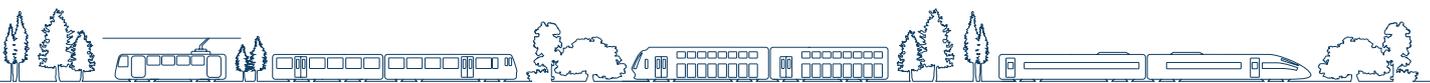


TRANSPORT FLOORING FOR RAIL



creating better environments

forbo

FLOORING SYSTEMS



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Creating better rail environments across the world

Forbo has developed a truly comprehensive and compliant flooring product offer for the global rail sector. Whether you are sourcing floor coverings for high speed, intercity, regional or light rail carriages, or for trams or metro vehicles, we can provide you with an exceptional range of products to meet the necessary requirements.

Within our portfolio you will find high performance entrance systems, linoleum flooring, textile carpets and flocked floor coverings, and the widest range of design and colourways on the market, giving you a world of choice. We also supply all the necessary adhesives, accessories and specialist tools your installation team might need.

We are very experienced in material scheduling and meeting individual logistical challenges, both for new build and refurbishment programmes. We will work closely with you to understand your exact requirements, in order to achieve the optimum service level.

If you are looking for a totally unique flooring solution, your Forbo Account Manager will work directly with our experienced and talented in-house design team to deliver custom floor covering designs that are guaranteed to give your rail interiors a truly individual look.

Working with Forbo means:

- *A sole source of supply for all your flooring requirements*
- *The largest and most versatile choice of floorcoverings*
- *A custom design service*
- *Global advice, support and cross border project management*

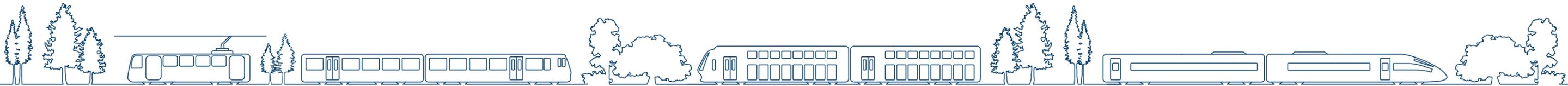
You can rely on Forbo to deliver an exceptional total flooring solution for your rail project.



FLOORING SYSTEMS



Floor coverings for rail:



Entrance Systems

coral® FR

Key benefits:

Dirt removal, moisture absorption, soil hiding

coral® classic FR

coral® duo FR

coral® brush FR

Resilients

marmoleum® FR

Key benefits:

Natural, sustainable, scuff resistant, easy to clean

marmoleum® fresco FR

marmoleum® real FR

marmoleum® vivace FR

marmoleum® concrete FR

marmoleum® striato FR

Textiles

tessera® FR

Key benefits:

Warm, comfortable, slip resistant, good acoustic properties

tessera® alignment FR

tessera® helix FR

flotex® FR

Key benefits:

Easy to clean, extensive custom design capabilities, high durability

flotex® colour FR

flotex® vision FR

coral® move FR

Key benefits:

Extensive design capabilities, moisture absorption, warm, comfortable, high durability



coral[®] FR

Entrance systems that can stop up to 95% of dirt and moisture being tracked through a rail vehicle

coral[®] FR

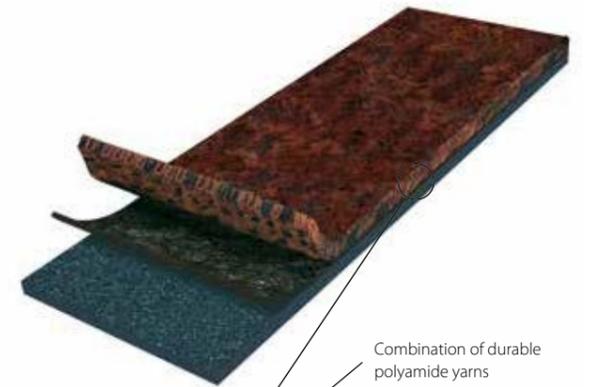
First impressions are crucial, which is why effective entrance flooring that stops dirt and moisture being tracked into carriages and saloon areas is fundamental to modern train design.

By removing wet and dry soiling from the soles of shoes and wheel treads, an effective entrance system reduces premature wear and tear to interior floor coverings, minimises cleaning and maintenance costs and protects passengers by reducing slip hazards.

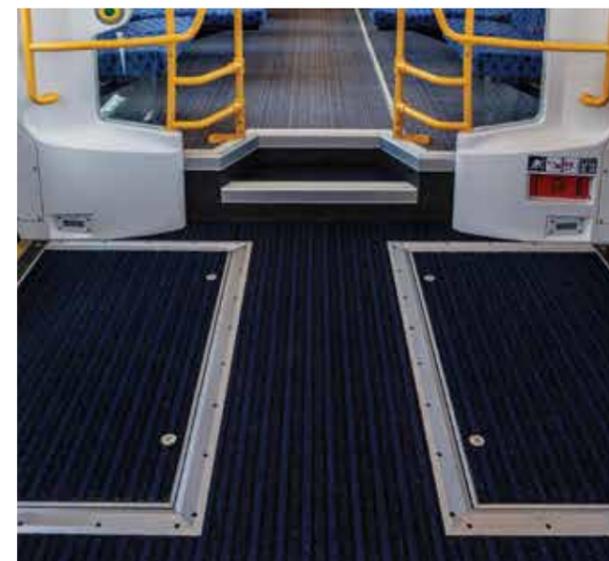
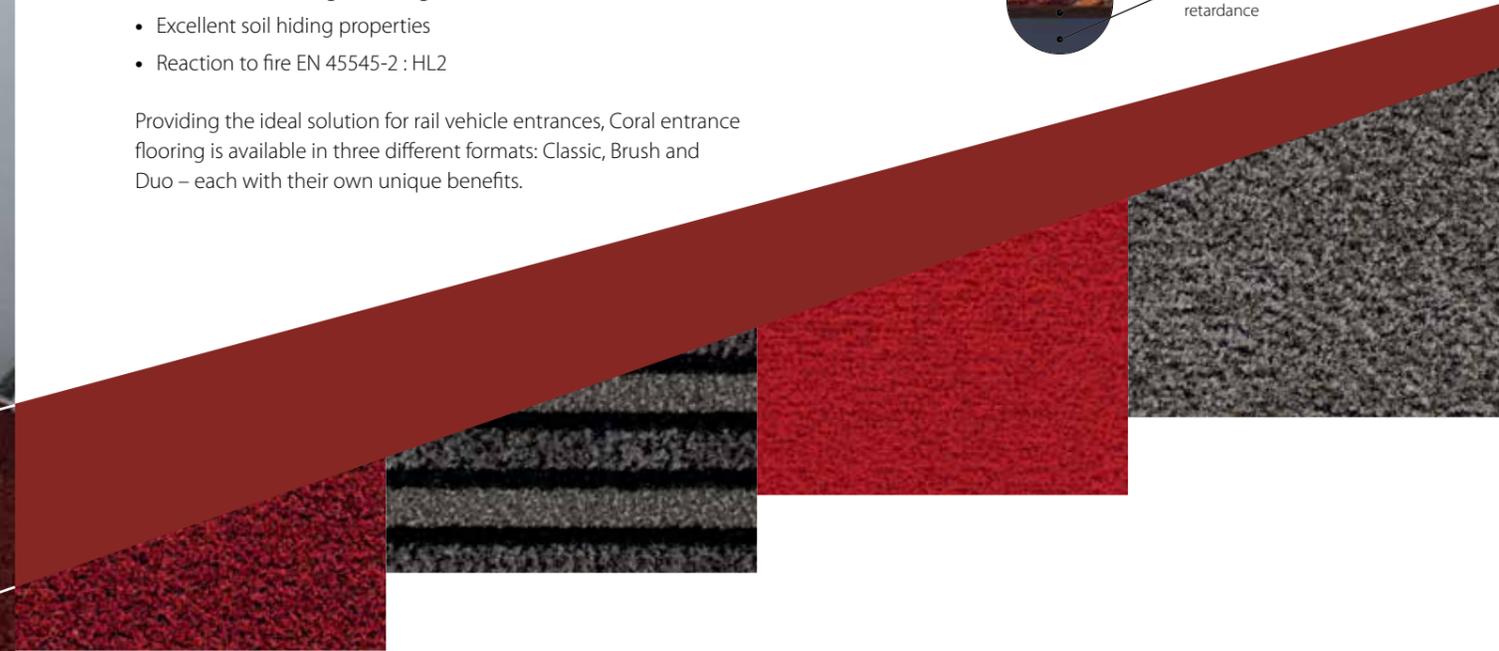
Benefits:

- High moisture absorption
- Dirt scraping for effective clean-off
- High dirt storage
- Advanced colouring and design choice
- Excellent soil hiding properties
- Reaction to fire EN 45545-2 : HL2

Providing the ideal solution for rail vehicle entrances, Coral entrance flooring is available in three different formats: Classic, Brush and Duo – each with their own unique benefits.



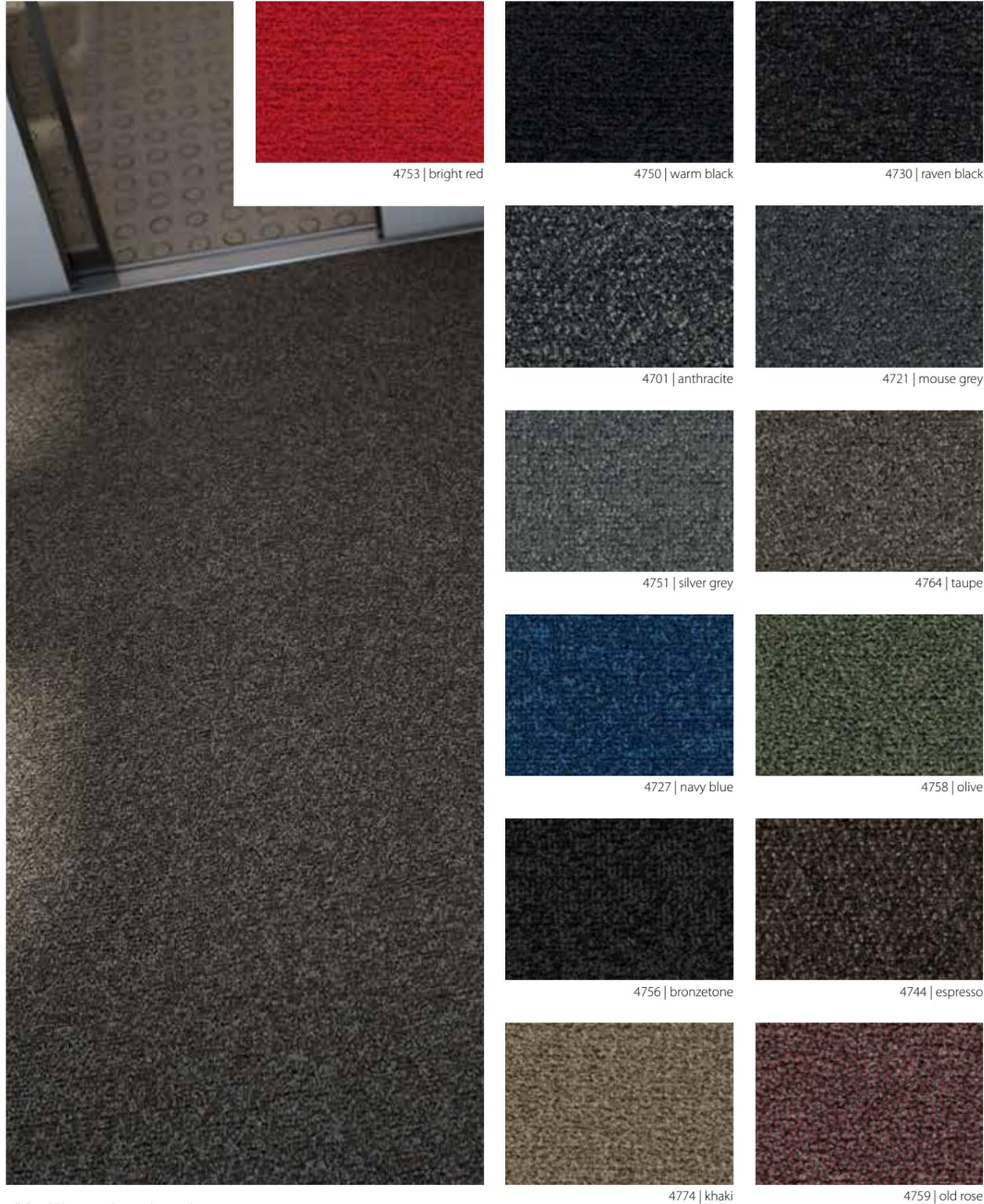
- Combination of durable polyamide yarns
- Primary backing
- Backing material latex giving higher fire retardance



coral[®] classic FR

The ultimate moisture absorbing clean-off system.

