Be a Consumer
Brand Standout

Realism in 3D Printing is a Game-Changer

VeroUltra™ Black

Mix of VeroVivid™ CMY

Full-Color Texture

VeroUltra™ Clear

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Anyone who's ever shopped for personal care items, groceries or even dog food knows the value of packaging to sway our buying decisions. With a 30-minute shopping trip exposing us to an estimated 20,000 product choices, it's clear – design matters.

So what does this mean to a designer? It means realistic prototypes help shorten the design cycle, speed approvals and accelerate time-to-market.

Traditionally, consumer product packaging involves five stages before manufacturing: concept generation, product engineering, sampling, testing and brand consistency. The full process generates between 10 and 100 prototypes per development cycle, which can become very costly, very quickly. This is especially true when external vendors are tasked with creating realistic prototypes for each stage of the development process.

On average, each stage requires prototypes that can cost on average $1500 to cover labor, tooling, painting, hand finishing, machining and color matching. At that rate, one product requiring 35 prototypes during the development cycle could cost almost $21,000. Imagine what the total prototyping cost becomes when several products requiring multiple packaging iterations are developed during each cycle.

The ability to see, touch and hold realistic prototypes is a powerful communication tool in marketing and focus-group efforts.

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Consumer goods prototyping process
Digital vs. Traditional

Concept Design
10-20 Concept Models

Designers quickly iterate new ideas in 3D using draft single-color models to help visualize and feel the concept designs.

Model Average Cost

| Traditional | $400 |
| PolyJet™ | $170 |

Detailed Design
10-20 Design & Engineering Models

Testing design and engineering fine details, split lines, form and fit, assemblies and components.

Model Average Cost

| Traditional | $470 |
| PolyJet™ | $210 |

CMF Design
1-10 Design Appearance Models

Full-color models including labels and graphics, transparencies, texture and surface finish are created to validate the final designs.

Model Average Cost

| Traditional | $1,500 |
| PolyJet™ | $800 |

*Calculations are based on a typical consumer goods design process which includes 35 design prototypes and model size of 15x10x5cm, during a workday to the value of $500 where only 20% affects the cost per prototype. Including the cost of labor, tooling, painting, machining and color matching. Not including hardware.

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This process as a whole can take months, depending on how many products and stakeholders are at play and how many design iterations are required.

Full-color 3D printing has emerged as a highly useful tool in the fast-moving consumer goods industry. This additive process saves both time and money and roughly 25% of companies in consumer goods have adopted 3D printing, with the number of adopters expected to climb every year.

Leaders in the consumer goods industry understand that in order to be successful and increase sales, they must create packaging that looks great while also being practical, technically innovative and low on material waste. 3D printing gives these leading brands the speed and design freedom to determine successful packaging, fast. More importantly, 3D printing helps top companies get to market quicker than their competitors by eliminating months from the development process.

Leading brands know it's most beneficial to use 3D models at the beginning, middle and end of a design cycle. More iterations at the start means design flaws are discovered early and resolved with enough time to test (and test) again. Key features are validated with speed and the design is finalized with confidence, making it a smooth transition to manufacturing. When packaging is only prototyped at the end of the cycle, there is often not enough time or money left to make the changes that will ensure success in the market.

