products: impact reduction and offsetting

Green Ray products are products that have a (proven) superior performance in comparison to 'business as usual' (BAU) alternatives. **The BAU alternative** has the following characteristics:

(1) it uses the market average for renewable content,
(2) it has a market representative supply chain,
(3) no breakthrough innovations are used to manufacture the product,
(4) it uses regular production technologies.

For all Green Ray products, the environmental benefit in comparison to the BAU alternative in terms of **The Global Warming impact (kg CO2 equivalents) across the entire life cycle (x% kg CO2-eq savings)** are disclosed. This disclosure will help the user of the project understand how it contributes to reducing global warming in comparison to a regular product. The quantified kg CO2-eq impact of the Green Ray product is also used to offset the remaining emissions.



Approach, assumptions and references

To support the analysis, the following assumptions have been used:

- The principles of ISO14040/44 have been applied
- The Impact standard of EF 3.0 has been used.
- The LCA scope is typically 'cradle to gate', unless the environmental benefits (or disadvantages) impact the use or end-of-life phases. Depending on the product type, representative parts of the life cycle may be considered: e.g. in the case of containers, the entire life cycle is relevant due to the fact that major impacts occur at the end of the life cycle (waste processing).
- Where relevant & material, packaging materials are included.
- To account for the environmental impact of raw materials, environmental references from various environmental databases have been used (mainly based on 'EcoInvent').
- Primary data from suppliers is included whenever available: e.g. in the case of cookware, secondary Aluminum from cans is used as main material input. In this case, primary production data from the recycling process was used to quantify the footprint of the secondary material.
- Within the calculations, the primary focus is on kg CO2 eq emissions. However, other environmental parameters (such as acidification, eutrophication, particulate matter emissions) are also considered in the assessment. In this way, a potential worsening of other impacts as a result of Green Ray products, is prevented. However, they are not disclosed in detail in the Green Ray documentation.