Coral Classic is available in 13 colours

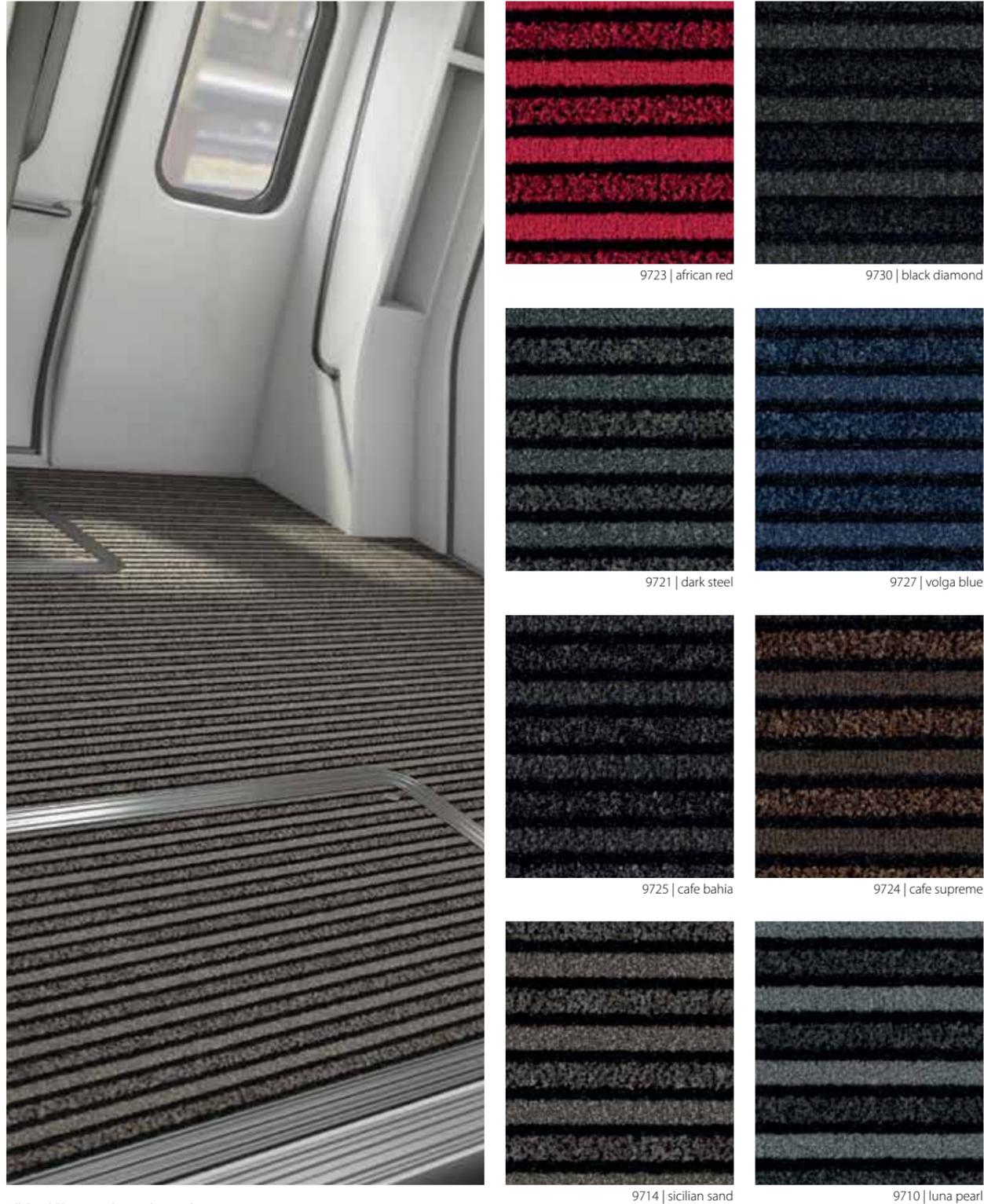


All Coral FR material is made to order.

coral[®] duo FR

For unbeatable soil removal, especially in compact areas.

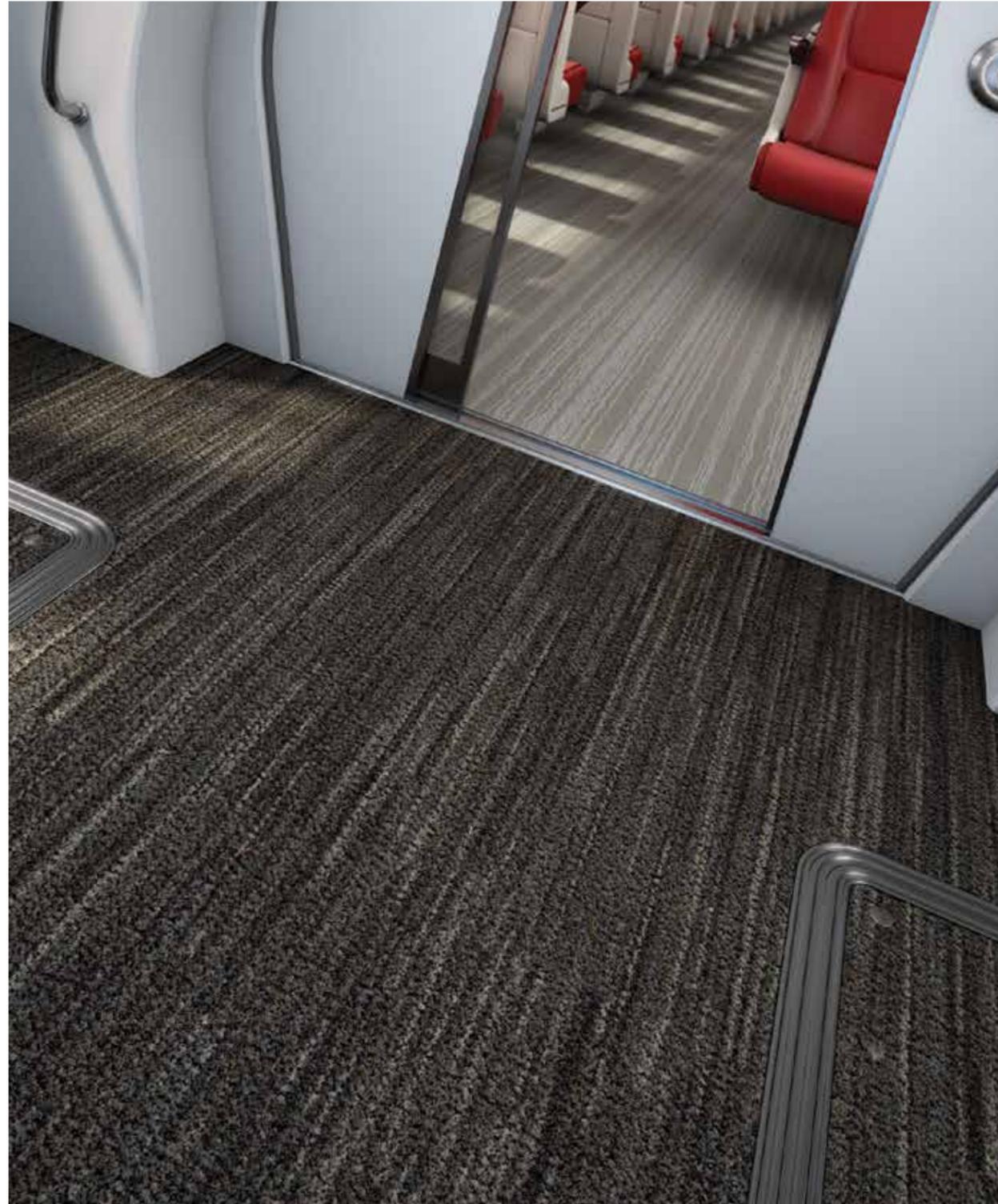
Coral Duo is available in 8 colours



All Coral FR material is made to order.

coral[®] brush FR

Unique design with exceptional performance.

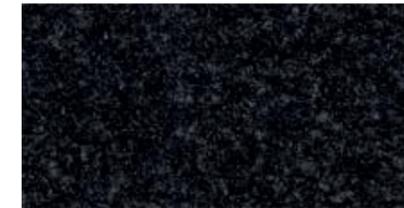


All Coral FR material is made to order.

