

SUSTAINABLE TIMES



American
Packaging
CORPORATION

Delivering the total package.™

QTR 3 2023 | ISSUE 19



QUANTIFYING THE VALUE OF SUSTAINABLE PACKAGING

The sustainability movement is a significant motivator for brands to consider redesign of their packaging. Often, the objective is to transition to a laminate that can serve a second a life through recycling or compost. However, reducing the complexity of the laminate, using less materials, seeking responsible sourcing, simplifying the supply chain, or lowering cost are often additional motivators. With all the different options to consider and the lack of any industry standards and regulations, how does a brand quantify the value of sustainable packaging?

Life Cycle Analysis (LCA) is one of the tools that measures the environmental impact of a product throughout its life cycle. The LCA tracks the resources required to produce a product from resource extraction through disposal. Two categories of LCA analysis can be conducted including both Cradle to Gate and Cradle to Grave. The main differentiator between the two is that the Cradle to Grave includes both the use stage and end of life considerations as shown in the figure below.

QUANTIFYING THE
VALUE OF SUSTAINABLE
PACKAGING | PG 1-2

EMISSIONS | PG 3

OUR MISSION | PG 3

QUANTIFYING THE VALUE OF SUSTAINABLE PACKAGING

There are several factors that can be evaluated in a Life Cycle Analysis. The most popular factors evaluated within this analysis include the following:

- **Fossil Fuel Usage** which considers the total quantity of fossil-fuel consumed
- **Global Warming Potential** which considers the total quantity of greenhouse gas emissions
- **Water Consumption** which considers the water remaining in a watershed after the demands of manufacturing and consumption throughout the life cycle.

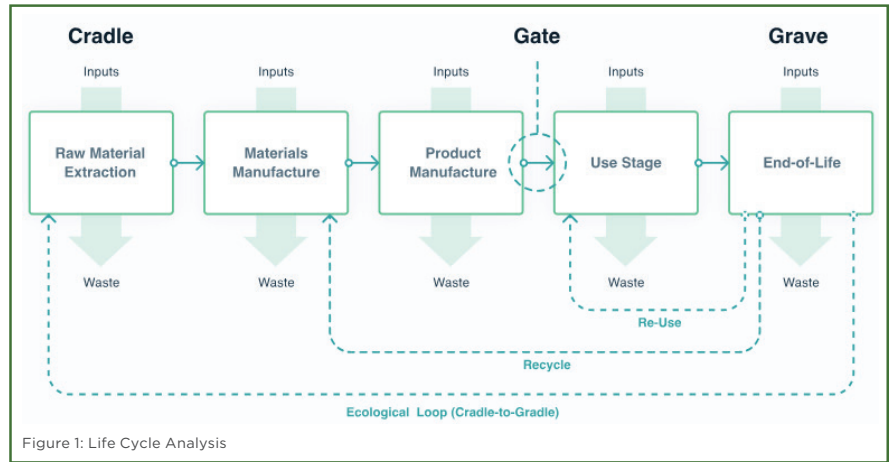


Figure 1: Life Cycle Analysis

See the following examples to help illustrate the benefits of a life cycle analysis.

Example 1: Consider the case where we want to evaluate the benefits from downgauging the sealant. In this example, the customer was interested in learning the benefits of downgauging the LLDPE sealant from 3 to 2 mils in thickness.

The diagram shows a cross-section of a packaging structure. On the left, the structure consists of three layers: 48 ga PET (top), Ink (middle), and 3mil LLDPE (bottom). A blue arrow points to the right, where the structure is shown with the same top two layers, but the bottom layer is now 2mil LLDPE.

The results of this LCA analysis was favorable for all factors as the transition yielded significantly lower fossil-fuel use, lower global warming potential, and water consumption.

Fossil Fuel Use	-25.60%
Global Warming Potential	-24.33%
Water Consumption	-28.36%

Example 2: Consider the case where a brand is interested in evaluating the benefits from including post-consumer recycled content into their package. In this case, their target was 30% PCR overall, so we included 90% PCR into the polyester film layer and 16% into the LLDPE sealant.

The diagram shows a cross-section of a packaging structure. On the left, the structure consists of three layers: 48 ga PET (top), Ink (middle), and 3mil LLDPE (bottom). A blue arrow points to the right, where the structure is shown with the same top two layers, but the bottom layer is now 3mil LLDPE (16% PCR). The top layer is now 48 ga PET (90% PCR).

The results of this LCA analysis was also favorable for all factors as the transition yielded significantly lower fossil-fuel use, lower global warming potential, and water consumption.

Fossil Fuel Use	-18.36%
Global Warming Potential	-9.45%
Water Consumption	-20.18%

If there is interested in learning more about the benefits of using this tool, please inquire and we can assist you.

EMISSIONS

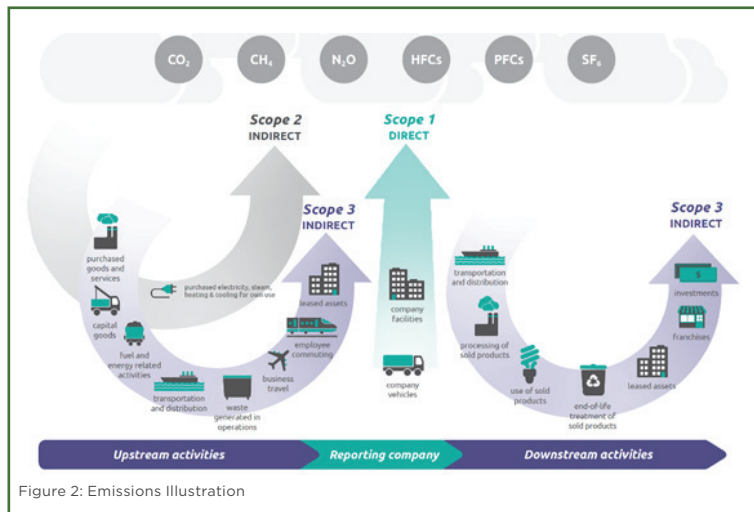
The topic of emissions is garnering greater attention in every industry. Daily, the news briefs often contain headlines of companies issuing press releases regarding their targets to reduce their emissions or focus on net zero emissions. In fact, in mid-September, Mars just issued a press release that they are pledging US \$1B investment in net zero emission plans which is a good example of the emphasis companies are placing on this topic.

Why the sudden interest in emissions reductions? The answer dates to 2015 when the Paris Climate Agreement was executed, targeting warming restrictions to 1.5 °C above pre-industrial times. Since that time, there has been much activity with regards to the development of science-based targets. Companies are now focusing on complying with those targets. This means that companies need to work on cutting emissions in their operations.

When we hear the term emissions, there are three categories which include Scope 1, 2, and 3.

- Scope 1 emissions includes emissions from operations within their facilities and company vehicles
- Scope 2 emissions include the purchasing of electricity, steam, heating, and cooling.
- Scope 3 are externally influenced by the supply chain and includes items such as

purchased goods and services, capital goods, transportation, waste, commuting, as well as a number of additional categories as shown in the figure. This topic continues to grow momentum and is an additional



element that is more frequently discussed within the context of sustainability. Look for more updates in the future as APC makes progress in this area.

OUR MISSION

Sustainable Times is a quarterly newsletter compiled by American Packaging Corporation that is designed to educate, provide industry highlights and keep you informed of sustainable

solutions being developed by APC. If you have any questions, please feel free to contact your sales representative or Jeff Travis at jtravis@americanpackaging.com.