

TECH**GEO**
nonwoven geotextiles



TECHFAB INDIA

At the heart of Geosynthetic activity

TECH **PAVE** C040 Paving Fabrics for Asphalt Overlays



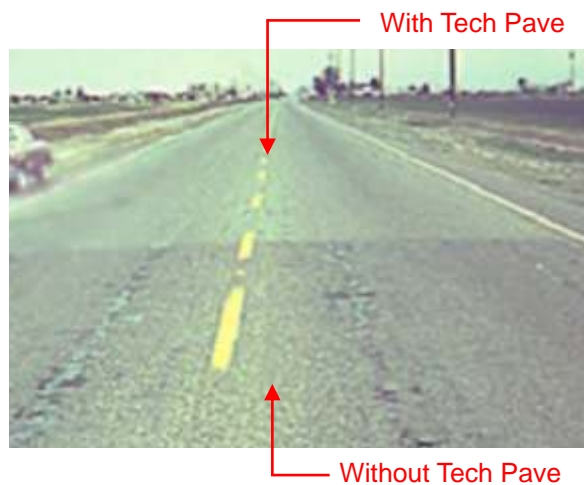
Problems In Existing Pavement Rehabilitation

The most common technique for maintenance and rehabilitation of flexible pavements is to construct a relatively thin asphalt overlay. This approach is intended to protect the existing pavement surface against water intrusion, reduce surface roughness, improve skid resistance, enhance structural capacity, and improve overall ride quality.

It is frequently observed that within a short time a pattern of cracks similar to that in the underlying pavement appear on the surface of the new overlay. This propagation of an existing pattern of cracks from the old pavement into and through a new overlay is called reflection cracking. This occurs due to the inability of the overlay to withstand shear and tensile stresses created by the movements concentrated around pre-existing cracks in the old pavement. Reflection cracking of asphalt overlays is a serious and recurring problem faced by pavement engineers globally for several decades.

Ingress of moisture through the cracks in the overlay and the effects of environment and traffic can lead to the premature failure of the overlay. The major cause of pavement structural deterioration is water beneath the pavement. Most of this water enters through cracks and pores in the pavement. Water softens the subgrade and typically reduces pavement structural capacity by about 60%. A pavement, which is saturated as little as 10% of the time, will only have 50% of the life of a pavement with a dry base.

Of the many different treatments for extending the life of overlays, which have been tried over the years, geosynthetics are one of the more successful techniques. Nonwoven geotextiles (paving fabrics) have been used extensively in asphalt overlays in several countries to control reflection cracking and to serve as a moisture barrier. Recently, Techfab India has launched TechPave C040, an indigenously manufactured nonwoven geotextiles specially engineered for asphalt overlay applications.



TechPave C040

TechPave C040 is a nonwoven paving fabric manufactured from high quality polypropylene staple fibres. The fibres are mechanically bonded through needle-punching with heat treatment (callandaring) on one side to form a strong, flexible and dimensionally stable fabric structure, with optimum bitumen retention capacity.

The raw materials and manufacturing process have been carefully controlled to achieve an optimum combination of properties to ensure superior performance as a stress absorbing membrane: interlayer and as a moisture barrier:

- Polypropylene is one of the most durable polymers, with excellent resistance to both acidic and alkaline environments.
- The affinity of Polypropylene for liquid asphalt ensures an excellent bond between the fabric and the asphalt tack coat.
- Polypropylene has a high melting point and can withstand the high temperatures of bituminous mixes
- Needle-punching and callandaring ensures a fabric structure with high porosity, elongation and dimensional stability that can be easily installed, can absorb and retain bitumen from the tack coat and undergo large deformations without rupture.



Benefits of Techpave Paving Fabric

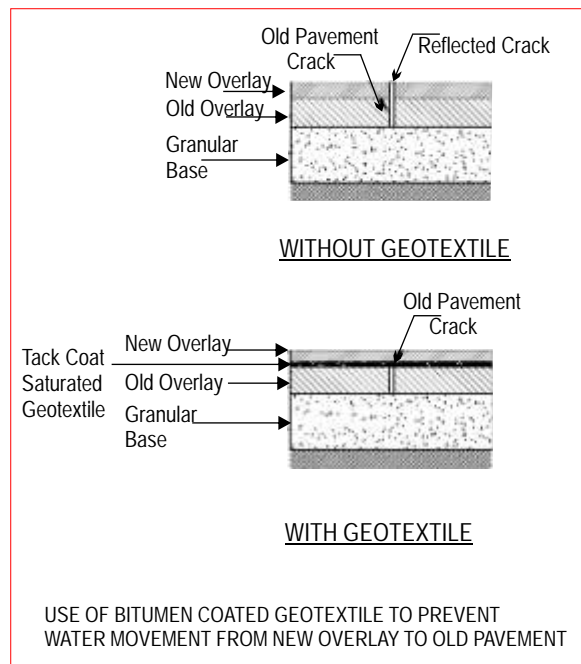
Stress relieving membrane

TechPave Geotextiles develop excellent bond to the existing pavement and the new overlay. The geotextile with high elongation ensures that the energy at the tip of the cracks in the existing pavement is expended in the ductile deformation of the fabric and not in brittle propagation of the cracks into the new overlay. Thus, TechPave does not really reinforce the overlay, but acts as a stress relieving interlayer, which considerably delays the onset of reflection cracking and thereby extending the life of the overlay.