Coral Brush is available in 18 colours



5750 | aztec black*



5730 | vulcan black



5710 | asphalt grey



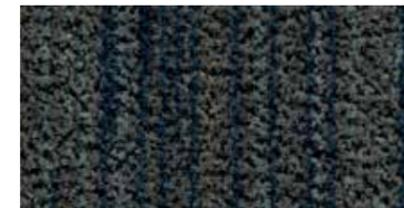
5741 | cannon grey*



5715 | charcoal grey



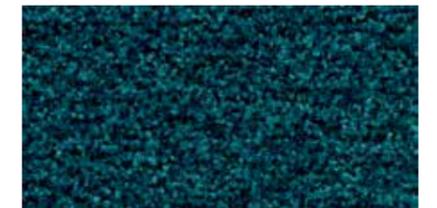
5714 | shark grey



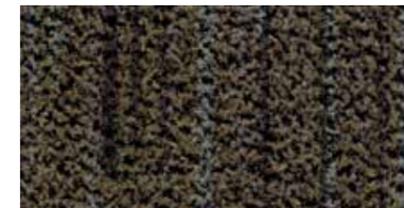
5767 | slate blue*



5721 | hurricane grey



5705 | bondi blue



5764 | petrified grey*



5727 | stratos blue



5722 | cornflower blue



5754 | straw brown*



5706 | brick red



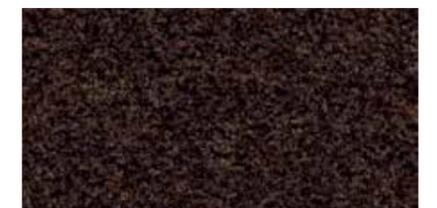
5723 | cardinal red



5716 | masala brown

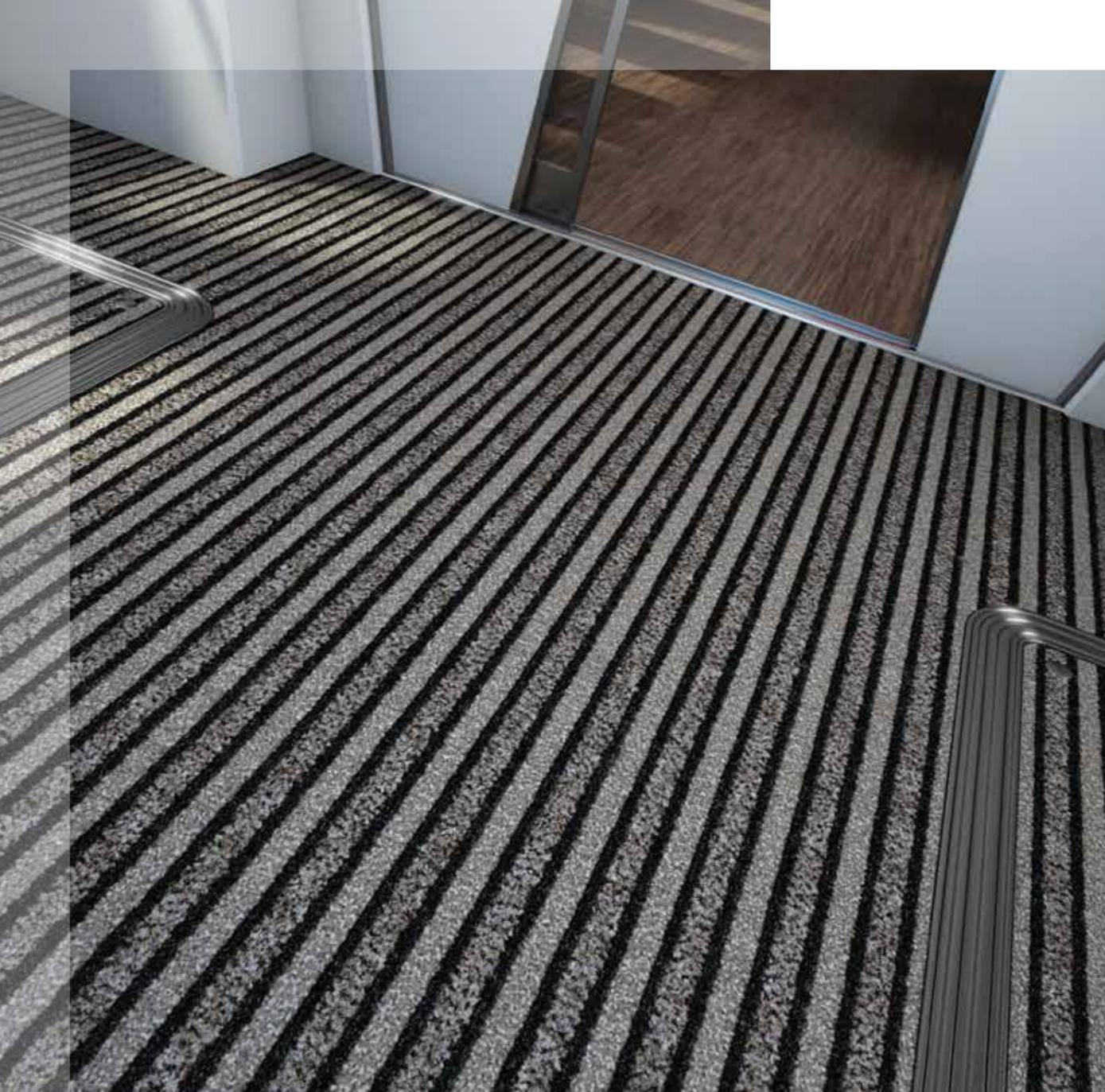


5709 | royal purple



5724 | chocolate brown

Designs marked with a * have a more linear design whereas the other 13 colour references have an all-over aesthetic.



TECHNICAL SPECIFICATIONS

Technical specifications

Coral meets the requirements of EN 1307

		Coral brush FR	Coral classic FR	Coral duo FR
 Total thickness	ISO 1765	9 mm	8.5 mm	9 mm
 Roll width	EN-ISO 24341	185 cm (customizable)	185 cm (customizable)	185 cm (customizable)
 Roll length	EN-ISO 24341	27.5 m (customizable)	27.5 m (customizable)	27.5 m (customizable)
Minimum order quantity		50 m ²	50 m ²	50 m ²
 Total weight	ISO 8543	3400 gram/m ²	3400 gram/m ²	3000 gram/m ²
Pile installation weight	ISO 8543	920 gram/m ²	865 gram/m ²	670 gram/m ²
Pile thickness	ISO 1766	6.0 mm	6.0 mm	6.0 mm
Pile material		100% regenerated Econyl polyamide	100% polyamide-BCF solution dyed	100% polyamide of which 66% is regenerated Econyl polyamide
 Light fastness	EN-ISO 105/B02	> 5	7-8	> 5
 Electrical resistance	ISO 10965	> 10 ⁹ Ω	> 10 ⁹ Ω	> 10 ⁸ Ω
 Contact sound insulation	EN-ISO 717-2	Δ Lw = approx 32 dB	Δ Lw = approx 31 dB	Δ Lw = approx 29 dB
 Application	EN 1307	Class 33	Class 33	Class 33
TVOC after 28 days	ISO 16000-9	<50 µg/m ³	<50 µg/m ³	<50 µg/m ³
Tested flammability standards	EN 45545-2	HL2 Subfloor: Aluminum/Plywood, Adhesive: Eurocol 640	HL2 Subfloor: Aluminum/Plywood, Adhesive: Eurocol 640	HL2 Subfloor: Aluminum, Adhesive: Styccobond F40/Eurocol 640
	BS6853	1b	1b	
	DIN 5510-2		SF 1-3	
	ASTM E.648 ASTM E.662	Class 1 pass	Class 1 pass	Class 1 pass
NF P 92-501 NF F 16-101	M3 F1	M2 F1	M3 F1	

Coral meets the requirements of EN 14041



 Fire behaviour	EN 13501-1	B _{fl} -s1	B _{fl} -s1	B _{fl} -s1
 Slip resistance	EN 13893	DS: ≥ 0.30	DS: ≥ 0.30	DS: ≥ 0.30
 Body voltage	ISO 6356	< 2 kV	< 2 kV	< 2 kV
 Thermal conductivity	EN 12524	0.093 m ² K/W	0.13 m ² K/W	0.140 m ² K/W

Coral FR is made to order

Recolour certain designs with



Coral

coral[®] FR

If you cannot see the exact colourway that you are looking for in any of our Coral FR entrance system collections, please speak to us and we will work closely with you in order to match your specific colour requirements.

marmoleum® FR

The most sustainable resilient floor covering

marmoleum® FR

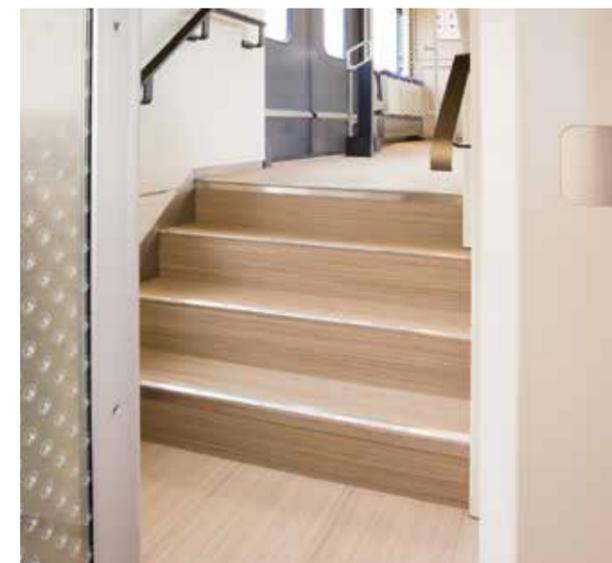
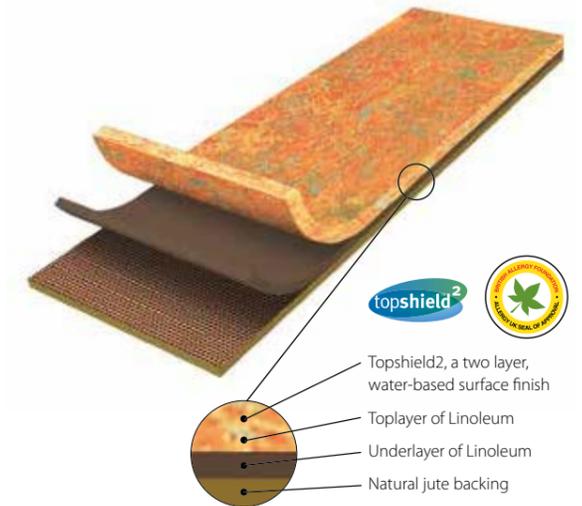
Marmoleum has a history and heritage that stretches back over 150 years and this totally natural floor covering has always been renowned for its sustainability, durability and high quality.

For the rail sector Marmoleum FR offers total versatility in terms of colour and design, but what makes this floor covering really stand out is the fact that it is created using a high percentage of natural raw materials, with renewable and recycled content.

All Marmoleum FR floors include Topshield2, a double layer, UV-cured finish that is scratch and scuff resistant, easy to maintain and ensures long lasting appearance retention. With its natural bacteriostatic properties and resistance to chemicals, Marmoleum FR is the ideal solution for heavy traffic rail vehicles.

Benefits:

- Homogeneous durable construction
- Low life cycle costs – can be renovated and repaired
- Resistance to cigarette burns
- Wide range of colourways per design
- Reaction to fire EN 45545-2 : HL2 / HL3





marmoleum® FR

The marmoleum FR collection is available in five different design styles, including linear, solid and marbled patterns. Within each there is a wide array of colourways to choose from.

