

# MIRAFI RSi-Series

Subgrade stabilization and  
pavement base reinforcement



**MIRAFI®** *RSi-Series* is a high-performance geosynthetic engineered to offer a single solution for roadway reinforcement and stabilization. Its high-modulus construction integrates key performance properties including soil reinforcement, confinement, separation, and filtration.



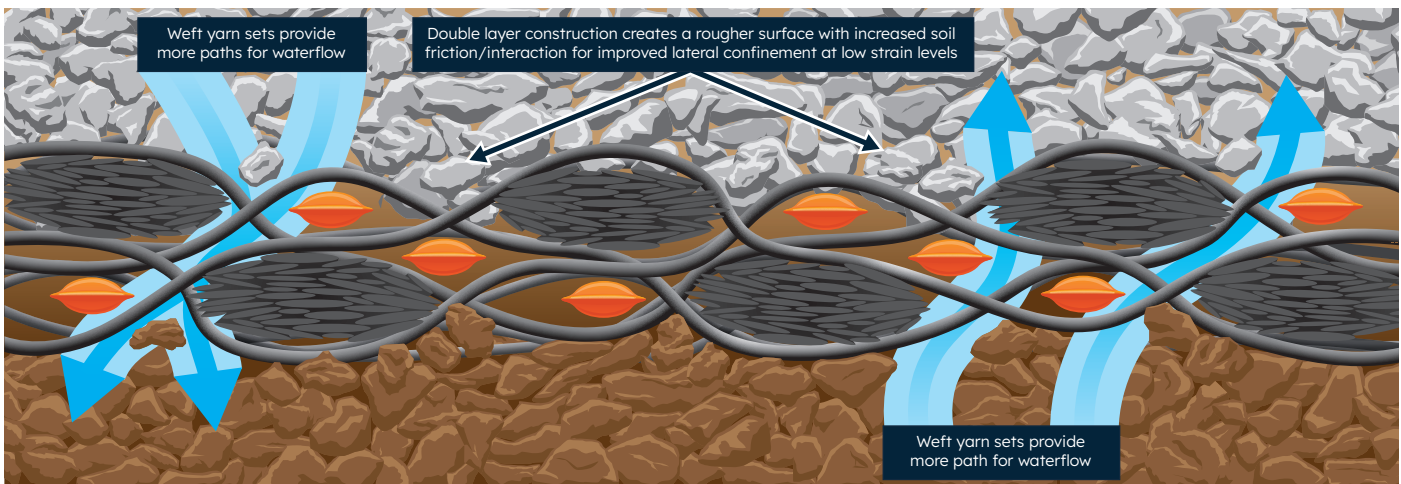
The **MIRAFI RSi-Series** have been validated through extensive full-scale and laboratory scale performance testing, and over 60 million yd<sup>2</sup> (50 million m<sup>2</sup>) have been installed throughout the Americas.

### Double layer construction

**MIRAFI RS380i** and **MIRAFI RS580i** are constructed with a double layer weave technology, consisting of both monofilament and fibrillated yarns, to provide more than three times the surface area of typical woven geotextiles. This engineered design creates higher in-plane friction and micro-interlocking, resulting in excellent interaction with the underlying subgrade and overlying materials. This surface friction mechanism enables the use of a wide range of materials on top of the geotextile.

In a recent study by Louisiana Transportation Research Center, the improved friction characteristics of the **MIRAFI RSi-Series** were found to provide high lateral restraint of the base course at low strain levels.

The double layer construction also creates more depth in the structure, which improves long-term waterflow by increasing clogging resistance while retaining finer soil particles.



Unique double layer construction of **MIRAFI RSi-Series** consisting of monofilament and fibrillated yarns to provide more than three times the surface area of a typical woven geotextile



A standard single layer geotextile has a smoother surface, providing less opportunity for soil interaction



Separation is a crucial requirement for civil assets built on unfavorable soil conditions. **MIRAFI** RSi-Series eliminates the need for separate reinforcement and separation geosynthetics, saving time and money.

