

OUTERWRAP and INSULSHIELD™

SOIL STRESS PROTECTION FOR DIRECT BURIAL MEMBRANE



SOIL STRESS FAILURE



INSTALLING OUTERWRAP

Polyguard's *Insulrap*™ products are designed for direct burial over insulation and is sufficient for carrying soil stress loads on smaller diameter pipes. However, when larger diameter pipes are interred, the large amount of settling and expanding/contracting around the pipe over time creates large amounts of stress and can cause movement of the vapor barrier membrane. As shown in photo one, this stress can create gaps at the laps. *I-50* is not spiral wrapped as shown in the photo; however the same stress can occur at butt laps or overlaps.

polyethylene, 6" or 12" wide *Outerwrap* which can be spiral wrap applied (photo 2 - no adhesive necessary) over the *I-50*. This inexpensive wrap then becomes a sacrificial layer which will wrinkle protecting the vapor barrier from wrinkling.

Polyguard also sells a slightly more expensive *Insulshield*™, a 10oz/yd recycled fabric geotextile product which will not only absorb the stress; it will supply an extra 400 psi puncture protection and wick moisture away from the surface of the insulation.

To alleviate this possibility on large diameter pipe, *Polyguard* has an un-bonded, 3 mil, cross laminated

<i>Outerwrap</i> PROPERTIES	ASTM #	TYPICAL VALUE
Tensile Strength	ASTM D412 Die C Modified	3,700 PSI
Impact Strength	ASTM D781 (spherical head)	90 (Kg/Cm)

<i>Insulshield</i> PROPERTIES	ASTM #	TYPICAL VALUE
Tensile Strength	ASTM G14	>25 inch lbs
Penetration	ASTM G17	<72% compression

INSULSHIELD

Data on Reverse

INSULSHIELD™

FOR SEVERE ROCKY AREAS; **POLYGUARD INSULSHIELD** membrane protection system is a high strength, highly puncture resistant two component fabricated geotextile. Its purpose is to protect underlying buried vapor barrier and waterproofing membranes and from physical damage during construction, backfill, and operating use.

INSULSHIELD is made from 100% recycled synthetic fibers. Being a recycled product, its appearance will vary in coloration, but the minimum performance properties of the material will exceed the stated minimums on a consistent basis.

INSULSHIELD™ is designed for placement over insulation and waterproofing membrane systems, prior to backfilling operations. The **INSULSHIELD** will protect the membrane from damage during and subsequent to construction. Additionally, use of the system allows the

engineer to substitute clean, rock free backfill for the expensive layer of sand backfill that has generally been required in the past. More importantly, **INSULSHIELD** eliminates the problem of inadvertent neglect by the contractor to install the specified sand backfill over the entire project.

Insulation and vapor barrier/waterproofing jacketing should be installed as per manufacturers' instructions.

After installation of the waterproofing membrane jacketing, the **INSULSHIELD** should be cut to size, and wrapped around the jacketed insulation in a "cigarette wrap" fashion, overlapping a minimum of 4" at all laps. The protection system should be taped at 6" intervals with 3/4" or 1" reinforced filament tape. Backfilling should be done as soon as possible after application.

INSULSHIELD™ PROPERTIES	ASTM #	TYPICAL VALUE
Impact Resistance <i>5/8" diameter ball bearing, 3 pound weight</i>	G 14	>25 inch lbs
Penetration <i>1/4" inch blunt rod at 200 psi; 24 hours</i>	G 17	<72% compression
Fabric Weight	D 3776	10 oz/yd ²