

Unbiased global packaging intelligence and analysis

**Keeping Up With Innovation**

For the longest time, the primary function of packaging was to protect the contents, and packaging solutions, for the most part, focused on this. While protection is still important today, packaging designs are now also required to give equal concern to many other, often conflicting, requirements including branding goals, continually changing consumer preferences, and lightweighting. As a result, what is considered superior packaging changes fast.

By relying more and more on simulation, packaging manufacturers can accelerate development of new solutions through rapid verification using virtual models, thus reducing reliance on the slow, costly process of physical testing. Computer-aided engineering (CAE) methods help in understanding product performance attributes and making informed development decisions. This is made possible by advanced tools that can simulate, more or less, all packaging materials – metal, plastics (rigid or pouches), glass, paper, corrugated containers, etc.

By evaluating multiple variations of virtual prototypes, packaging designers can find new innovative solutions faster and at lower cost. Simulations help them increase product reliability and ease-of-use for consumers, while minimizing the amount of material needed for manufacturing.

To gain maximum value from simulation practices, progressive packaging companies have successfully implemented “Virtual



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“Packaging Design” solutions that allow use of virtual tests with consistent creation of accurate results by all of their designers, avoiding the need for analysts to perform routine tests.

Standard tests performed in virtual design environments include, for example:

- Top Load (filled and unfilled)
- Temperature Cycling (shape retention, permanent deformation)
- Pressure/Vacuum (pressure retention, permanent deformation)
- Drop (single bottles, filled and unfilled; impact full bottles in cases)

Key success factors necessary for the most effective simulation of packaging solutions consist of:

- The ability to perform not only single but multiple disciplines simultaneously, e.g. stresses created by liquid content and their impact on the container to perform accurate drop tests
- The capturing of expert knowledge for repeatability of best practices and the possibility to create a customized virtual testing environment targeted for packaging

When used as integral parts of the packaging design process, simulation is a key asset that

allows companies to innovate faster while addressing all customer requirements. **PS**

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