

MIRAFI[®] FG & FGC PAVING GRID

Prepared by:

TenCate[™] Geosynthetics North America

365 South Holland Drive

Pendergrass, GA 30567

Tel. (706) 693 – 2226

Fax (706) 693 – 2044

www.tencate.com

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GENERAL

This document is prepared to help ensure that Mirafi® FG & FGC paving grids, once installed, will perform their intended design function. To function properly, the paving grids must be identified, handled, stored, and installed in such a way that their physical property values are not affected and that the design conditions are ultimately met. Failure to follow these guidelines may result in the unnecessary failure of a properly designed application.

There are two important specifications for a successful paving grid project; the paving grids and the asphalt cement, or “tack coat.” Described below are product recommendations and installation guidelines for Mirafi® FG & FGC paving grids when used in conjunction with commercially available tack coats, with quality control measures.

MATERIAL IDENTIFICATION, STORAGE AND HANDLING

Care must be taken while unloading or transferring Mirafi® FG & FGC products from one location to another. This will prevent damage to the wrapping, core, label and to the paving grids themselves.

If the paving grids are to be stored for an extended period of time, they shall be located and placed in a manner that ensures the integrity of the wrapping, core and label as well as the physical properties of actual paving grid material. This includes, but is not limited to, storing them away from exposure to UV light, rain, wind and snow.

PRODUCT DESCRIPTION AND APPLICATIONS

Mirafi® FG and FGC products (paving grids) are specifically designed for use in the construction and repair of flexible (asphalt) and rigid (concrete) pavements, such as roads, parking lots, airfields and other paved surfaces.

Note: FG200 shall only be installed in a single strip application on longitudinal or transverse cracks or localized cracked pavement areas . Material shall not be installed in a manner such that an overlap is created either in a longitudinal and/or transverse orientation along the material edges.

Mirafi® FG (paving grid) is composed of a high modulus fiberglass grid bonded to a lightweight scrim. The scrim is a one ounce/square yard (oz/sy) nonwoven geotextile bonded to the paving grid. Its only purpose is to bond the paving grid to the existing surface throughout the construction process. When saturated, it is not sufficiently impermeable to be considered a waterproof membrane.

Mirafi® FGC (composite paving grid) is composed of a high modulus fiberglass grid bonded to a polyester paving fabric. The paving fabric is a four oz/sy nonwoven geotextile. The purpose of the paving fabric is to provide a waterproof membrane once it is saturated with a tack coat and to help bond the composite paving grid to the existing surface throughout the construction process.

PRODUCT SHIPPING AND STORAGE

The Mirafi® FG and FGC series products should be kept dry and wrapped such that they are protected from the elements during shipping and storage. If stored outdoors, the fabric rolls need to be elevated and protected with a waterproof cover.

SURFACE PREPARATION

Weather

On the day of installation, ambient air and pavement temperatures should be at least 45°F (8°C) and rising prior to placement of Mirafi® FG and FGC. The asphalt tack coat and Mirafi® FG and FGC shall not be placed during unsuitable weather conditions, such as rain, snow or strong winds; or as directed by the engineer.

Surface Preparation

The existing pavement surface should be dry and cleaned of all dirt, oil, and debris. Cracks wider than 3/8 inch (8 mm) should be cleaned and filled with bituminous material appropriate for the type of crack. Potholes and local subgrade failures shall be repaired as directed by the engineer.

Leveling Course Requirements

	PCC No Milling	PCC Milling	HMA No Milling	HMA Milling
Mirafi FG	Leveling Course Required	Leveling Course Required	Leveling Course Recommended	Leveling Course Required
Mirafi FGC	Leveling Course Recommended	Leveling Course Required	Place Directly on Surface	Place Directly on Finish Mill Leveling Course Required for Deeper Milling

PCC – Portland Cement Concrete

HMA – Hot Mix Asphalt

Leveling courses should consist of tighter, nonporous hot mix asphalt. Leveling courses should be allowed to cool completely prior to installation of paving grids.

INSTALLATION

Mirafi® FG & FGC are installed the same except for the existing surfaces that they can be applied to and the amount of tack coat required for proper installation. These differences are clearly spelled out in the following paragraphs and Tables 1 and 2.

Installation of Mirafi® FG & FGC requires a tack coat applied using a calibrated distributor truck followed by the application of Mirafi® FG or FGC using mechanical laydown equipment. These products should not be manually installed.

Tack Coat

Paving fabrics and scrims require a fixed amount of tack coat for saturation and bonding. This amount does not change based on the temperature or type of the tack coat, air and pavement temperatures or field conditions. The following recommendations and tables should be followed closely. Too little tack coat can result in a failure of the pavement section. Not handling bleed through correctly can result in damage to the paving grids, truck wheels picking up material, and/or failure of the pavement section.

