



FROM PLASTIC TO PCR: HOW ONE INDUSTRY LEADER MET THE CHALLENGES OF SUSTAINABLE PACKAGING

When a major consumer goods organization wanted to incorporate more PCR materials into its packaging, Dassault Systèmes made it happen with the power of simulation.

“ Sustainability is huge for us. It's at the core of our company vision and purpose, and packaging is a big part of that. Plastic reduction is super important for that agenda and Dassault Systèmes is helping us progressively optimize our designs so we can make sure we're minimizing material usage.”

- Sustainable Packaging Director

Developing sustainable products means keeping emissions in check. In the packaging industry, this is no small challenge.

For one global organization, this translates to reducing the environmental impact of millions of products while maintaining high-performance standards and meeting consumer demands.

Clearly, its commitment to reducing plastic usage and increasing the integration of PCR (post-consumer recycled) materials into packaging required a transformative approach.

With plastic pollution escalating as a worldwide concern, the question looms large: How can packaging go beyond reducing waste to delight consumers, minimize material usage and support the principles of a circular economy?

By adopting sustainable practices and streamlining product development processes, the organization has advanced closer to its target of creating sustainable packaging solutions.

Uncover how Dassault Systèmes' innovative solutions are shaping a more resilient future for packaging product development while minimizing resource consumption.

About the Customer



Industry:
Consumer goods manufacturer



Company size:
102,000 employees



Location:
Strong presence in more than 185 countries worldwide

Use case:

Deployment of SIMULIA on the **3DEXPERIENCE®** platform to improve the environmental footprint of product packaging by incorporating PCR materials over plastic, thinning out packaging for weight reduction and maximizing resource efficiency.

The EU Taxonomy

This case study focuses on the estimated contribution to the objectives of **Climate Change Mitigation** and **Transition to a Circular Economy**.

Results

240tCO2e

Avoided emissions¹ for 10 million unit sales per year

18%

Mass material reduction per bottle

IN A NUTSHELL



The challenge

The customer's key challenges stemmed directly from its:



I. Business needs

- a. The need to increasingly employ recycled plastic in packaging while maintaining product performance and consumer appeal
- b. Accelerate the transition toward a circular economy



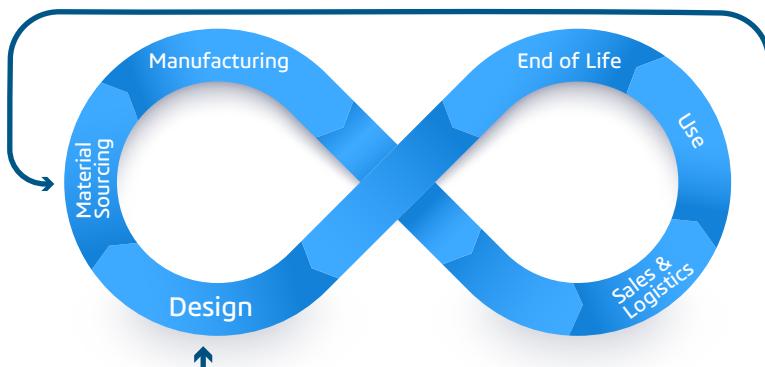
II. Operational requirements

Manage design-material optimization to streamline production, ensuring packaging can be produced in billions of units without compromising performance or reliability.



The solution

Dassault Systèmes' approach addressed two crucial parts to achieve this objective:



A. Software used during the **design** phase

B. Primary benefits observed during the **material sourcing** phase



The outcome

By leveraging SIMULIA on the **3DEXPERIENCE** platform, packaging designs were successfully optimized to increase the proportion of PCR materials, make more lightweight packaging and minimize overall material use — all while ensuring peak product performance. In turn, these improvements accelerate the transition to a circular economy.

This advanced modeling and simulation approach streamlined the design process, enabling faster iteration and testing while balancing stakeholder requirements. The ability to run sensitivity studies and evaluate design robustness ensured seamless integration of PCR materials, supporting mass production without compromising performance or reliability.

Throughout this packaging effort, SIMULIA was instrumental in capturing and managing clear, quantified requirements within the platform, integrating them right from the design stage. This capability enabled precise simulations, making it more efficient to design, test and optimize sustainable and more circular packaging solutions.

Real-time collaboration and improved visibility on the **3DEXPERIENCE** platform enabled informed, data-driven decisions throughout the production process, helping achieve circularity and sustainability goals more efficiently.

OUR RECOMMENDATIONS AND METHODS

Adoption of Dassault Systèmes' **advanced modeling and simulation** solution on the **3DEXPERIENCE** platform.

The **avoided emission estimation** was estimated following the:

EU Taxonomy (Regulation Guideline), ISO 14067, 11044 and Guidance of WBCSD Net Zero Initiative Guidelines.

Methodology based on the comparison of two scenarios for one given functional unit (ISO 14067:2018 and ISO14064-2:2019).

3DS methodology has been certified by an independent third party and elaborated in compliance with the EU Taxonomy (Regulation Guideline), ISO 14067, 11044 and Guidance of WBCSD Net Zero Initiative Guidelines. The end result expressed in tCO2e remains an estimation.

THE END RESULT

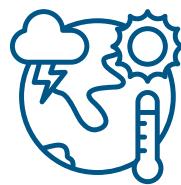
Reduced material consumption



18%

reduction in plastic usage

Climate change mitigation



240tCO2e

avoided emissions¹ for 10 million unit sales per year

Higher recycled material usage



Achieved

76%

recycled material incorporation, up from 10%, via our solutions

Transition to a circular economy



To learn more, visit our website.

¹Each of these case studies is a past or current project for which emissions avoided or reduced have been estimated following EU Taxonomy (Regulation Guideline), ISO 14067, 11044 and Guidance of WBCSD Net Zero Initiative Guidelines. The 3DS approach and these calculations, along with the allocated contribution of the software, have been certified by an independent third party. External View URD 2023, Chapter 2.