



THE JOHNSON GROUP

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Geotex® Geotextiles: A Life Cycle Costing Approach to Roads

Subgrade contamination is the leading cause of failure in both pavements and unpaved roads. Aggregate layers used to support the traffic or pavement typically rests on a subgrade of sand, silt or clay. Without permanent separation, two factors will undoubtedly lead to the contamination of the aggregate layers—fine-grained soils will enter into the voids of the aggregate, preventing it from draining properly, and aggregate will be lost punching into the soil. Subgrade soil contamination reduces the strength of the aggregate and reduces its ability to drain. The result is total loss of support in unpaved roads and premature failure of pavements, manifested as fatigue cracking, rutting and even potholes.

Many agencies have lived with less than acceptable life of their roads or they have gone to thicker structural layers to compensate for the problems they have had with loss of aggregate. However, the alternative to expensive sacrificial aggregate is the use of a separation/stabilization geotextile between the subgrade and the aggregate. Geotextiles are strong, porous woven or nonwoven polypropylene fabrics made to withstand construction stresses and to maintain their integrity, indefinitely preserving the full, as-built structure of the road. Engineers have also trended toward the use of tight, well-graded aggregate layers in pavements to slow upward soil contamination. However, all engineers know that a more open, free draining aggregate, which may now safely be used above a geotextile, contributes more structural strength per inch thickness than a tight aggregate that holds water.

Separation/stabilization geotextiles reduce the life-cycle cost of a road by improving performance and reducing maintenance. It is widely proven that road life is typically doubled and/or the original structural section may be significantly reduced when a geotextile is included. Amazingly, geotextiles typically cost no more than 1 to 2 inches of aggregate and most roads will lose at least 4 inches of aggregate due to contamination.

With the recent purchase of SI Geosolutions and SI Concrete Systems, Propex Inc. is the premier global supplier of polypropylene fabrics and fibers in the geosynthetic, concrete, furnishing and industrial markets. Now the largest geotextile manufacturer in the world, Propex offers a wide range of Geotex® geotextiles that vary in physical, mechanical and hydraulic properties. These geotextiles are engineered to meet the stringent requirements of the American Association of State Highway Transportation Officials (AASHTO) and Federal Highway Administration (FHWA) specifications.

To learn more about this geotextile application as well as all the others, such as drainage, erosion control, silt fence, soil reinforcement, etc., please visit our website at www.geotextile.com. Free software is available for your use in this application as well as for pavement repair applications

featuring our Petromat[®] family of pavement interlayer products. You may also call a technical representative at 800-621-1273 for free help with your project.