Fresco



Real



Vivace



Concrete



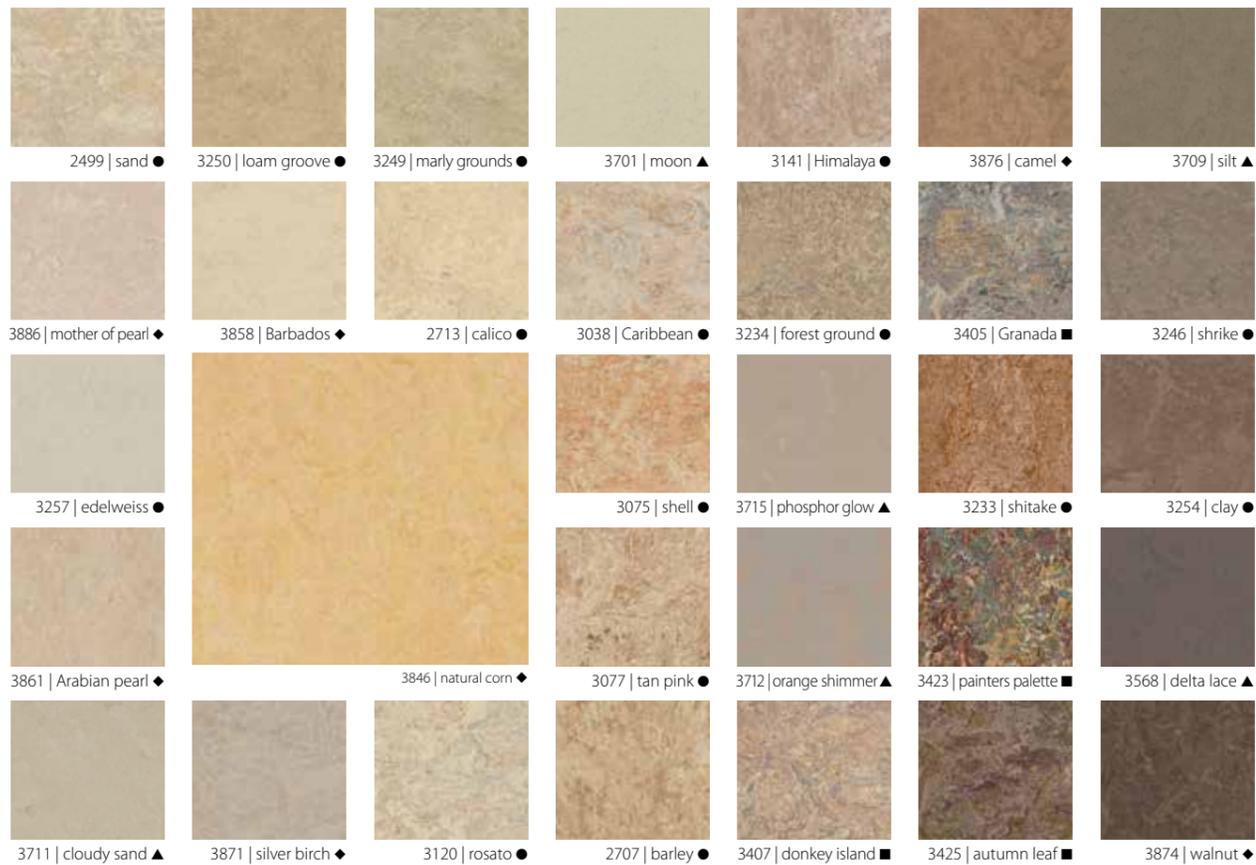
Striato



marmoleum® FR

Brights, bolds and more subtle shades. Marble designs combine anything from three to eight different colours that can vary in intensity and contrast. Sometimes they create bold, strong contrasts resembling real marble, sometimes the colours are more subtle like fresco murals.

Marmoleum FR is available in 106 colours



● Real ◆ Fresco ■ Vivace ▲ Concrete



marmoleum[®] striato FR

Offering a distinctive directional design, complemented by natural interiors.

Marmoleum Striato is available in 20 colours



3575 | white cliffs



3573 | trace of nature



5232 | rocky ice



5237 | black sheep



5230 | whitewash



5225 | compressed time



5216 | Pacific beaches



5217 | withered prairie



5221 | colour stream



5242 | red roses



5238 | straw field



5240 | canyon shadow



5243 | peacock blue



5241 | sunshine yellow



5239 | oxidised copper



5218 | Welsh moor



5245 | blue stroke



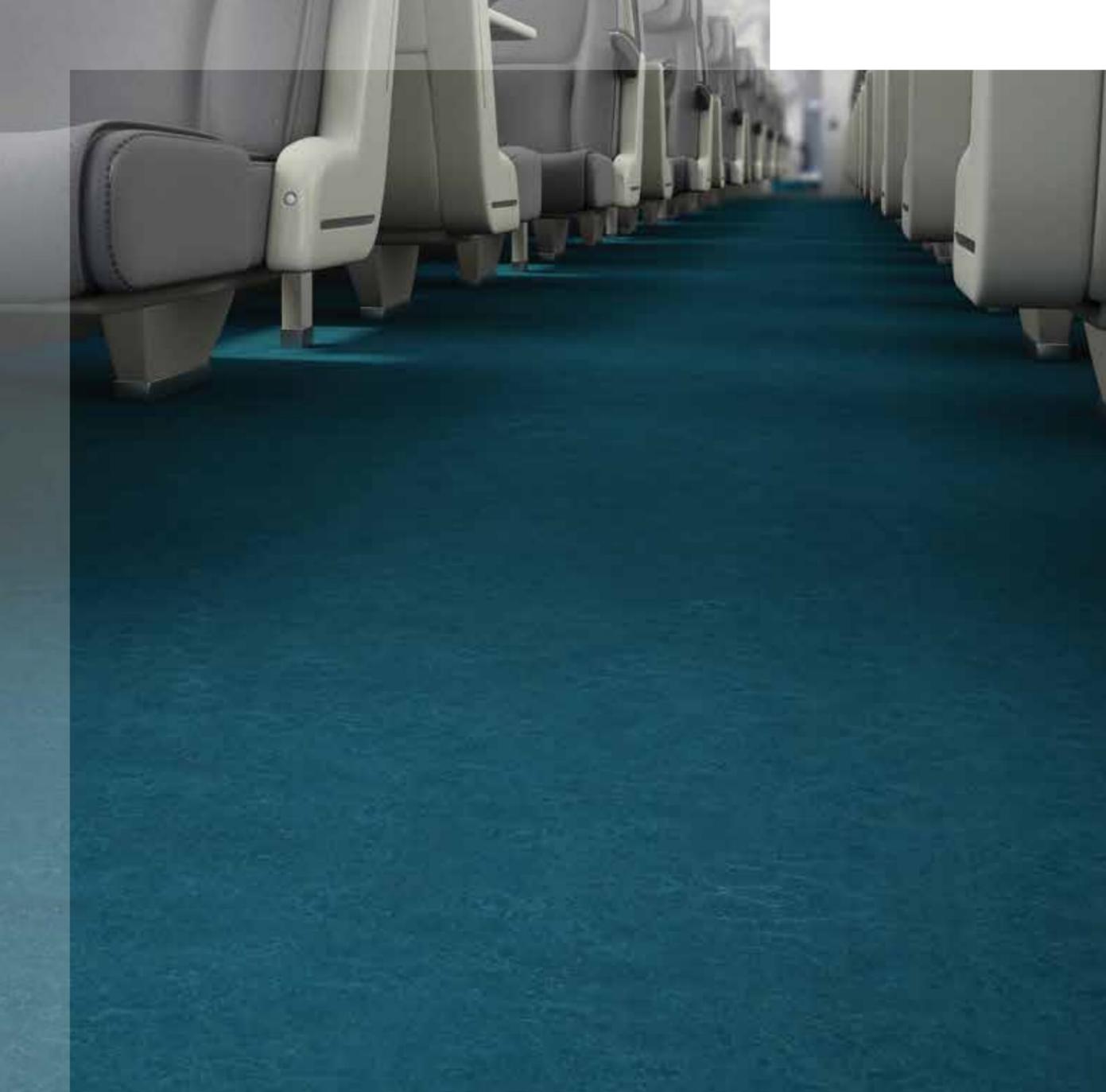
5244 | hint of yellow



5246 | orange highlights



5247 | dark aura



TECHNICAL SPECIFICATIONS

Technical specifications

Marmoleum meets the requirements of EN ISO 24011

Concrete FR

Fresco FR/Real FR/Vivace FR

Striato FR

		Concrete FR Fresco FR/Real FR/Vivace FR	Striato FR
 Total thickness	EN-ISO 24346	2.5 mm	2.5 mm
 Roll width	EN-ISO 24341	200 cm	200 cm
 Roll length	EN-ISO 24341	≤ 32 m	≤ 32 m
Minimum order quantity		3000 m ²	3000 m ²
 Total weight	EN-ISO 23997	2900 gram/m ²	2900 gram/m ²
 Residual indentation	EN-ISO 24343-1	≤ 0.15 mm	≤ 0.15 mm
 Light fastness	EN-ISO 105/B02	≥ 6	≥ 6
 Flexibility	EN-ISO 24344	Ø 40 mm	Ø 40 mm
 Resistance to chemicals	EN-ISO 26987	Resistant to diluted acids, oils, fats and to the conventional solvents. Not resistant to prolonged exposure to alkalis.	Resistant to diluted acids, oils, fats and to the conventional solvents. Not resistant to prolonged exposure to alkalis.
 Electrical resistance	EN 1081	1-10 ⁶ <R1<1-10 ⁹ Ω	1-10 ⁶ <R1<1-10 ⁹ Ω
 Contact sound insulation	ISO 717-2	Δ Lw = ≥ 5 dB	Δ Lw = ≥ 5 dB
 Application	EN-ISO 10874	Class 34	Class 34
TVOC after 28 days	ISO 16000-9	<50 µg/m ³	<50 µg/m ³
Tested flammability standards	EN 45545-2	HL2 Subfloor: Drycon Plywood Adhesive: Eurocol 614	HL3 Subfloor: Drycon Plywood Adhesive: Eurocol 614
	BS6853	1a	
	DIN 5510-2	SF 1-3	SF 1-3
	ASTM E.648 ASTM E.662	Class 1 pass	

Marmoleum meets the requirements of EN 14041



 Fire behaviour	EN 13501-1	B _{f1} -s1	B _{f1} -s1
 Slip resistance	EN 13893	DS: ≥ 0.30	DS: ≥ 0.30
 Body voltage	EN 1815	< 2 kV	< 2 kV
 Thermal conductivity	EN 12524	0.17 W/m·K	0.17 W/m·K

Marmoleum FR is made to order

Recolour
certain designs with



Marmoleum

marmoleum[®] FR

If you cannot see the exact colourway that you are looking for, please speak to us and we will work closely with you in order to match your specific requirements.



