DASSAULT SYSTEMES | The 3DEXPERIENCE® Company

The Power Of Virtual Testing

Dassault Systèmes Perfect Package solution helps companies balance the consumer experience, material costs and manufacturability in a single platform.

Packaging is playing an increasing important role on the success or failure of a product. The right packaging can move consumers to put your product in the basket. A mistake can cost a company millions in lost sales.

Package design efforts are often scattered across multiple groups and suppliers using different systems. This can lead to rework, delays, higher costs, and quality issues. This fragmentation prevents teams from understanding how changes to improve sustainability may impact others.

Virtual testing enables designers and engineers to simulate how a new bottle design will behave at every stage of its lifecycle, lowering costs, improving sustainability and driving consumers to put their products in shipping baskets.

Simulating Freshness to Delight Consumers

An ice-cold soft drink on a hot day can be one of life's reliable pleases. But what happens when this joy falls flat: when you twist off the top, there is no fizz. For consumers, it can be summed up in one word: disappointment.

Engineers who design bottles know exactly what happened. Too much carbon dioxide escaped in transport and storage before the consumer opened it. They need to design packages to ensure beverage quality and freshness while creating the optimum package for filling and transport.

This requires manufacturers to gain a deeper understanding of how to maintain premium quality and taste of high-volume beverages under challenging manufacturing and shipping conditions in a variety of locations around the world.

Engineers at this leading global beverage manufacturer used Dassault Systèmes Perfect Package simulation capabilities to optimize their packaging. Engineers can quickly iterate to optimize the shape and materials of the package and then simulate the effects on the bottle of stacking, crushing, dropping, and sloshing to prove-out their designs, quickly and cost-effectively modifying the shapes to make bottles lighter, thinner, stronger, and so on.

This significantly shorts both the time to market and the cost to design and qualify new packaging for their product initiatives while making sure that consumers hear the wonderful fizz every time. Download the case study "Bubbles in, Air out: Realistic Simulation Helps Keep the "Pop" in Soft Drinks."

Click here to download the case study
"Bubbles in, Air out: Realistic Simulation Helps Keep the "Pop" in Soft Drinks." ❯

Optimizing Bottle Thickness to “Go Green” while lowering costs

Shaving a few grams from a package can translate into millions of dollars saves while helping to drive more sustainable products. Amcor is the world’s largest supplier of PET containers and produces about 25 billion units of bottles, jars, cans and other product configurations per year. Multiply that number by even a few grams saved per unit and the sustainability impact is staggering.

Amcor uses virtual testing to stay on top in the plastic container market by using **Perfect Package** industry solution experience by Dassault Systèmes to create lighter-weight higher performance product solutions that lower everyone’s cost along the supply chain from raw materials to transportation.

Perfect Package allows Amcor to create better packages while cutting design time in half, improving communication between designers and engineers and reducing the need for physical prototypes by using realistic simulation to virtually test the behaviors of the bottles under diverse stresses and loads while still in the design phase. This helps them cut design cycle time to nine months from 12 to 18 months previously.

Click here to download the Amcor case study **“Lighten Up!”** to learn how they used the realistic simulation tools to better serve their customers while saving money and improving sustainability at the same time. ›

Reduce CO_2 emissions and lowering transportation costs

Saint-Gobain is the second largest glass bottle and jar manufacturer in the world – with a yearly production of roughly 25 billion containers. Research engineers working at Verallia, Saint-Gobain's Research Center, near Paris, wanted to create a more eco-friendly and cost effective glass bottles for their customers bottling champagne and sparkling beverages.

A champagne bottle weighs about twice the amount of a regular bottle. This is required to contain the pressures produced by its carbonation; reported to be three times that of a typical car tire. These thicker bottles account for 60 to 75 percent of the total weight. Shaving a few grams of weight can save millions in raw material costs and significantly reduces its ecological impact.

Saint Gobain used realistic simulation provided by Dassault Systèmes' Perfect Package Industry Solution Experience to:

- Explore effects of bottle materials on thickness and weight
- Control buildup of pressures to avoid breakage
- Evaluate the performance of lighter, less-expensive, and environmentally-friendly beverage packaging.

Saint Gobain automated the simulation process and was able to complete their analysis in about an hour compared to the week it normally took to run the 100 simulations needed for this optimization. They were able to cut the weight and materials of their packages by 10 percent which has a significant impact on the energy and CO_2 emissions it takes to make and transport the champagne we love to drink.

Download the Saint Gobain case study
"Keeping Carbonation Bottled up with FEA." ›

Simulating Every Step of the Design and Manufacturing Process

Packaging and manufacturing engineers can work together to translate package concepts into optimize designs for production by using a common packaging platform.

All of the engineers have access to the latest package designs and then they can run tests using simulations and automated tools. Package engineers can look for ways to lessen the amount of material used to make a "greener" package. Manufacturing engineers can analyze the bottle to make sure it can be made, packed and shipped in the most efficient way, lowering manufacturing costs and minimizing impact to the environment.

Packaging companies and Consumer Packaged Goods manufacturers use simulation to lightweight package designs, reduce raw material costs and cut energy needs, while maintaining the strength and resistance to breakage. This reduces the CO_2 emissions while creating a package the consumer will love. This is a true Win-Win, good for business and good for the planet.

Learn how the Perfect Package Industry Solution Experience by Dassault Systèmes can help integrate design, engineering and simulation into a single platform and cut design time 50% and lower material costs 30 to 50% while improving sustainability and consumer delight.

Learn more about Dassault Systèmes Perfect Package Industry Solution Experience and how it can help your company design winning packages while improving sustainability of the planet and your bottom-line. ›

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TOP