

Application Challenge

Henkel's Consumer brands division is constantly innovating packaging design. To do so effectively they need to be able to build prototype containers that aesthetically mimic the final product while still performing functional tests. For the laundry product lines this means printing large parts in a material that can withstand the ingredients in the detergent, such as surfactants and enzymes without deterioration.

MATERIAL: LOCTITE 3D 3843 WHITE

CASE STUDY:

Henkel Consumer Brands Leverages LOCTITE 3D Printing Materials in Packaging R&D



Material selection: LOCTITE® 3D 3843 White

Henkel Materials Used								
	Color	HDT at .455 MPA (°C)	Tensile Stress at Break (MPa)	Elongation at Break (%)	Young's Modulus (MPa)	Flexural Modulus (MPa)	IZOD Impact Notched (J/m)	Shore Hardness
		ASTM D648	ASTM D638	ASTMD638 (D412)	ASTM D638	ASTM D790	ASTM D256	ASTM D2240
3843	White	60	49	48	1,700	1,700	58	76 D (3 sec)

ETEC and Henkel collaborated to validate the **Loctite® 3D 3843 White resin on the Xtreme 8K printer**. The Xtreme 8K printer’s top-down printing method allows the Henkel Consumer Brands team to print a 2 gallon-sized container in one piece without using any drain holes. The DLP technology offers high precision and surface quality necessary for the packaging industry.

Why Loctite 3D 3843 Resin?

Henkel’s **Loctite 3D 3843 White** was chosen for this project due to its outstanding mechanical properties, including chemical resistance, impact strength, and excellent surface finish - all critical factors for this application. The resin’s durability allows the designers not only to build a prototype for fit of mating components but will also allow for physical testing of the performance of the design. Additionally, Loctite 3D 3843 provides a smooth, high-quality finish that not only makes the container aesthetically appealing, but the bright white color matches the color of the intended material chosen for the final product.

How the Xtreme 8K Printer Made a Difference:

The **Xtreme 8K printer** brought a new level of innovation to prototyping large unvented volumes. Eliminating the need for internal support structures and vent holes, there was a significant reduction in material waste and labor. The printer’s large build volume was crucial in enabling the creation of multiple gallon-sized containers in one print expediting the design process.

Outcomes:

The prototype laundry detergent container, created using the **Xtreme 8K printer** and **Loctite 3D 3843 White** resin, will give the packaging team the confidence in their design’s function and form, allowing them to proceed with mass production. This project also marked the beginning of a broader exploration into 3D printing for packaging prototypes across other consumer brands within Henkel.

Want to learn more about Henkel’s unique material solutions for the additive manufacturing industry? Visit Henkel’s LOCTITE 3D Printing at [LoctiteAM.com](https://loctiteam.com) or reach out to us via loctite3d@henkel.com



With its brands, innovations and technologies, Henkel holds leading market positions worldwide in the industrial and consumer businesses. The business unit Adhesive Technologies is the global leader in the market for adhesives, sealants and functional coatings. With Consumer Brands, the company holds leading positions especially in laundry & home care and hair in many markets and categories around the world. The company’s three strongest brands are Loctite, Persil and Schwarzkopf. In fiscal 2023, Henkel reported sales of more than 21.5 billion euros and adjusted operating profit of around 2.6 billion euros. Henkel’s preferred shares are listed in the German stock index DAX. Sustainability has a long tradition at Henkel, and the company has a clear sustainability strategy with specific targets. Henkel was founded in 1876 and today employs a diverse team of about 48,000 people worldwide – united by a strong corporate culture, shared values and a common purpose: “Pioneers at heart for the good of generations.” More information at www.henkel.com



ETEC (pronounced ē-tek) is a leading global provider of professional-grade 3D printing solutions. As the original inventor of digital light processing (DLP) 3D printing technology, ETEC has one of the most advanced portfolios of precision polymer printers and materials in the market today. Supported by more than 130 issued and pending patents, ETEC also has extensive range of resins for its platforms. In all thousands of customers across a broad range of industries, including automotive, aerospace, medical devices, and jewelry have relied on ETEC solutions for more than two decades. The company’s solutions are used for prototypes, tooling and low-volume to mass production. www.etc.desktopmetal.com