tessera® FR

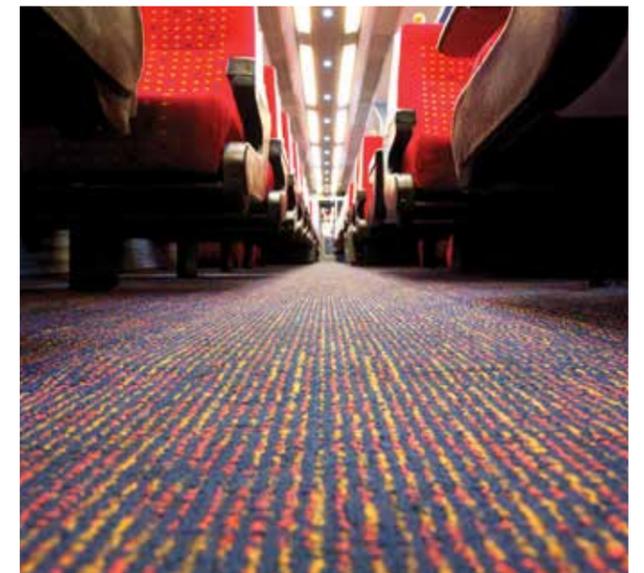
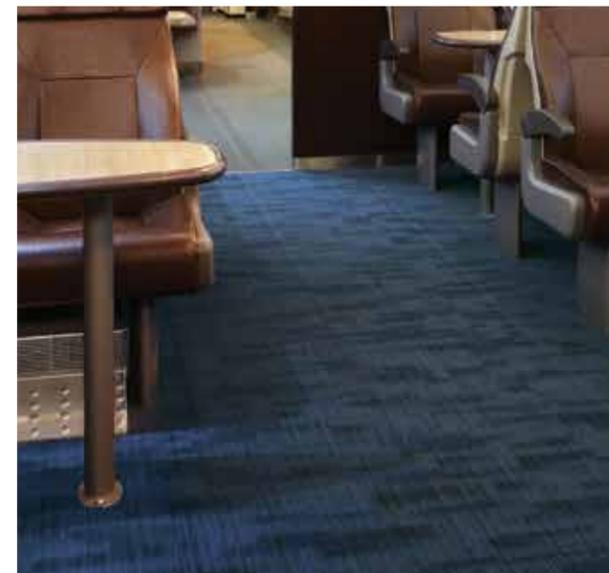
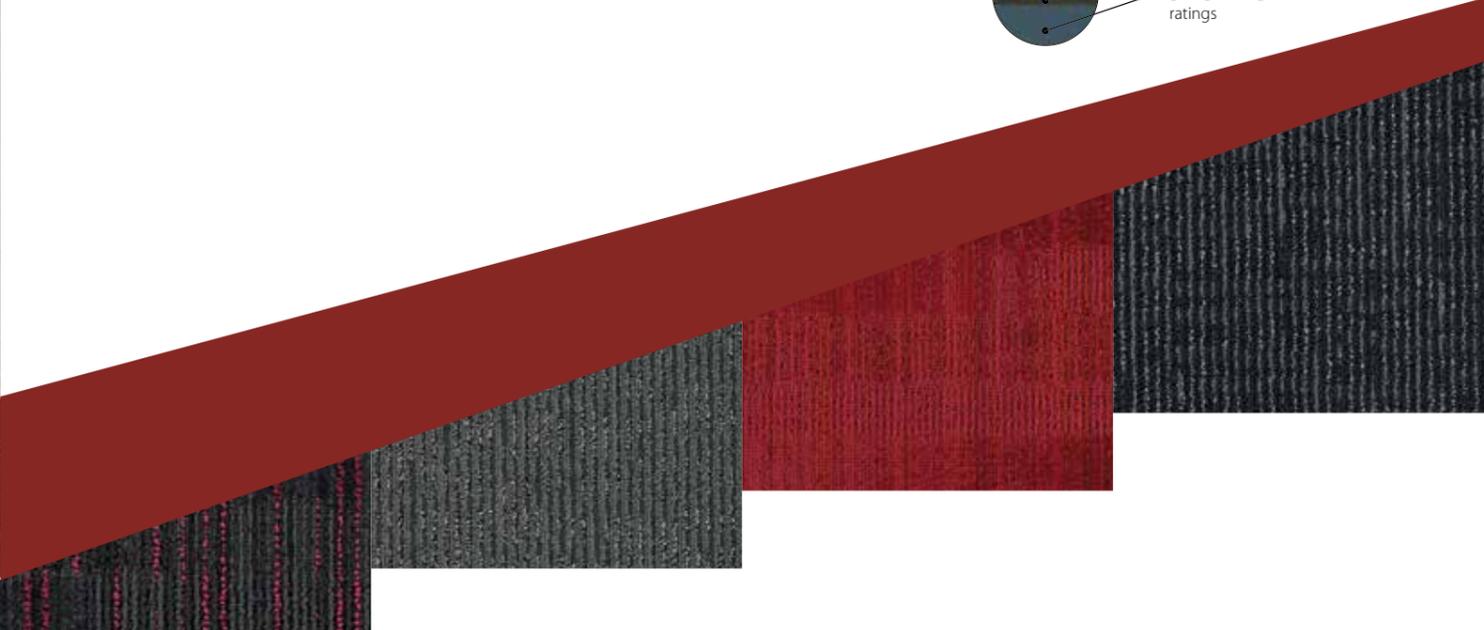
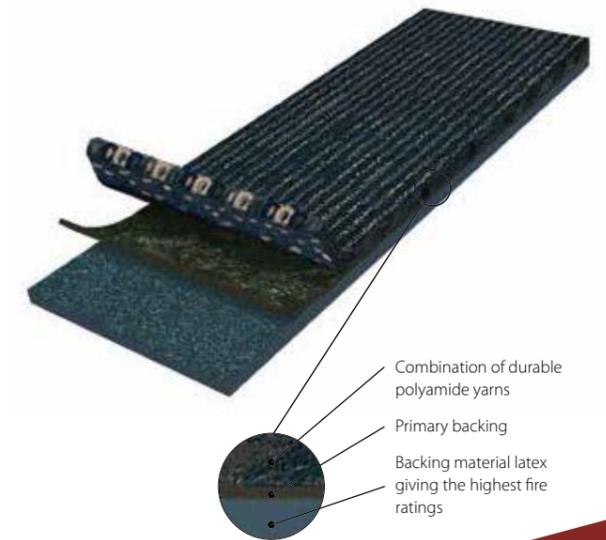
Carpet renowned for its aesthetic styling and outstanding performance in the most demanding environments

tessera® FR

Tessera FR is a collection of attractive, hardwearing carpets, offered in various pile constructions and textures, all designed to deliver specific aesthetic and performance benefits. The installation of carpet in a rail vehicle adds significant warmth, comfort and acoustic benefits.

Benefits:

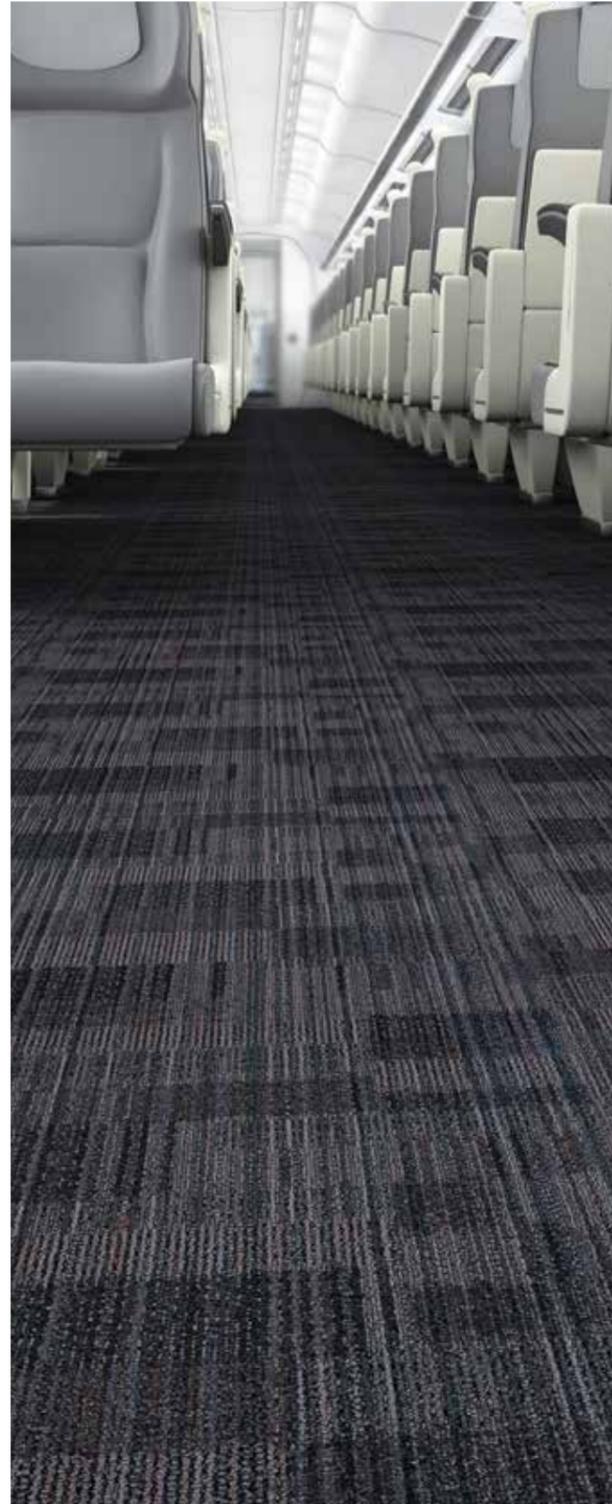
- Durability and appearance retention, made from 100% nylon
- Flexibility for colourisation
- Slip resistance
- Reaction to fire EN 45545-2 : HL2



tessera[®] alignment FR

Sophisticated and cleverly textured to complement the most contemporary interior design.

Tessera Alignment is available in 24 colours

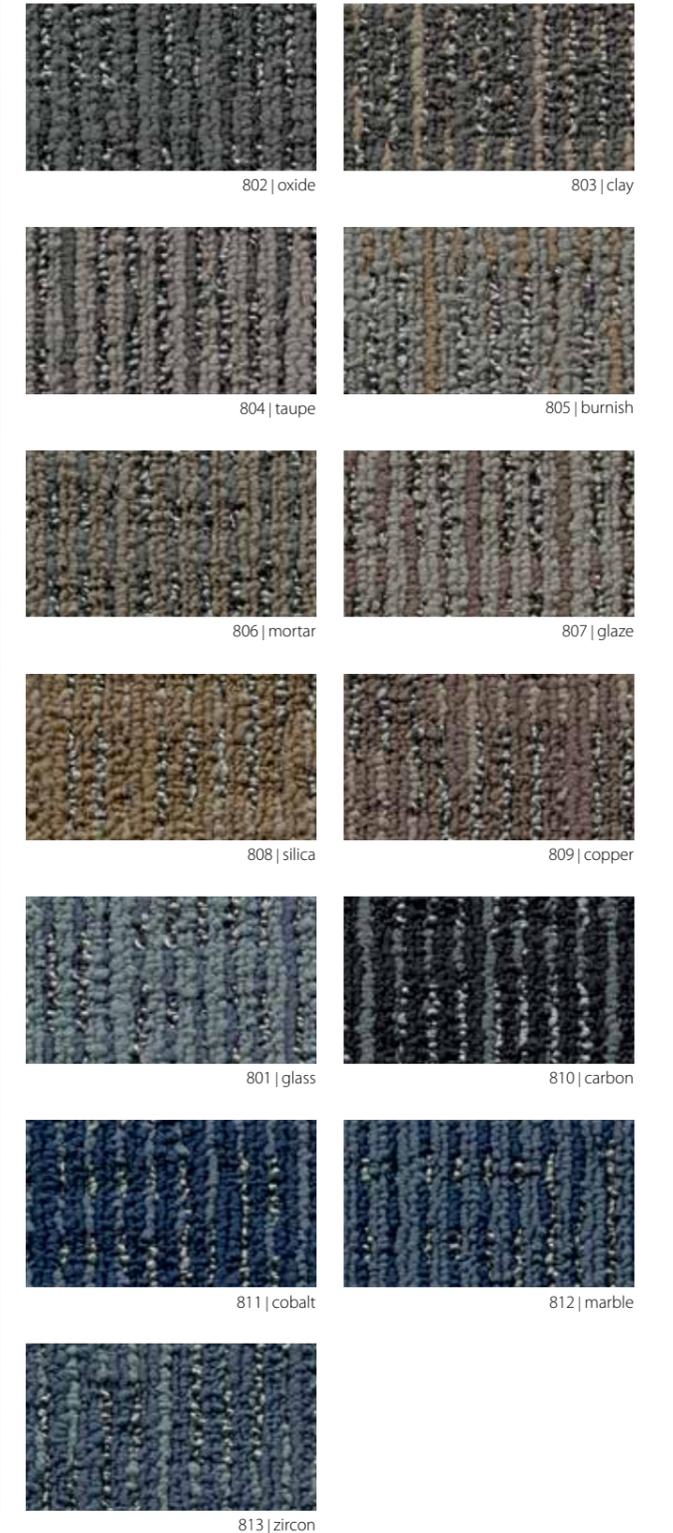


All Tessera FR material is made to order.

