

2020 TIBBETTS AWARD WINNER

# Endurica, LLC



U.S. Small Business Administration



SBIR-STTR  
America's Seed Fund  
POWERED BY SBA

**Prior to Endurica, tires had to be designed, produced & tested until they literally blew out in a long-winded, repetitive process. Endurica has revolutionized rubber product design to get durability right every time - reducing costs & keeping customers safer while they're at it.**

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#### LOCATION

**OH**

Findlay

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#### PHASE III SUCCESS

**\$6M+**

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#### FUNDING AGENCIES

**Army**

Department of Defense

## Impact & Achievement

Rubber products have been designed the same way since commercially-viable rubber was invented: a tire, seal, or widget is envisioned, built, and tested until it fails; then is re-designed, built, and tested - the cycle continues, sometimes for years before a product's durability is determined fit for use and the product is launched. Endurica's founder, Will Mars P.E., Ph.D., saw a gap between the scientific understanding of elastomers and the ability of industry to engage that science to get durability right in design. Endurica was founded to help the industry get durability right by revolutionizing rubber product design throughout the world.

Today, tire companies use Endurica's software solutions that combine information gathered through advanced testing procedures of rubber samples with computer simulations of tire designs. The software enables tire manufacturers to see how adjustments in their designs and their rubber compositions affect tire performance. These solutions provide accurate tire life predictions - every time. By empowering materials, component, and system developers with reliable methods and tools for assessing fatigue life, Endurica's solutions help clients understand and manage the effects on fatigue life of nonlinear material behavior, component geometry, and complex duty cycles. Endurica has served leading companies in the automotive, defense, medical device, offshore, and consumer products industries.

Rubber parts (i.e., tires, bushings, isolators, seals) are used throughout military operations, and reliable service life is essential for both safety and cost reasons. Endurica's tools drive cost savings in development programs, lead to more durable parts, and ultimately assist not only in keeping military personnel safer, but also providing greater safety for citizens. The Small Business Innovation Research (SBIR) work supporting Endurica's technology involved determining the life-span of rubber track pads on Abrams tanks and enabled the company to not only build the technology, but to demonstrate it as a viable workflow and validate its predictive capabilities in a real-world engineering context. Without the SBIR project, Endurica could not have built the validation case which has been fundamental to the firm's success. The technology is now used in production engineering across the supply chain - from raw materials, to parts suppliers and OEMs.

Developing environmentally-friendly, sustainable rubber compounds often means pushing against material durability limits. The technology enables designers to make the best use of available properties, and increases the range of applications where such materials can be applied.

SBIR funding greatly enhanced the pace of innovation and the impact on industry. Endurica now employs 6 full-time employees and has generated more than \$6.8 million in revenue during its 12 years. Six of the top 12 global rubber product producers (by revenue) are using Endurica's solutions in their applications, and there are hundreds of trained users globally.

[www.endurica.com](http://www.endurica.com)