## Apparent Opening Size

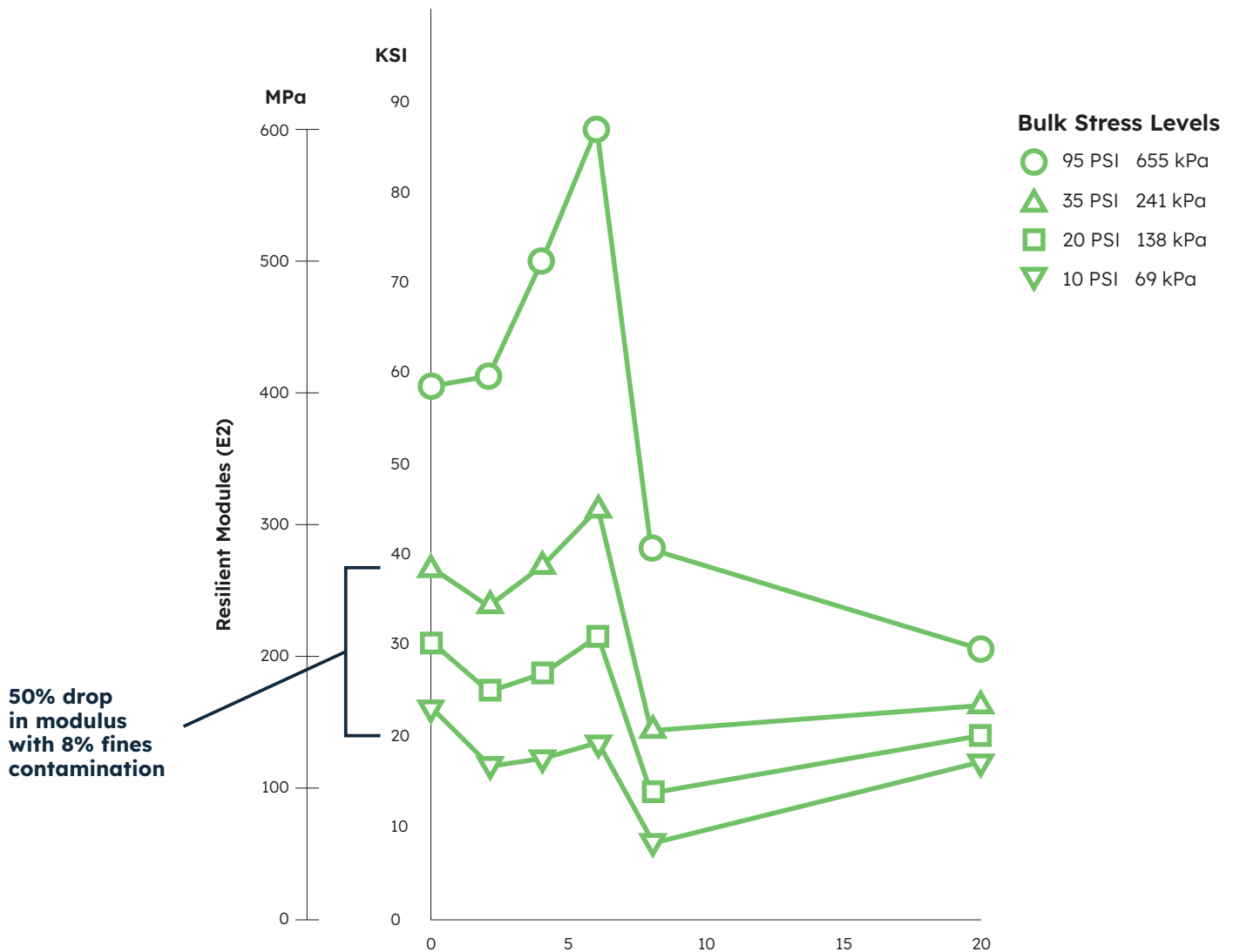
Apparent Opening Size (AOS) plays a critical role in a geotextile's ability to provide separation between the subgrade and the base course layer of a roadway. Even a small percentage of fines contamination can significantly reduce the modulus of the structural section. Jorenby & Hicks (1986) showed that at a bulk stress level of 35 psi (which represents the stress state within a typical aggregate base course), less than 10% fines contamination of the base course can result in a 50% drop in modulus (shown graphically below).

The double layer construction of the **MIRAFI RSi-Series** allows for a greater number of openings of various sizes than single-layer geotextiles.

