

# You Don't Get Second Chances on Missions to Mars

Warwick developed the critical air bag fabric for NASA's exploration missions to Mars, including the successful Pathfinder, Spirit, and Opportunity missions.



Mars air bags made with fabric manufactured by Warwick Mills

The craft went through some of the harshest environments imaginable. Enduring the extreme cold of deep space and the flaming entry into Mars' atmosphere, Warwick's TurtleSkin air bags allowed the Pathfinder to bounce as high as 50 feet before safely skidding to a stop on the planet's jagged surface.

This space age technology is now used to provide an exceptional level of protection and performance for a wide range of activities, even if you're planning on staying a little closer to home.

# Materials Science for Safety and Performance



For Material Samples and More Information  
Please Contact Us

## Warwick Mills

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# TurtleSkin Chem Bio



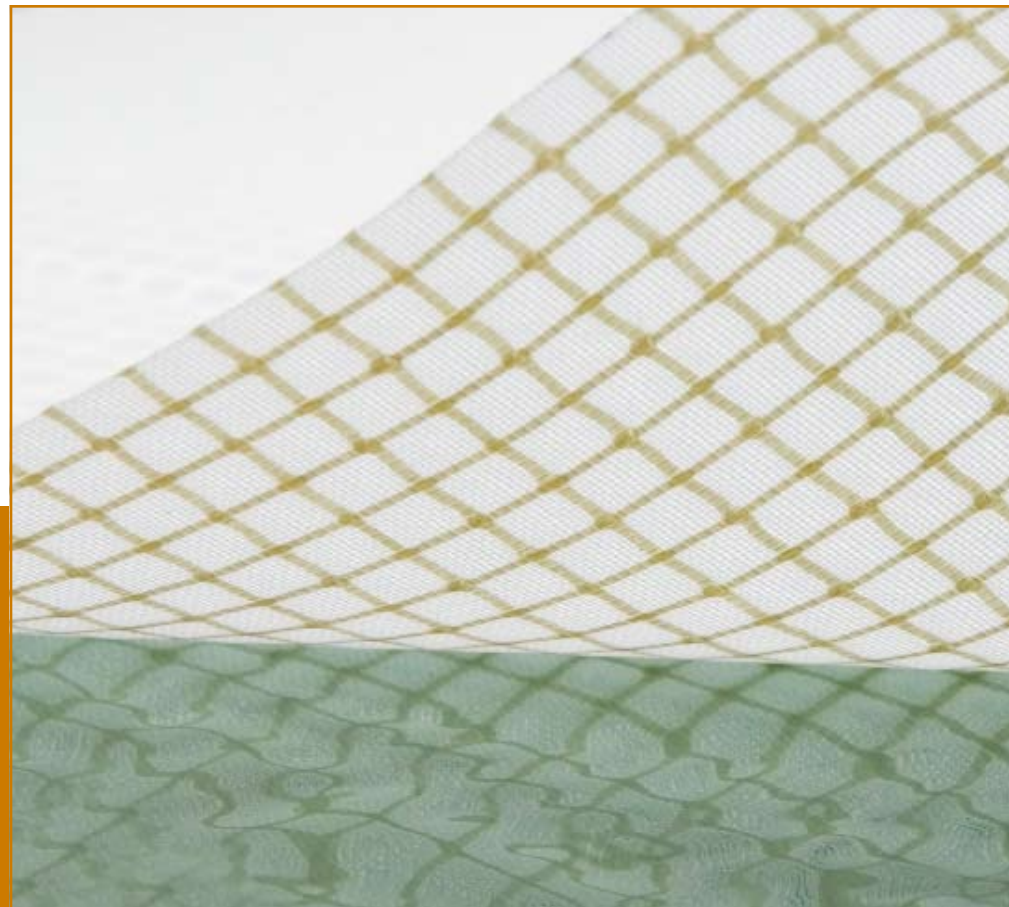
**Impermeable Barrier Laminates  
for Soft-Sided Structures**

## Lightweight Barriers for Collective Protection

Our engineers have made advances in high-strength textiles, adhesives, and durable protective coatings leading to new, lightweight chemical and biological resistant laminates for inflatable and folding frame shelters. Developed for Natick Soldier System Center's Shelters Technology, Engineering and Fabrication Directorate (STEFD) and the Defense Threat Reduction Agency (DTRA), TurtleSkin CB material was selected for the new CBPS-M4A program and also meets the demanding specification for JECF.

## Materials Engineering Capabilities

Fielding requirements of protective tents and emergency shelters demand laminates that maintain their chemical and biological protection and overall integrity throughout the life of the product. Even after repetitive erecting and striking, decontamination, exposure to abrasion and UV, and weathering, our laminates are designed to resist pinholing, tearing, and delamination. Our engineers have designed laminates to meet the rigorous military requirements for blackout, IR signature, thermal load, packing volume, interply peel strength, tensile strength, and flame resistance.



TurtleSkin  
CBPS-M4A  
Inflatable Structure  
~25' x 22'

## Vertical Manufacturing

Our focus on research and development, as well as our fully-vertical manufacturing capabilities, ensures both high quality and rapid delivery. From raw materials processing through lamination to fabrication and final assembly, we maintain complete traceability of all materials and operations in one location. Our long history of innovation in flexible composite materials, coupled with our recent advances in CB technology, provides a clear advantage for our customers.



## Materials Designed for Decontamination

We are developing robust, flexible TurtleSkin fabrics that withstand the most rigorous decontamination procedures. This greatly reduces replacement costs for materials, such as straps, belting and upholstery.



## Advanced Individual Protection

Current chem-bio agent protective garments create thermal-management issues that inhibit job performance and duration. We are currently developing TurtleSkin Chem-Bio protective materials that supplement the body's natural thermal management capabilities by acting as a heat-transfer mechanism. These materials offer advanced chem-bio agent protection and also decrease heat stress, increase comfort, prolong operational capabilities, and keep garment mass and volume to a minimum.

