

# GEOFABRICS®

Smarter Infrastructure



**TENCATE**  
GEOSYNTHETICS

**MIRAFI RSi**

MULTIFUNCTIONAL  
WOVEN GEOTEXTILES



### IDEAL FOR TEMPORARY ACCESS ROADS

Mirafi RSi is designed to maximise use of site-won materials in temporary roads, haul roads and site access road construction.

This can deliver significant cost reductions as less imported fill is required in construction.

## WHY MIRAFI RSi?

When faced with increasing earthworks costs and challenging ground conditions Mirafi RSi can offer engineers and contractors a cost effective solution to road construction over soft soils.

Contractors can significantly reduce the cost of temporary and permanent roads over soft soils through the use of Mirafi RSi and locally sourced fill materials.

Combining developments in polymer science and more than forty years of geosynthetics engineering experience, TenCate has broken the barriers of engineering over soft soils with larger aggregates.

**Mirafi RSi geotextiles are the first truly multifunctional geotextiles developed to ensure reinforcement, separation, drainage and filtration and superior material interaction between the road aggregate layers in an integrated way.**

The result is an assured significant improvement in road/subgrade performance with the added benefit of reduced sub base material volumes when constructing over soft soils. Such is the quality of Mirafi RSi that the softer the soil, the better the performance and the greater the savings, particularly when used with site-won aggregates.

No other geotextile on the market today offers the same combination of benefits and performance as Mirafi RSi.

In terms of technical performance, TenCate Mirafi RSi is proven to provide excellent separation with superior filtration and drainage. TenCate Mirafi RSi has a unique double layer construction with uniform openings which provide consistent filtration and flow characteristics of a fine to coarse sand layer.



**SIGNIFICANT COST SAVINGS**

One of the most economical geosynthetic materials available in the market. Offers significant savings by using site-won material as the aggregate layer.

**EXTREME ROBUSTNESS**

Withstands the effects of rough dumping and filling with minimal damage. Performs extremely well with large site-won fill.

**SIGNIFICANT AGGREGATE FILL SAVINGS**

Reduces the cost of removal of site-won materials. Can be simply evaluated via our free design support service.

**SUPERIOR SEPARATION CAPABILITY**

Effective prevention of aggregate mixing and loss of sub-base material into soft subgrade.

**HIGH TRANSVERSE TENSILE MODULUS**

Efficient absorption and distribution of tensile load.

**HIGH INTERACTION COEFFICIENT**

Superior load transfer between fill and reinforcement.

**HIGH PERMEABILITY**

Efficient release of pore water pressure. Suitable for installation over very soft wet soils.

**EASY INSTALLATION**

Extremely easy to lay and align. Requires minimal manpower.

**FREE TECHNICAL ASSISTANCE**

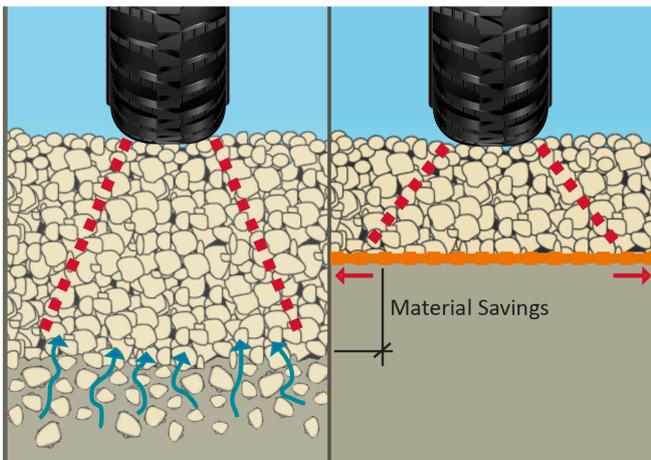
Fully supported by experienced local and international geosynthetics experts and extensive research in internationally recognised Universities and Testing Institutes.

## MAXIMISE MATERIAL SAVINGS ON SITE

Mirafi RSi can help deliver material cost savings of up to 33% by reducing the amount of base material required.

This is a significant cost reduction.

# SAVE UP TO 33% ON THE AMOUNT OF SUBBASE MATERIAL REQUIRED



Example of temporary access track showing use of site-won aggregate. Savings of up to 33% include reduction in pavement thickness, as well as lower costs to import fill, casting to spoil and costs to remove large, site-won materials.

## FREE DESIGN SOFTWARE

To assist with the design process and calculate potential cost savings of using Mirafi RSi in haul roads, access tracks and temporary roads, Geofabrics' clients can access TenCate's free online design software, MiraSpec. Simply go to [www.miraspec.com](http://www.miraspec.com) for more information.

ONLINE DESIGN SOFTWARE  
[www.miraspec.com](http://www.miraspec.com)

## SECTOR SUITABILITY



Roads



Rail



Coastal



Waste



Mining



Civic & Landscaping



Ports & Aviation



Water



Primary Industries



Sports & Recreation



Slopes & Walls



Building

# DESIGNED FOR ROADS

## ROADS & HIGHWAYS

Roads and highways today not only have to support increasing traffic volume, but also increased axle loads, requiring more sophisticated design to reduce construction costs.

The use of engineered woven geotextiles to form a subgrade improvement layer in pavements over soft soils can save on costs by allowing for a reduction in subbase thickness and faster construction times.

## HAUL ROADS AND UNPAVED ROADS

TenCate Mirafi RSi Multifunctional Woven Geotextiles provide engineers with an alternative solution to traditional solutions for haul roads, unpaved roads and load supporting platforms, combining all the critical functions that contribute towards subgrade reinforcement.