This allows **MIRAFI RSi-Series** to confine smaller particles and better prevent subgrade fines from migrating into overlying aggregate materials.

**In some cases, single-layer geotextiles allowed for 15% more fines contamination of the base course than MIRAFI RS380i and RS580i.**

## Resilient modulus



## FEATURES AND BENEFITS

- Features higher modulus and water flow than traditional stabilization alternatives.
- Double layer construction provides varied pore sizes for excellent separation and superior filtration, interaction, and flow characteristics.
- Provides excellent soil and base course confinement resulting in greater load distribution.
- Durable design provides damage resistance for moderate to severe stress during installation.
- Distinctive orange color allows for easy product identification.
- Panels can be seamed in the factory or field, providing cross-roll direction strength to facilitate efficient installation.
- Available in multiple roll sizes to fit project requirements.






## APPLICATIONS

- Paved & unpaved roadways
- Airport pavements
- Railway construction & ballast stabilization
- Parking lots
- Pipeline construction
- Drilling pads
- Crane pads





**MIRAFI RSi** is commonly employed to expedite construction and reduce overall soil stabilization costs compared to basic, less sustainable methods.



# BENEFITS TO USING GEOSYNTHETICS FOR SUBGRADE STABILIZATION AND REINFORCEMENT VS. CHEMICAL STABILIZATION

## MIRAFI RSi-Series

No specialized equipment needed.



Ease of installation

No curing time – construction can continue immediately after installation.



Construction time

Can be installed in all weather conditions, including wind and cold.



Installation environment

Validated through multiple full scale performance testing with third-party experts.



Performance verification & third-party testing

Service life of the geotextile is longer than the roadway itself. Once installed the geotextile will continue to improve performance and will not break down due to freeze/thaw and wet/dry cycles.



Performance life

Allows for the proper drainage of the pavement area to improve overall performance.



Performance - drainage

If future maintenance is needed, it can occur above or below the level of the geotextile. **MIRAFI RSi** will continue to improve the performance of new pavement maintenance and rehabilitation.



Future maintenance

## Chemical Stabilization

Specialized equipment and contractor needed.

Standard cure time is 7 days.

Cannot be installed in windy conditions due to the caustic nature of the materials. Materials are harmful to inhale and can cause damage to car paint.

No design ESAL or structural number that is required for an AASHTO 93 design.

Commonly exhibits poor strength retention when exposed to hydration, providing only a short-term solution.

No drainage layer is included making roadway susceptible to water damage.

Full depth repair is needed when roadways fails and the chemical stabilization would need to be reinstalled.





## DESIGN TOOLS

MiraSpec design software is an analysis tool to support engineers in designing more sustainable and cost-effective flexible paved and unpaved roadways.

This program allows users to calculate:

- Flexible pavement Structural Number (SN)
- Equivalent Single Axle Load (ESAL) based on AASHTO 1993
- Gravel thickness
- Cost comparisons with and without geotextiles using the Giroud-Han (2004) unpaved and the paved AASHTO design methods
- Thickness reduction savings and green savings support by incorporation of a geotextile
- Calibrated based on performance testing of **MIRAFI RSi**. These performance tests are required for accurate results. FHWA and AASHTO have stated that geosynthetic equivalencies should never be based strictly on index properties.

Visit [MiraSpec.com](https://www.miraspec.com) to learn more.

### **About Solmax**

Solmax is a world leader in sustainable construction solutions, for civil and environmental infrastructure. Its pioneering products separate, contain, filter, drain and reinforce essential applications in a more sustainable way – making the world a better place. The company was founded in 1981, and has grown through the acquisition of GSE, TenCate Geosynthetics and Propex. It is now the largest geosynthetics company in the world, empowered by more than 2,000 talented people. Solmax is headquartered in the province of Quebec, Canada, with subsidiaries and operations across the globe.

### **Uncompromised quality**

Our products are manufactured to strict international quality standards. All our products are tested and verified at our dedicated and comprehensive laboratories which maintain numerous accreditations. We offer our partners a wide scope of testing according to published standards to ensure products delivered to sites meet specified quality requirements.

# Let's build infrastructure better



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