



A product of Shield Technologies Corporation

ENVELOP® PROTECTIVE COVERS – MATERIAL SPECIFICATIONS

Envelop® Protective Cover Technology is a proven solution in combating degradation caused by exposure to heat, sand, dust, moisture, UV, and corrosion. It was developed in conjunction with the US Navy through a Small Business Innovative Research (SBIR) grant. Based upon extensive independent testing, validation, and use by the US Navy, US Army, and Marines, it readily surpasses all previous protective cover and anti-corrosion cover solutions. It is the only protective cover technology on the market that was designed in conjunction with the military and possesses the unique characteristics and capabilities described below. The Envelop® technology is protected by Patents (#6,444,595, #6,833,334, and #6,794,317).

Envelop material specifications:

100% Waterproof	Water column up to 25m (ISO 811)
Breathable (Moisture Vapor Transmission Rate)	MVTR greater than 550 g/sq. m/24hrs (upright test ASTM-E96B). Greater than 3250 g/sq. m/24hrs (inverted test ASTM-E96BW).
Inner Wicking Layer	Hydrophobic porous material that contacts the protected equipment to wick water into the absorbent material.
Absorbent Inner Layer	Superabsorbent matrix stores water away from the protected equipment. Water released through breathable membrane.
Vapor Corrosion Inhibitors (VCI)	Conditions the micro-environment beneath the cover to displace moisture and chlorides. When water vapor is driven through the outer shell, it must pass through the corrosion inhibitors first, where it picks up the VCI before contacting the surface of the protected equipment.
Heat Sealed Seams	Thermoplastic adhesive film applied to sewn seams to prevent water intrusion through the seams.
Thread	Heavy weight polyester thread. Strength of 13.3 lbs.
Completely Non-Porous	Breathability is not reduced over time due to blockage by dirt, sand, or salt crystals.
Tensile Strength	460 x 360 warp x fill /lbs (ASTM D5034).
Tongue Tear	20 x 18 warp x fill / lbs (ASTM D2261).
Ultraviolet Blockage	Over 99% UVA and UVB Blockage.
Oil and Hydraulic Fluid Resistant	Repels common oil material. Rating of 5 (AATCC 118).

Weather Resistant Materials	Lifespan of 24-48 months in severe environments.
Breaking Strength after Abrasion Resistance	242 x 141 warp x fill / lbs (ASTM-D-5035 after abrasion resistance per ASTM-D-4157).
Breaking Strength after Accelerated Weathering	230 x 137 warp x fill /lbs (ASTM-D-5035 after accelerated weathering per FED-STD-191, M 5804).
Hydrostatic Resistance	677 psi (ASTM-D-751).
Stiffness	13.0 at 70 °F and 13.0 at 20°F (TRAPPI Method T-451).

The specifications described above, give the Envelop® Protective Cover technology unique benefits and capabilities which include:

Corrosion Reduction	Combination of materials reduces corrosion by up to 90%.
Reusable	Can be installed and removed as many times as needed.
Environmental Degradation Protection	Work synergistically to protect against water intrusion, corrosion, heat, UV, sand and other debris.
Automatic Water Removal	Keeps equipment dry by pulling water away from the surface and letting it evaporate through outer material.
Humidity Depression	Eliminates condensation, a major route to corrosion.
Thermal Protection	Reduces heat soaking by maintaining equipment within 11% of ambient temperature.
Custom Engineered	Proprietary design process creates custom fit covers that are designed to be installed and removed quickly.
Easy Packaging	Covers are easily stored and most covers include a packing and storage bag.
All Climate Protection	Envelop® Protective Covers have proven successful in all weather extremes from the Deserts of South West Asia to the Arctic Circle with Tropical Climates in between.

Shield Technologies Corporation is the sole source for Envelop® Protective Covers.

More information on the Envelop® material and covers can be found at: www.envelopcovers.com.

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