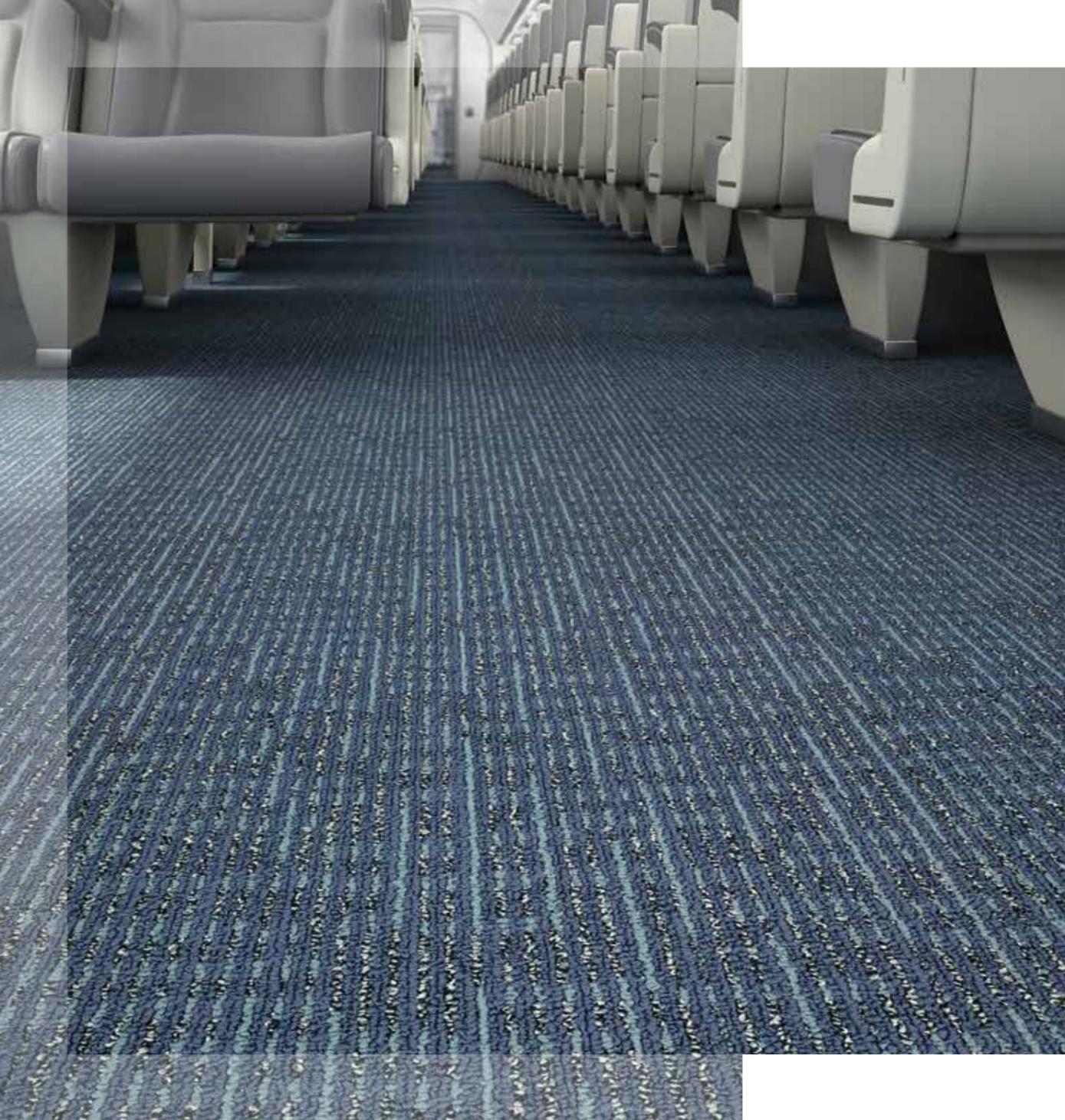
tessera[®] helix FR

An understated linear design, combining rich texture and visual appeal.

Tessera Helix is available in 13 colours



All Tessera FR material is made to order.



TECHNICAL SPECIFICATIONS

Technical specifications

Tessera meets the requirements of EN 1307

		Tessera helix FR	Tessera alignment FR
 Total thickness	ISO 1765	6 mm	6 mm
 Roll width	EN-ISO 24341	185 cm (customizable)	185 cm (customizable)
 Roll length	EN-ISO 24341	27.5 m (customizable)	27.5 m (customizable)
Minimum order quantity		Standard range – 50 m ² Custom colour – 1100 m ²	Standard range – 50 m ² Custom colour – 1100 m ²
 Total weight	ISO 8543	3000 gram/m ²	3000 gram/m ²
Pile installation weight	ISO 8543	740 gram/m ²	730 gram/m ²
Pile thickness	ISO 1766	4 mm	4 mm
Pile material		100% polyamide-BCF	100% polyamide-BCF
 Light fastness	EN-ISO 105/B02	7-8	7-8
 Electrical resistance	ISO 10965	> 10 ⁹ Ω	> 10 ⁹ Ω
 Contact sound insulation	ISO 717-2	ΔLw = 26 dB	ΔLw = 25 dB
TVOC after 28 days	ISO 16000-9	<50 µg/m ³	<50 µg/m ³
Tested flammability standards	EN 45545-2	HL2 Subfloor: Plywood Adhesive: Eurocol 640	HL2 Subfloor: Plywood Adhesive: Eurocol 640
	BS6853	1b	
	DIN 5510-2	SF 1-3	SF 1-3
	ASTM E.648 ASTM E.662	Class 1 pass	Class 1 pass

Tessera meets the requirements of EN 14041



 Fire behaviour	EN 13501-1	B _{fl} -s1	B _{fl} -s1
 Slip resistance	EN 13893	DS: ≥ 0.30	DS: ≥ 0.30
 Body voltage	ISO 6356	< 2.5 kV	< 2.5 kV

Tessera FR is made to order

Recolour
certain designs with



Tessera

tessera[®] FR

If you cannot see the exact colourway that you are looking for in any of our Tessera FR designs, please speak to us and we will work with you in order to match your specific requirements.



flotex® FR

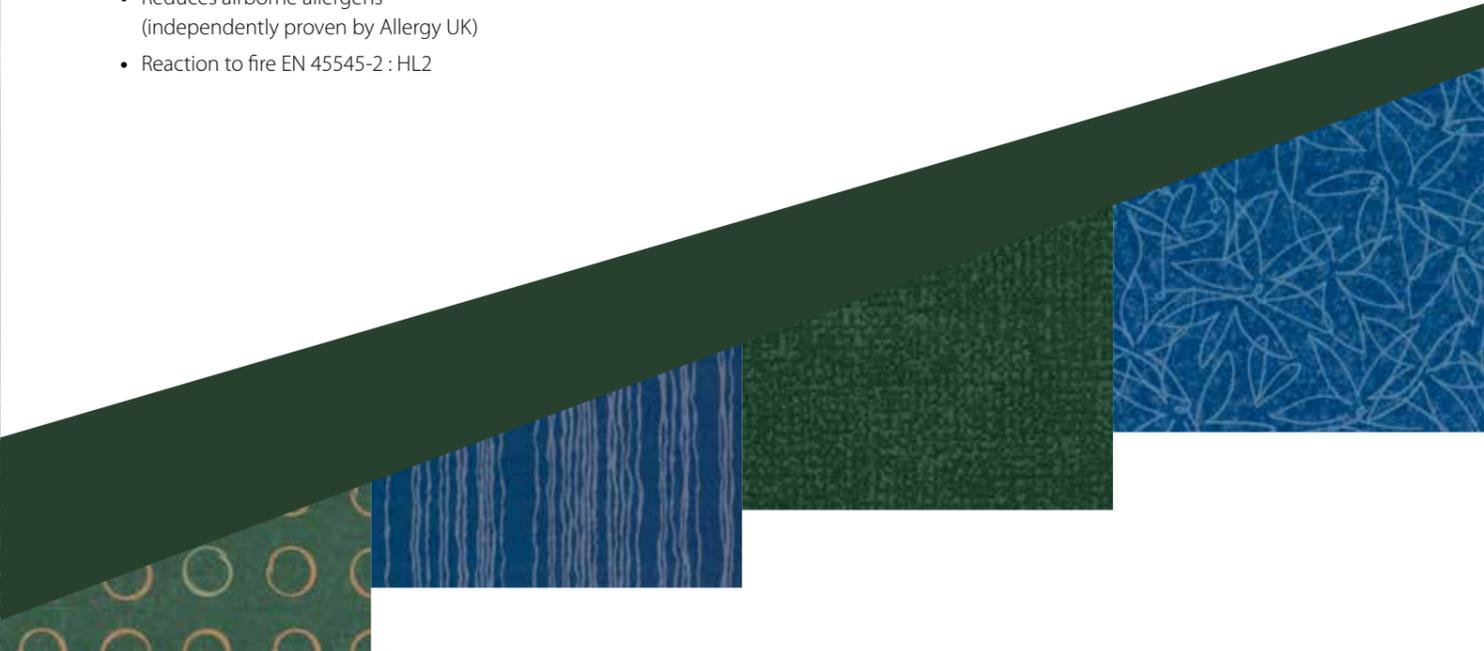
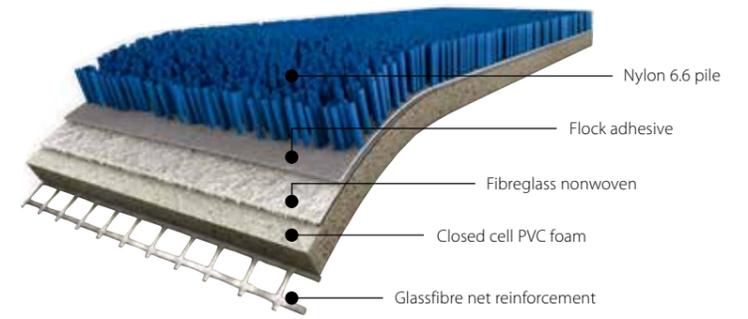
The only truly washable textile

flotex® FR

Flotex FR is unique, combining the cleaning properties and durability of a resilient flooring with the comfort, slip resistant and acoustic properties usually associated with textiles.