TenCate Mirafi RSi Multifunctional Woven Geotextiles solve problems in the most demanding of construction conditions, as well as saving on construction costs by maximising the use of onsite material.



### Separation

TenCate Mirafi RSi is proven to provide an excellent separation with superior filtration and drainage. TenCate Mirafi RSi has a unique double layer construction with uniform openings which provide consistent filtration and flow characteristics of a fine to coarse sand layer.



### Reinforcement

The high initial modulus of TenCate Mirafi RSi Multifunctional Woven Geotextile make it ideal as a reinforcement solution in weak soils.



### Permeability

The high permeability of TenCate Mirafi RSi Multifunctional Woven Geotextiles allows rapid dissipation of excess pore water pressure that usually develops in the subgrade when wheel loads are induced, thereby helping to minimise undrained conditions and reduce plastic deformations in the subgrade.



### **EXTREME ROBUSTNESS**

Mirafi RSi withstands the effects of rough dumping and filling with minimal damage and performs extremely well with large site-won fill.

# TECHNICAL DATA

The Mirafi RSi Multifunctional Woven Geotextiles Series is a revolutionary geotextile created from super high-tenacity polypropylene filaments formed into an innovative weave to provide superior reinforcement strength and soil interaction integrated with high water flow and soil retention capabilities.

PROPERTY	TEST METHOD	UNITS	RS 380i	RS 580i
MECHANICAL PROPERTIES				
Characteristic Tensile Strength at 2% Strain CD	ASTM D4595	kN/m	20	26
Characteristic Tensile Strength at 2% Strain MD	ASTM D4595	kN/m	8	9
CBR Puncture Strength	ASTM D6241	N	6,600	9,000
Grab Strength	ASTM D4632	N	1,500	2,100
Trapezoidal Tear Strength	ASTM D4533	N	600	700
G-Rating	Austrroads	-	7,000 <sup>1</sup>	10,000 <sup>1</sup>
HYDRAULIC				
Flow Rate	ASTM D4491	L/m <sup>2</sup> /sec	50.8	50.8
Permittivity	ASTM D4491	sec <sup>-1</sup>	0.9	1.0
SOIL RETENTION				
Apparent Opening Size, O <sub>95</sub>	ASTM D4751	mm	0.43	0.43
Effective Opening Size, O <sub>90</sub>	ISO 12956	mm	0.35	0.30
SOIL INTERACTION				
Interaction Coefficient (Direct Shear)	ASTM D5321	-	0.80 <sup>1</sup>	0.80 <sup>1</sup>
Interaction Coefficient (Pull-out)	ASTM D6706	-	0.89 <sup>1</sup>	0.90 <sup>1</sup>
Resistance to Installation Damage	ASTM D5818	% strength retained	90 <sup>1</sup>	90 <sup>1</sup>
UV Resistance (at 500 hours)	ASTM D4355	% strength retained	90	90
PHYSICAL PROPERTIES				
Roll Dimension (width x length)	-	m	4.6 x 100	4.6 x 100
Roll Area	-	m <sup>2</sup>	460	460

Notes:

1. G-Rating, interaction coefficient (for sand or gravel) and resistance to installation damage (for sandy gravel) values are based on tests conducted by external test laboratories.
2. MXD = Machine cross direction, MD = Machine direction
3. The characteristic being the 95<sup>th</sup> percentile value. All other values are typical unless stated otherwise.

# INSTALLATION GUIDELINES

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## GEOSYNTHETIC PLACEMENT

Place the Mirafi RSi Multifunctional Woven Geotextile directly on prepared surface. It is advisable to leave vegetative cover in place to provide a support matting for construction activities.

Mirafi RSi should be deployed flat and tight with no wrinkles or folds. The rolls should be oriented as shown on plans to ensure the principle strength direction of the material is placed in the correct orientation. Adjacent rolls should be overlapped as a function of subgrade strength (CBR). Prior to fill placement, the Mirafi RSi geotextile should be held in place using suitable means such as pins, soil, staples and sandbags to limit movement during fill placement.

## FILL PLACEMENT

Fill should be placed directly over the Mirafi RSi Multifunctional Woven Geotextile in 200 mm to 300 mm loose lifts. For very weak subgrades, 450 mm lifts or thicker may be required to stabilise the subgrade. Most rubber-tired vehicles can be driven at slow speeds, (less than 16 km/h) and in straight paths over the exposed Mirafi RSi without causing damage. Sudden braking and sharp turning should be avoided.

Tracked construction equipment should not be operated directly upon the geosynthetic.

A minimum fill soil thickness of 150 mm is required prior to operation of tracked vehicles over Mirafi RSi. Turning of tracked vehicles should be kept to a minimum to prevent tracks from displacing the fill and damaging Mirafi RSi.

# TECHNICAL SUPPORT

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As Australasia's geosynthetic specialists, Geofabrics is able to provide additional support services to ensure the best product solution is offered on every project.

We leverage the expertise of our internal resources, including professional engineers who are specialists in their fields, to provide detailed design suggestions for your project. Our design suggestions can help fast-track your design process, provide another technical viewpoint and reduce construction costs while delivering value over the life of your project through innovative use of geosynthetics as a solution.

Our team also offer generic standard specifications and drawings to enable designers to complete project documentation faster and reduce the risk of error in the documentation.

**For a complete overview of how we can provide value engineering support for your project, including reductions in construction costs, improved performance or quicker design, contact us or visit our website.**

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