Maximize 3D Printing At Every Stage

The entire workflow can move faster and be more efficient when using full-color, multi-material 3D printing at every stage of development, from ideation to testing and beyond.
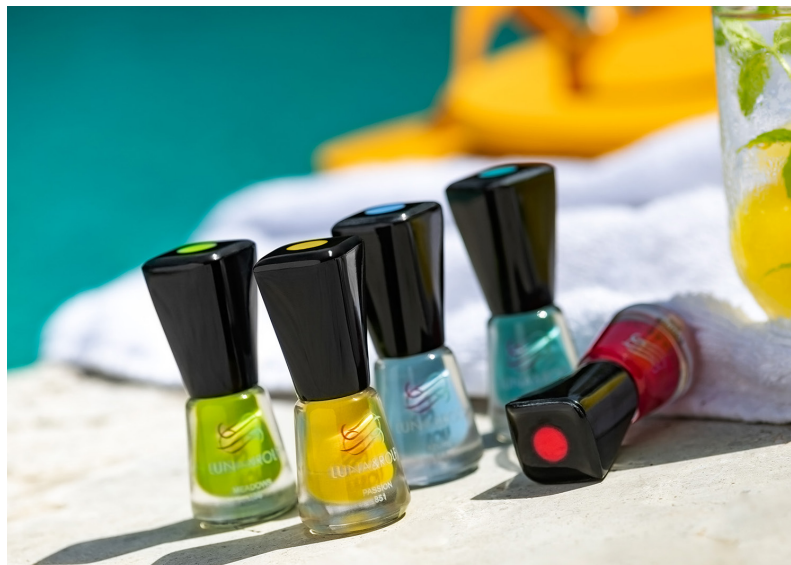
3D models in full color help leading brands determine successful packaging designs fast.

25%
—
Roughly 25% of companies in consumer goods have adopted 3D printing.

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Test concept and fit with realistic, 3D printed prototypes.

With advanced colors and materials, your development cycle can now be accomplished in a single print. A 3D printer with true, full-color capabilities, texture mapping and color gradients creates prototypes that look, feel and operate like finished products, without the need for painting or assembly. In addition to color, advanced material properties ranging from rigid to flexible and opaque to transparent are also possible.

Leading 3D printers also give designers at top brands the ability to print many diverse materials in one job or part without sacrificing time for part intricacy and complexity. The versatility and reliability offers unmatched product realism. Overall, a full-color, multi-material 3D printer can shave weeks and thousands of dollars off product development.

Unilever is one global consumer brand that has hundreds of products and brands that depend on versatile 3D printing to stay competitive. With more than 400 consumer goods in home, personal care and food, Unilever needs to ensure they are competitive across the board, meeting ever-changing standards in order to differentiate themselves. Unilever's choice? The Stratasys J-Series Full Color 3D Printers, for its versatility, multi-color and multi-material capabilities. Unilever uses the Stratasys J-Series Full Color 3D Printers to produce parts in the final materials for functional and consumer tests more quickly.

"Before, we would have to wait several weeks to receive prototype parts using our traditional tooling process; not only did this lengthen lead times, it increased costs if iterations were required", said Unilever R&D and Prototyping Specialist, Stefano Cademartiri.

Leading consumer goods market leaders build in full-color, advanced textures and a broad range of material properties, including transparent and rubber, making the Stratasys J-Series Full Color 3D Printers an ideal solution for rapid prototyping in the fast-moving consumer goods market. The Stratasys J-Series Full Color 3D Printers maximizes uptime and the diversity of jobs that can be handled with one system, which means product developers and designers deliver realistic packaging prototypes faster, allowing for a more detailed evaluation sooner for key moments in the development process, such as client presentations, focus group and testing.

3D printed concept models can feature full-color, advanced textures and moving parts.

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This means leading consumer goods companies are not only getting to market faster, but they are also saving $10,000 to $15,000 over traditional prototyping methods on an average product that requires 35 prototypes.

Make It Vivid

The ability to 3D print full-color prototypes is not new, but users must sacrifice either color range or part quality with other technologies. In comparison, product designers can produce smooth plastic parts in over 600,000 colors on a Stratasys J850™ Prime and J826™ Prime.

AIJU, a research lab specializing in children's toys, simplifies their product design research and development with full-color, multi-material 3D printed prototypes. "With our Stratasys J-Series Full Color 3D Printers, we 3D print an entire working prototype in one go with all the color specifications our customers require, while reducing the production time by 40%," said Nacho Sandoval, the head of prototyping at AIJU.