Benefits:

- High durability
- Hygienic
- Easy to clean; easy soil and stain removal due to short nylon fibres
- Slip resistant
- Bacteriostatic
- Reduces airborne allergens (independently proven by Allergy UK)
- Reaction to fire EN 45545-2 : HL2

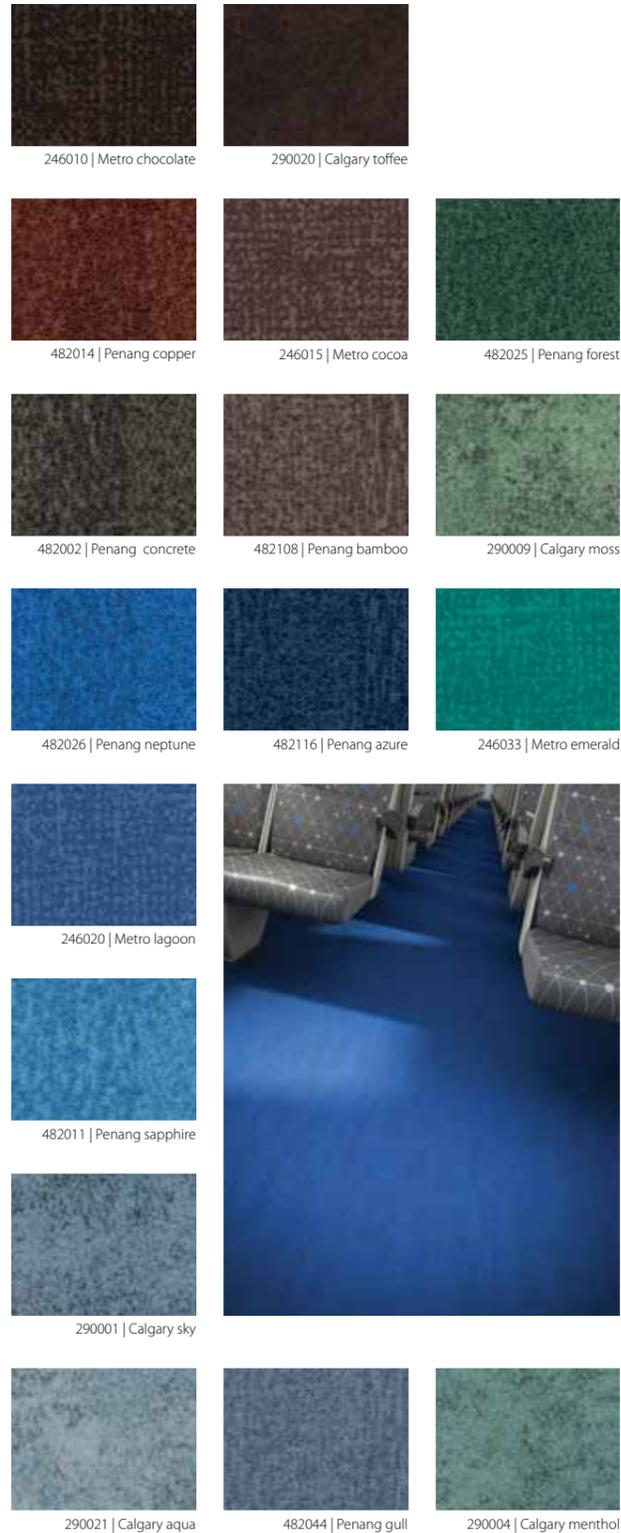


Flotex's upright fibres enable easy removal of soil and stains



flotex[®] colour FR

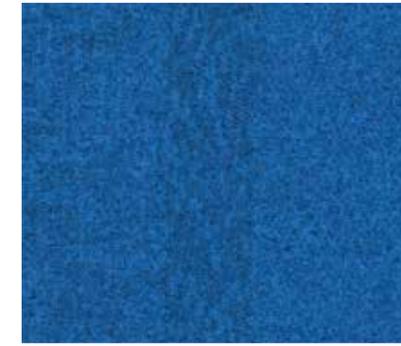
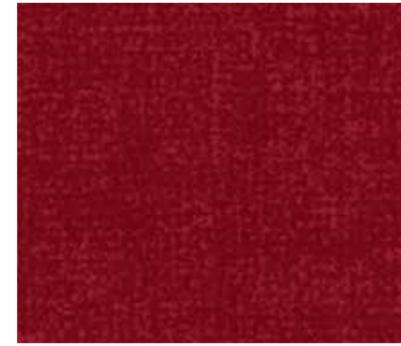
Flotex Colour is a collection of three designs (Metro, Penang and Calgary) which together form a rhapsody of colour across a broad spectrum.



flotex[®] metro FR

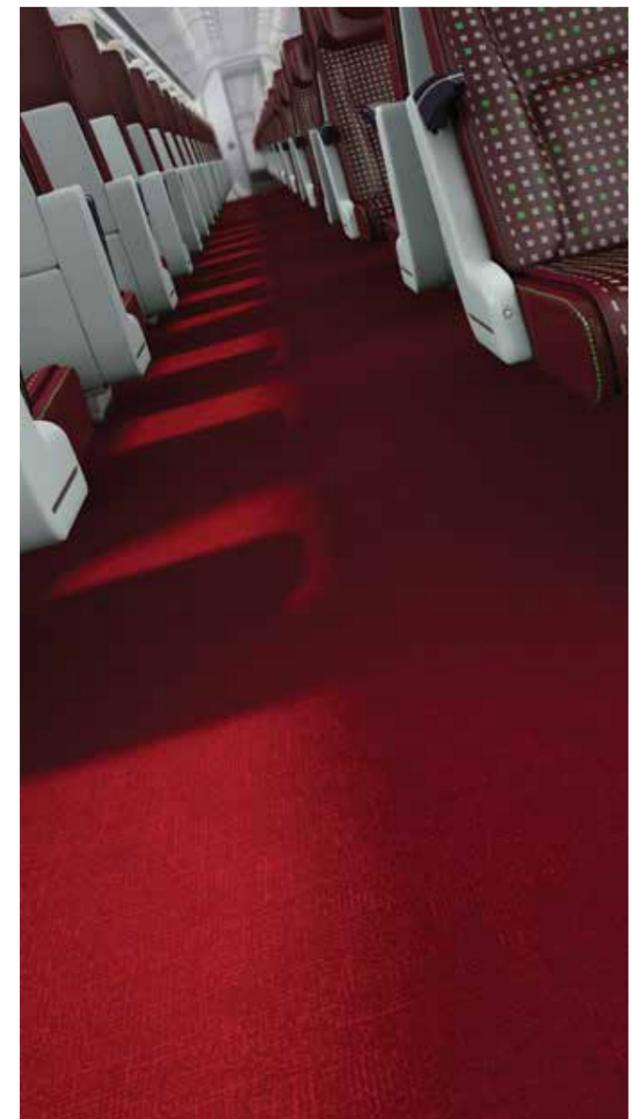
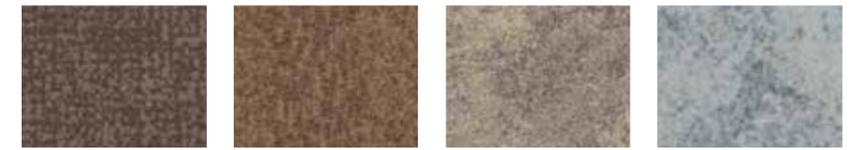
flotex[®] penang FR

flotex[®] calgary FR



The swatches shown are only a small selection of the colourways available.

Please refer to the Forbo Flooring website in order to see the full colour palette.



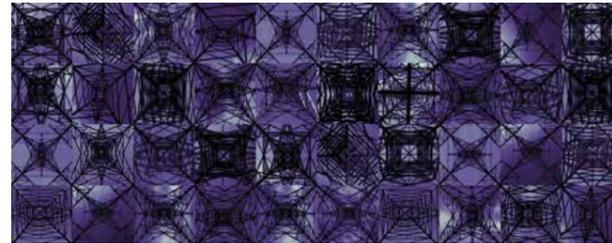
flotex[®] vision FR

Flotex Vision FR offers an infinite number of design options ranging from abstracts with an intricate colour spectrum to realistic images of natural materials.



Lines

Line or stripe designs, each with their own characteristics, ranging from muted and sophisticated colourways to very complex and multi-colour patterns.



Pattern

Textured, non-directional visuals created through the intricate interplay of networks and patterns.



Naturals

This collection offers photorealistic images of natural materials such as wood, stone, ceramics and cork floors. The design technology creates amazingly realistic aesthetics, with the added benefits of improved acoustics, slip resistance and reduced maintenance costs.

With over 500 items to choose from, Flotex Vision is best viewed on Forbo's online digital library which is continuously updated. The designs in Flotex Vision FR fall into six broad categories, each of which represents a different design direction: Floral, Lines, Shape, Pattern, Image and Naturals.



Shape

A collection of organic shapes and motifs delivering beautiful all-over patterns, including both contemporary and traditional designs.



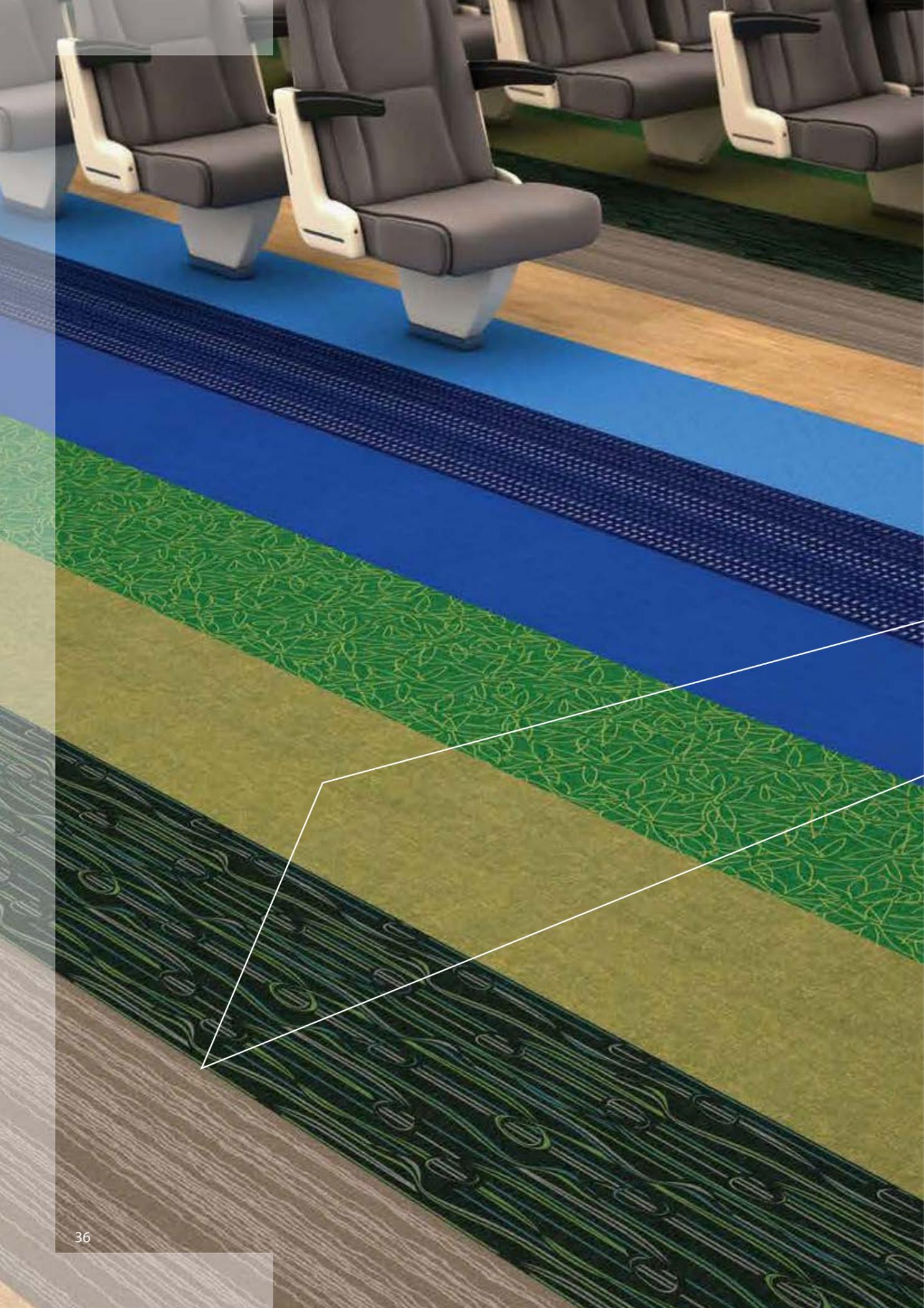
Floral

A selection of floral designs, ranging from abstract, graphic flower motifs to romantic images of roses and butterflies.



Image

A design category containing a wide variety of photographic images. Grass, sand, water drops, buttons and street maps are just some of the possibilities to be found within this intriguing range.



flotex[®] vision FR

Total design freedom

Flotex Vision FR is a collection of high definition digital print designs that create superior textures with almost 3D like appearance. As Flotex Vision FR has 70 million fibres per square per metre, it provides a matt high density substrate for printing, enabling vibrant designs and true-to-life visuals to be produced in high level photographic resolution, providing ultimate design flexibility for rail interiors. All colours, tones and hues are achievable with Flotex Vision FR.