Moisture Barrier

TechPave Geotextile when saturated with bitumen (absorbed from the tack-coat) functions as an impervious membrane which prevents the entry of surface moisture into the pavement structure and the subgrade. The high elongation characteristics of TechPave allows it to deform without rupture, thereby enabling it to continue to function as an effective barrier even in a deformed state.

The combined effect of TechPave – stress relief and moisture barrier prevents premature distress and failure of the overlay and results in a substantial increase in the useful life of the overlay.



Techpave Paving Fabric Specification

TechPave C040 conforms to the following property values that have been independently verified and approved by the Central Road Research Institute, (CRRI), New Delhi, India: in the useful life of the overlay.

Property	Test Method	Units	TechPave C040	Standard requirement As per MORT&H Specification
Grab Tensile Strength	ASTM D 4632	kg	39	36.3
Grab Elongation	ASTM D 4632	%	50	50
Asphalt Retention	Texas DOT 3099	Kg/10 m ²	10	10
Melting Point	ASTM D 276	°C	150	150
Surface Texture	Visual Inspection		Heat set (calendared)	Heat bonded

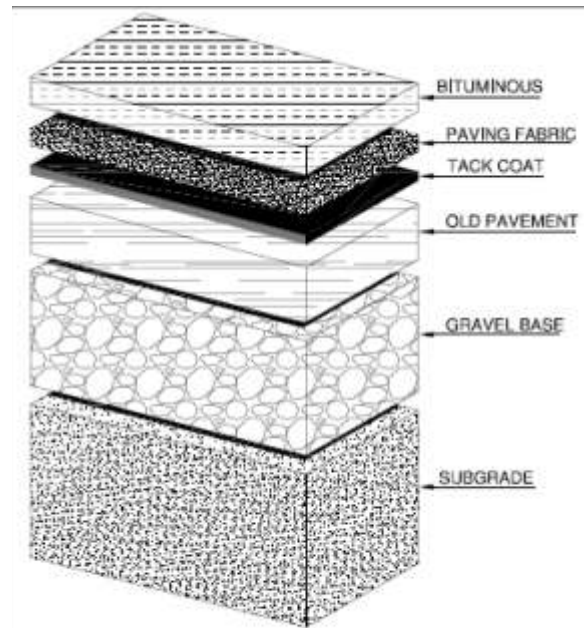
Guidelines For Use Of Techpave Paving Fabrics

To obtain the desired results, TechPave should be installed in accordance with approved methodology. Important aspects are summarized below:

Pot holes shall be repaired properly and all cracks wider than 3 mm shall be filled with suitable crack filler; the pavement surface shall be reasonably clean and dry.

Tackcoat shall be applied at the recommended rate, which should be sufficient to saturate the fabric and ensure proper bond between existing pavement, geotextile and the overlay.

TechPave C040 shall be installed with the calendared (heat-set) side up with minimum folds or wrinkles before the tackcoat has cooled and lost its tackiness. Proper contact and bond should be ensured between geotextile and the pavement surface. Placement of overlay should closely follow geotextile laydown.



LAYER ARRANGEMENT FOR USING PAVING FABRIC

The Techfab & Techpave Advantage

- Manufactured by Techfab India, India's leading manufacturer of geosynthetics, at their state-of-the-art ISO 9001:2008 certified plant located in Daman.
- Manufactured from high quality materials using precise and controlled process; tested at our in-house and independent laboratories; assured quality
- Conforms to MoRTH Specifications for paving fabrics
- TechPave C040 is tested and approved by M/s Central Road Research Institute India (CRRI).
- Schedule of supplies (quantity and delivery period) to suit customer needs and project requirements
- Offices in Mumbai, Delhi, Kolkata, Bengaluru and Ahmedabad
- Large team of highly qualified and experienced design, sales and construction engineers for design assistance, techno-commercial support and installation guidance.

About TechFab India Industries Ltd.

Techfab India was founded in 2003 with the objective of providing world class geosynthetic products and services to serve the needs of infrastructure development in India. From a modest beginning with the setting up of a manufacturing facility for woven geotextiles in Silvassa, we have rapidly grown to become the largest manufacturer of geosynthetics in India. Today we manufacture a wide range of products at our factories in Silvassa and Daman. Details are as listed:

- TechGrid - Knitted and polymer coated Polyester Geogrids (CE Marked)
- TechGrid - Base Reinforcement Geogrids (CE Marked)
- TechGlass - Glass-fibre geogrids with modified Bitumen Coating
- TechGeo Needle Punched Non-Woven Geotextiles
- TFI Woven PP Geotextiles (CE Marked)
- TFI Woven Polyester Geotextiles (CE Marked)
- TGC Reinforced Non Woven Geocomposite products
- TFI Copper & Polymer Gabions
- TechDrain - Prefabricated Vertical Drains
- Geotextile Tubes, Geotextile Bags etc



World-class Geosynthetics Manufactured in India by Techfab India Industries Ltd.

TFI Woven Geotextiles			Techgrid Geogrids	TGC Reinforced Nonwoven Composites	Techdrain PVDs	Tech Glass Geogrids	TechGeo NonWoven Geotextile
Polypropylene Tape	Polypropylene Multifilament	Polyester Multifilament					



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At the heart of geosynthetic activity

TechFab India Industries Ltd.

Head Office :

712, Embassy Center, Nariman Point, Mumbai - 400 021, India.

• Tel: + 91-22-2287 6224 / 25 • Fax : + 91-22-2287 6218

• Email : ffi@vsnl.net / anant@techfabindia.com

• Website : www.techfabindia.com

Sales Office :

• New Delhi • Bangalore • Kolkata • Ahmedabad • Bhubaneswar