



Enabling Additive Manufacturing for the Footwear Industry

Discover Materials and Solutions from
Forward AM



Some of our trusted partners:

H I L O S

eCCO®



ATHOS

Durability. Versatility. Innovation.

Additive Manufacturing offers solutions along the entire footwear development process – from molds and lasts through to soles and even complete shoes.

Over the last years, the footwear industry has experienced a clear shift towards Additive Manufacturing. Together with disruptive start-ups and major industry leaders we have realized projects that will shape the future of footwear.

Additive Manufacturing not only brings new design possibilities to the table, but it can also change the environmental impact of your production. Additive Manufacturing for footwear is enduring, versatile, and creative.



Lasts and Molds

Material: Ultracur3D® ST45, Ultrafuse® PET
Technology: Digital Light Processing,
Fused Filament Fabrication

Versatile Lasts and Molds

Lasts and molds are essential tools for shoemakers to develop new models and designs. The traditional way of manufacturing these tools is highly time and cost intensive.

Making the transition to Additive Manufacturing holds numerous advantages for shoemakers:

- Significantly reduced development times and easier product iterations
- High fitting accuracy thanks to precise digital models
- Lasts and molds can be reprinted at any time
- Reduced costs for warehousing and shipment
- Easy adaptation to the production environment by freedom of design



Shoe soles

Material: Ultrasint® TPU01

Technology: Multi Jet Fusion

Additive Manufacturing and shoe soles - a great fit

By leveraging digital simulation tools, our BASF Forward AM engineers can generate, simulate and manufacture lattices finely tuned to customer's requirements to deliver the best walking experience out of just one material. In addition to functional aspects, footwear designers can make use of endless design possibilities to make the shoe appearance stand out from the crowd.

- Cushioning properties of midsoles can be tuned to achieve individualized, high-performance footwear
- Forward AM's flexible TPU grades in powders, resins and filaments enable great shock absorption, high elasticity and energy return
- Flexible Ultracur3D® Coat F+ comes in an extensive range of colors to enhance appearance and improve part performance



Complete Shoe

Partner: HILOS

Material: Ultrasint® TPU01

Technology: Multi Jet Fusion

Credit: Rick Cortez

Sustainable Footwear Today

The footwear industry is a sector, where Additive Manufacturing can have an immediate environmental impact. As material developers for this industry, we recognize that we are the farthest upstream in this digital supply chain, one whose developments impact downstream product capabilities and environmental impact.

Switching from traditional to Additive Manufacturing can change a company's environmental impact in many ways:

- Less material waste
- Local & on-demand production
- Digital inventory eliminates the need for physical warehouses
- Streamlined manufacturing



Customized Climbing Shoe

Partner: ATHOS

Material: Ultrasint® TPU01

Technology: Multi Jet Fusion



Personalization that makes a difference

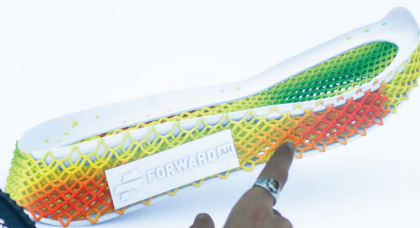
ATHOS rethinks the concept of climbing shoes, aiming to reach individualized shoes that enhance the climber's carrying experience.

The material of choice, Ultrasint® TPU01, is the ideal match – its outstanding flexibility and elasticity is perfectly suited for climbing shoes and allows for complete recyclability and a significantly shortened manufacturing process.

- Ultrasint® TPU01 has passed skin sensitization (ISO 10993-10) and can be used in applications close to the human body
- Good UV resistance makes the material a perfect match for outdoor uses like climbing



Applications



BASF

FORWARD

Leaders in industrial 3D printing solutions

Forward AM's expert design optimization, lattice generation, virtual engineering and simulation services ensure your parts perform exactly as expected before any part is ever printed.

But we don't stop there. We've developed industry leading post-processing solutions to ensure your parts look as good as they perform. Available in more than ten colors, Ultracur3D® Coat F+ provides a flexible coating to enhance appearance and improve part performance.



BASF's Elastollan® meets Additive Manufacturing

Forward AM's flexible materials, such as Ultrasint® TPU01, are based on Elastollan® by BASF, the world's leading provider of thermoplastic polyurethanes (TPU). With decades of experience and continuous development and improvement, Elastollan® comprises all relevant properties for footwear applications.

Key advantages of Forward AM's flexible TPU grades:

- High elasticity, rebound and resistance to fatigue
- Excellent surface quality and level of detail
- High wear and abrasion resistance
- Very good damping characteristics



Speak to our experts today to uncover the potential of
Additive Manufacturing for the footwear industry.

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Let's talk!