Suitable asphalt tack coats are uncut liquid asphalts such as PG graded asphalts (unmodified and modified), ARs, and ACs. (See table 1)

**TABLE 1
General Guide Lines for Asphalt Binders Suitable for Mirafi® FG & FGC Products**

	AC Grades	AR Grades	PG Grades	Modified PG Grades
	AC 40	AR 16000		
Asphalts for Mirafi FG & FGC			PG 70-22	SBSPG 76-22
	AC 20	AR 8000	PG 67-22	SBSPG 70-22
			PG 64-22	
	AC 10	AR 4000	PG 58-10	
			PG 58-28	
	AC 5	AR 2000		HPSPG76-10
			PG 52-28	
	AC 2.5	AR 1000		

The tack coat should be applied at a rate sufficient to bond the scrim or paving grid to the existing pavement surface. See Table 2 for Mirafi® FG and FGC tack coat application rates. The tack coat shall be applied with a calibrated, computer rated distributor truck capable of triple coverage spray. All nozzles shall be in working condition and uniformly angled with the outside nozzles angled perpendicular to the spray bar to provide a clean edge.

TABLE 2
Mirafi® FG & FGC Tack Coat Application Rates

Paving Grid Type	Light (gal/sy)	Normal (gal/sy)	Heavy (gal/sy)
FG (Lightweight Scrim)	--	0.08	0.10
FGC (Paving Fabric)	0.23	0.25	0.27

Note: These are recommended application rates. Field conditions affect the amount of tack coat required, but tack coat should never be applied below the “light” rate.

Light – Smooth, tight, unoxidized pavements or leveling courses. Leveling courses should be allowed to cool prior to installation of Mirafi® FG or FGC.

Normal – Slightly porous, slightly oxidized, relatively smooth pavement with cracks over 3/8” filled.

Heavy – Milled, irregular, porous, cracked, or oxidized pavements.

The temperature of the asphalt tack coat shall be sufficiently high to permit a uniform spray pattern. The tack coat shall be applied only as far in advance of the paving grids as is appropriate to ensure a tacky surface at the time of paving grid installation. The target width of the tack coat application shall be 4” wider than the width of the paving grids.

If bleed-through of the tack coat through the scrim or paving fabric occurs, the following measures can be taken to minimize or eliminate problems. Tack coat application rate should never be reduced to below the appropriate rate in Table 2.

1. Hand spreading a small amount of HMA on top of the paving grid where bleed-through has occurred
2. Hand spreading a small amount of HMA on top of the paving grid in vehicle wheel paths.
3. Change to a heavier or stiffer grade of tack coat.

4. Prohibit unnecessary vehicles from traveling on the paving grid.
5. Avoid frequent stopping and starting of the distributor truck to minimize heavy-tack areas.

Paving Grids

The paving grids should be placed with the scrim or paving fabric side down onto the tack coat manually or using mechanical laydown equipment capable of keeping the paving grids taught during the installation.

At end and longitudinal joints, roll overlap should be kept to a minimum of 1"-2". Excess material should be cut and removed to ensure that overlap of adjacent rolls does not exceed 4".

Note: FG200 shall only be installed in a single strip application on longitudinal or transverse cracks or localized cracked pavement areas. Material shall not be installed in a manner such that an overlap is created either in a longitudinal and/or transverse orientation along the material edges.

The paving grids shall be laid down smooth to minimize wrinkling or folding. Wrinkles severe enough to create a fold must be slit and laid flat with extra tack coat applied where necessary to recreate a bond between the existing asphalt and the paving grid, or layers of paving grid, as directed by the engineer. On curves and around corners, the paving grid must be cut and realigned to minimize wrinkles and folding.

Turning and braking of the paving equipment or other vehicles on the paving grid should be avoided to prevent movement of or possible damage to the paving grid. Damaged paving grid shall be removed and replaced with the same type of paving grid and fresh tack coat.

Traffic

It is recommended that motorist vehicle traffic be kept to the absolute minimum on the installed paving grid. The installed paving grid should never be left open to traffic unless there is traffic control and supervision at the site.

Asphalt Overlay

The asphalt overlay should be laid as soon as practical after the installation of the paving grid. The minimum compacted thickness of the first lift of HMA overlay shall be 1.5 inches (38 mm). If the HMA overlay is to be feathered to less than 1.5", Mirafi® FG and FGC shall be placed only where the first lift of the HMA overlay will be at least 1.5".

References

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