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Desktop Metal Unveils FreeFoam™, a Revolutionary, Expandable 3D Printable Resin Designed for Volume Production of Foam Parts

- FreeFoam is a new family of photopolymer resins containing heat-activated foaming agents that are 3D printed with Digital Light Processing (DLP). After printing, FreeFoam parts are briefly put into an oven where the foaming agent creates closed cells inside the material in a tightly controlled process
- This innovative material can be programmed to expand a specific amount between 2 to 7 times its original printed size – allowing FreeFoam parts to be shipped in a compact form and expanded on-demand in an oven close to the final point of use or assembly, saving shipping and inventory expenses
- While 3D printers today can process photopolymers into lattice designs that simulate foams, FreeFoam is a true foam containing closed cells that can be printed in a lattice up to a fully dense design – delivering benefits for the automotive, furnishing, footwear, sporting goods, health care and other industries
- In addition to eliminating expensive tooling and the waste associated with standard foam production, FreeFoam enables new design freedom and delivers a high strength-to-weight ratio that produces light, high-performing parts that can reduce shipping costs and improve efficiency in cars and other products
- FreeFoam resin will be offered in a wide range of Shore hardness values and will initially be 3D printable exclusively on the ETEC Xtreme 8K top-down DLP system from Desktop Metal's polymer 3D printing brand

BOSTON--(BUSINESS WIRE)-- Desktop Metal (NYSE: DM), a global leader in additive manufacturing technologies for mass production, today unveiled FreeFoam™, a new family of photopolymer resins that produces durable and dimensionally accurate closed cell foam parts without tooling – delivering all-new benefits for the automotive, furnishing, footwear, sporting goods, health care and other industries.

This press release features multimedia. View the full release here: https://www.businesswire.com/news/home/20220621005363/en/

FreeFoam will be on display June 28-30 at Foam Expo North America in Novi, Michigan. Automotive seating 3D printed in FreeFoam, developed in partnership with Camaco, an engineered seating solutions supplier, will be on display in Booth 2336.

Parts made with FreeFoam are already being manufactured with leaders in the automotive and furnishing markets, with broad commercial availability of FreeFoam material slated for 2023. A new video showing the process for 3D printed parts production using this innovative new material is now available at https://learn.desktopmetal.com/freefoam.

These automotive seats were 3D printed in an innovative new FreeFoam™ photopolymer resin that can be expanded in an oven after printing. The seat on the left showcases the material after 3D printing but before expansion, while the seat on the right shows the fully expanded seat after a quick trip through an oven. The seats were 3D printed on the ETEC Xtreme 8K top-down DLP printer shown in the background. (Photo: Business Wire)

"FreeFoam is one of the most exciting and commercially significant photopolymer solutions to come to market in the industrial printing space in years," said Ric Fulop, Founder and CEO of Desktop Metal. "The market for conventionally manufactured foam has many challenges – from expensive molds that limit designs, to dense and heavy foams that absorb water and are expensive to ship and drive, to the inability to easily dial in strength and Shore hardness values in specific foam designs.

"We're especially excited to reveal our FreeFoam innovation in Metro Detroit, where our new foam material can help lightweight cars and trucks while preserving the performance and comfort expected in foam seating. With FreeFoam, Desktop Metal is ready to liberate the foam market from its many challenges."

Several Grades of FreeFoam Resins Planned

FreeFoam was invented and developed by Texas-based Adaptive3D, a subsidiary of Desktop Metal that was acquired in 2021 and is a leader in premium photopolymer and elastomer development.

FreeFoam resins are 3D printed similar to other photopolymer resins using DLP. After 3D printing, FreeFoam parts can be expanded on-demand during a brief heating cycle in an oven at approximately 160-170°C (320-340°F). The printed parts contain dispersed heat-activated foaming agents that create closed cell pores inside the material. This highly controllable process causes FreeFoam resins to consistently expand 2 to 7 times their as-printed sizes depending on the grade of resin, achieving final parts within desired tolerances.

This all-new process allows 3D printers to produce much larger final foam parts than the printers' original build areas and will enable foam products to be shipped at compact sizes and expanded at the final point of assembly or commercial use.

While preliminary specifications for FreeFoam are now available, Desktop Metal plans to offer several grades of FreeFoam resins enabling different Shore hardness values and other specific materials properties such as water resistance for the outdoor furnishing market.

FreeFoam is part of the recently launched DuraChain™ category of one-part, one-pot

photopolymers that delivers breakthrough elastic and tough material properties through a Photo Polymerization-Induced Phase Separation process. When illuminated during DLP printing, these materials phase separate at the nano level into a material that cures into a resilient, high-performance polymer network. DuraChain enables FreeFoam parts to be foamed with control in an oven without a mold.

FreeFoam will initially be 3D printable exclusively on the ETEC Xtreme 8K top-down DLP system from Desktop Metal's polymer 3D printing brand. Companies interested in this new material and process are encouraged to visit https://learn.desktopmetal.com/freefoam.

About Desktop Metal

Desktop Metal, Inc., based in Burlington, Massachusetts, is accelerating the transformation of manufacturing with an expansive portfolio of 3D printing solutions, from rapid prototyping to mass production. Founded in 2015 by leaders in advanced manufacturing, metallurgy, and robotics, the company is addressing the unmet challenges of speed, cost, and quality to make additive manufacturing an essential tool for engineers and manufacturers around the world. Desktop Metal was selected as one of the world's 30 most promising Technology Pioneers by the World Economic Forum, named to MIT Technology Review's list of 50 Smartest Companies, and the 2021 winner of Fast Company's Innovation by Design Award in materials and Fast Company's Next Big Things in Tech Award for sustainability.

Forward-looking Statements

This press release contains certain forward-looking statements within the meaning of the federal securities laws. Forward-looking statements generally are identified by the words "believe," "project," "expect," "anticipate," "estimate," "intend," "strategy," "future," "opportunity," "plan," "may," "should," "will," "would," "will be," "will continue," "will likely result," and similar expressions. Forward-looking statements are predictions, projections and other statements about future events that are based on current expectations and assumptions and, as a result, are subject to risks and uncertainties. Many factors could cause actual future events to differ materially from the forward-looking statements in this document, including but not limited to, the risks and uncertainties set forth in Desktop Metal, Inc.'s filings with the U.S. Securities and Exchange Commission. These filings identify and address other important risks and uncertainties that could cause actual events and results to differ materially from those contained in the forward-looking statements. Forward-looking statements speak only as of the date they are made. Readers are cautioned not to put undue reliance on forward-looking statements, and Desktop Metal, Inc. assumes no obligation and does not intend to update or revise these forward-looking statements, whether as a result of new information, future events, or otherwise.

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