NanoSonic, Inc

PRODUCT INFORMATION
www.nanosonic.com

HybridShield® Thermal Arrays
NSM-HS-TA

Product Description

HybridShield® Thermal Arrays impart extreme fire protection to underlying materials by creating a conformal, highly flexible boundary to fire threats that is extremely flame resistant and dimensionally stable at high temperatures. Through the precisely tailored application of 3D structured, high temperature elastomeric pillars on pliable fire resistant fabrics, HybridShield Thermal Arrays provide an innovative fire blocking interlayer that has immediate utility within flame and heat protective garments, equipment, shelters, and vehicles. Compared to state-of-the-art insulative spacers and energy absorbing materials, HybridShield Thermal Arrays afford higher temperature resistance in compression, negligible water absorption, improved impact protection, minimal smoke toxicity, and enhanced flexibility for improved user comfort and protection.

Extreme Fire Protection & Thermal Knockdown

When employed as interlayers within fabric ensembles, HybridShield Thermal Arrays drastically reduce the likelihood of flame burn through and backside decomposition. Shown below are optical images of 2-ply military NYCO fabrics with and without a HybridShield Thermal Array interlayer upon direct exposure to a propane torch.

Complete Backside Burn Through without HybridShield Insulative Array

No Backside Burn Through with HybridShield Insulative Array

Custom Arrays for Demanding Environments

HybridShield Thermal Arrays are available on fiberglass fabrics (custom fabrics available) as either one or two-sided 3D structured, elastic interlayers. By tailoring combinations of legacy fire resistant fabrics, vast improvements in fire defense and impact protection is achieved with minimal weight addition and water absorption. As shown in the table below, two layers of HybridShield Thermal Arrays reduced the maximum backside temperature of NYCO fabric by more than 1,500 °F upon direct exposure to a propane torch for 10-seconds.

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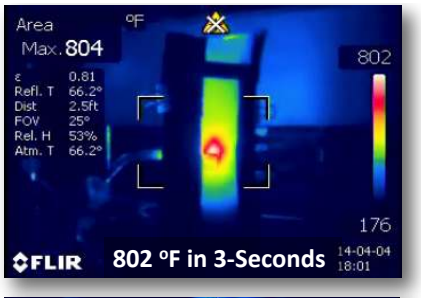
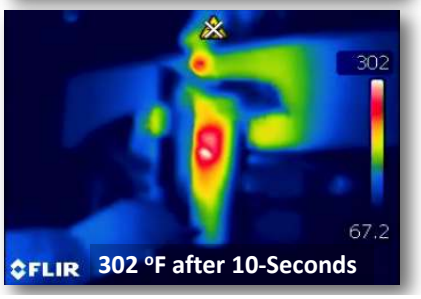
802 ºF Backside Temperature and Immediate NYCO Fabric Burn Through / Ignition Upon Propane Torch Exposure without HybridShield Thermal Array



302 ºF Backside Temperature and Zero NYCO Fabric Burn Through / Ignition Upon Propane Torch Exposure with Interlayer Ply of HybridShield Thermal Array



Inner & Outer Layer	HybridShield Thermal Array Interlayer	Backside Temperature After 10-Seconds of Direct Propane Torch Impingement
NYCO	None	1816 °F
NYCO	2-Sided Fiberglass Thermal Array	580 °F
NYCO	1-Sided Plain Kevlar Simplex Thermal Array	528 °F
NYCO	2-Sided Kevlar Simplex Thermal Array	338 °F
NYCO	1-Sided Fiberglass (2 Plies) Thermal Arrays	302 °F

Product Information

For additional product information, please contact a NanoSonic sales representative:
Phone: 540.626.6266
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