With cutting-edge additive technology an intrinsic part of their development process, AIJU meets increasing demands for realistic, complex prototypes. "The Stratasys J-Series Full Color 3D Printers has enabled us to completely streamline prototype production from several steps to only one. Previously we had to 3D print the parts, paint them by hand and then assemble each part to obtain the final prototype. Now we can produce a full-color, multi-material prototype in one single print, transforming the economics of our entire design process," said Sandoval.

Multi-Material Full-Color Prototyping on the Stratasys J-Series Full-Color 3D Printers

$300
Average Saved
Per Prototype

$1,500
Average Saved
Per Prototype cycle*

52%
Cost Savings

*Based on a cycle that requires 50 prototypes

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This fully functional 3D printed prototype was tested in real conditions and enabled AIJU to verify and validate the design fast.

For AIJU and others producing consumer goods, the ability to change designs easily without painstaking manual work eliminates costly intermediate prototype stages that can take weeks. In addition, printing batches of prototypes lets product engineers test multiple features, designs and improvements simultaneously, eliminating time-wasting when trying to perfect a client-ready presentation model one iteration at a time.

Armed with such a wide range of vivid colors and textures, top companies know they can better communicate the entire brand experience with exact color matching without the need for painting, laborious post-processing, stickers or labels. Prototypes can also be produced with the appearance of varied textures and patterns such as denim, leather, carbon fiber, fabrics and basket weave. When various material characteristics are needed, users combine full color with a range of transparencies or different durometers.

The GrabCAD Print™ slicer on the Stratasys J-Series Full Color 3D Printers also offers the ability to simulate glass or transparent acrylic packaging containers with advanced textures and vivid colors, ideal for consumer goods companies producing cosmetics, household cleaning products, personal care products, food or beverages. This means prototyping glassware or plastic packaging with labels, color gradients, text or images can be done in one print job. The realism of the prototype is on brand and on point, without the need for painting or stickers on the models.

Albéa, a leading cosmetics and personal care packaging manufacturer, successfully adapts to a challenging and fast-moving industry with 3D printed prototypes. Albéa started with outsourcing its prototyping, commissioning suppliers who used stereolithography and laser sintering, but they couldn't improve their time to market using a few shades of white and grey in limited textures. The exceptional level of realism and multi-material capabilities of PolyJet™ means they have more creative freedom. "The choice of colors and materials we can access now has taken us into uncharted territory in terms of what we can design and supply our customers. This, along with having the technology in-house, affords us far more control and flexibility. We can offer highly accurate packaging prototypes to customers in less time, improving customer satisfaction," said Yann Crapet, Albéa project manager.

Product developers make more informed design decisions about the product form and function by printing multiple iterations at one time in full color.

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With vivid 3D printed prototypes, consumer goods companies at the top of the market save time, meet deadlines with ease and ultimately increase business.

Brand managers fast-track new products and product designers ensure a positive brand experience using photorealistic prototypes, finalizing the best possible look and feel with speed and confidence thanks to the customized prototyping capabilities of the Stratasys J-Series Full Color 3D Printers. The speed, realism and accuracy of 3D printed models enables companies, once at the middle of the pack, to gain a competitive edge. They now have the ability to iterate and refine designs through lifelike prototypes in hours instead of days for about one-fifth of the cost.

For many top global brands, employing full-color, multi-material 3D printed prototypes across the product development is the key to rapid growth. Not only does the process help create a better product, it does so in less time while saving thousands of dollars. Many in the consumer goods industry have already adopted 3D printing to save time and money. And with full-color, multi-material 3D printing, the potential for even more savings as well as unlimited design freedom is the key to becoming a brand that stands out on the shelf.

The GrabCAD Print™ slicer on the Stratasys J-Series Full Color 3D Printers makes it possible to simulate glass or transparent acrylic packaging containers alongside advanced textures and vivid colors.

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