Several of the Flotex Vision designs offer the option to create your own colourway, allowing you to match the floor precisely to your interior design scheme or corporate identity colours. If you have your own vision of what you want on the floor, we also offer a complete bespoke design service on request.



www.flotexvision.com



TECHNICAL SPECIFICATIONS

Technical specifications

Flotex meets the requirements of EN 1307

Flotex FR Flotex HD FR

	Total thickness	ISO 1765	3.3 mm
	Roll width	EN-ISO 24341	200 cm
	Roll length	EN-ISO 24341	30 m
	Minimum order quantity		200 m ² / 1000 m ² (HD)
	Total weight	ISO 8543	1225 gram/m ²
	Pile installation weight	ISO 8543	250 gram/m ²
	Pile thickness	ISO 1766	Approx 2 mm
	Pile material		100% polyamide
	Dimensional stability	ISO 2551	≤ 0.20%
	Light fastness	EN ISO 105/B02	≥ 6
	Electrical resistance	ISO 10965	≥ 10 ⁹ Ω
	Contact sound insulation	ISO 717-2	Δ Lw = 22 dB
	Application	EN 1307	Class 33
	TVOC after 28 days	ISO 16000-9	<5 µg/m ³
	Tested flammability standards	EN 45545-2	HL2 Subfloor: Aluminum/Plywood, Adhesive: Eurocol 640
		BS6853	1b
		DIN 5510-2	SF 1-3
		ASTM E.648 ASTM E.662	Class 1 pass
	Slip resistance	EN 13893	DS: ≥ 0.30
	Body voltage	ISO 6356	< 2 kV

Flotex FR is made to order



coral[®] move FR

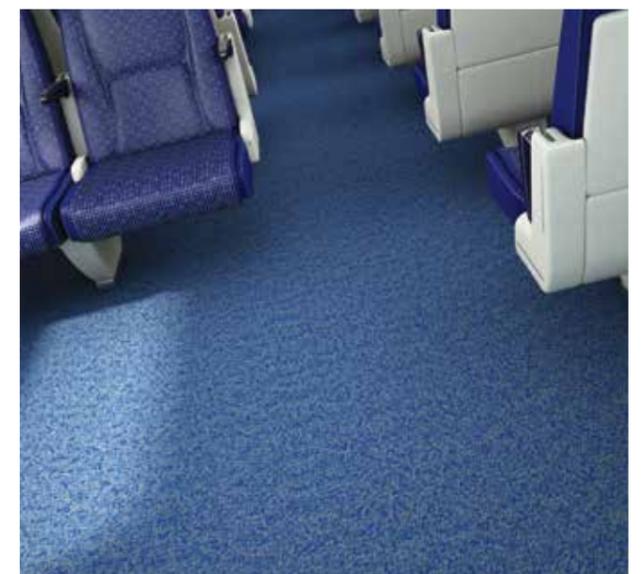
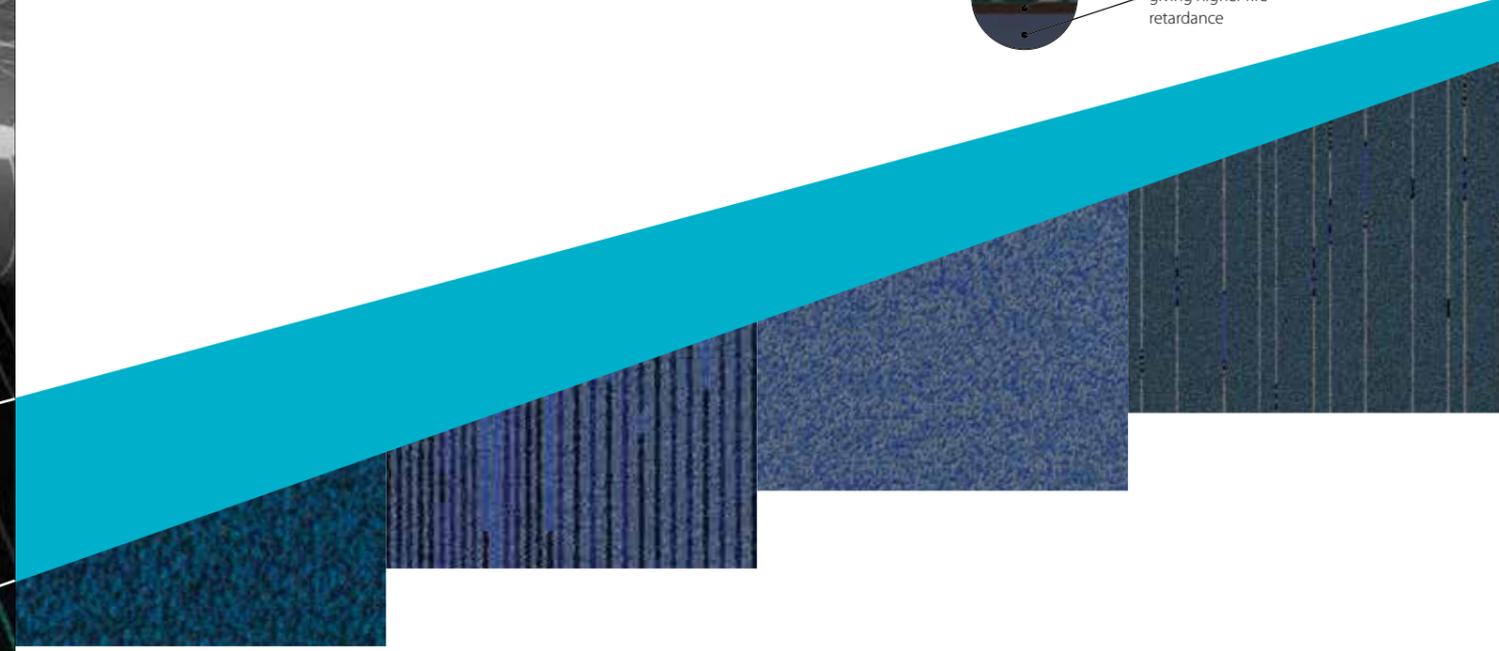
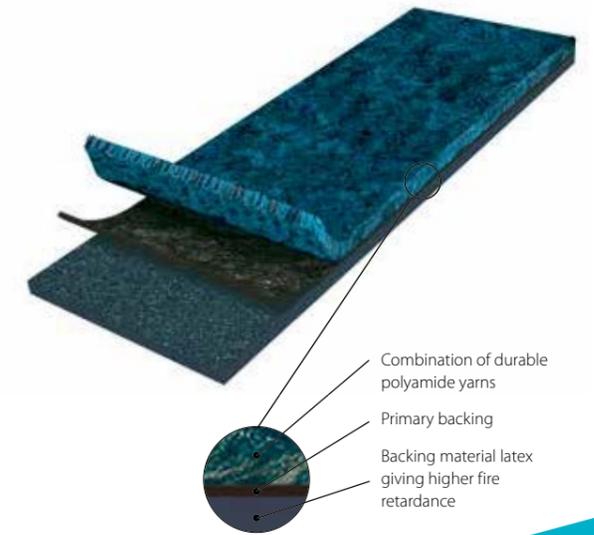
Carpet custom made to your design requirements

coral[®] move FR

Coral Move FR is a tufted carpet solution for rail interiors offering great customisation possibilities to complement interior design and colour schemes.

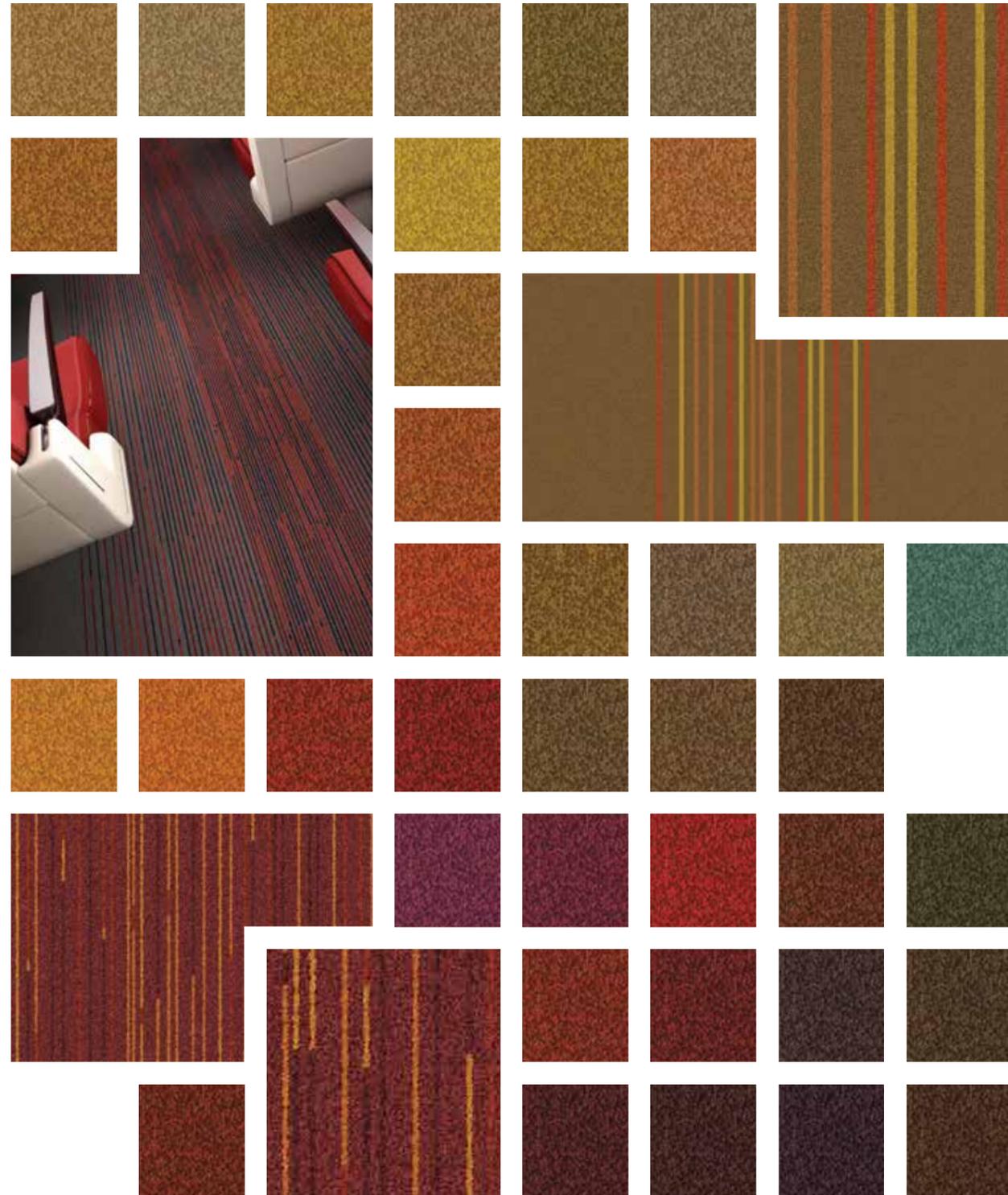
Benefits:

- Warm and comfortable
- Excellent soil hiding
- Slip resistant
- Acoustic properties
- Reaction to fire EN 45545-2 : HL3



coral[®] move FR

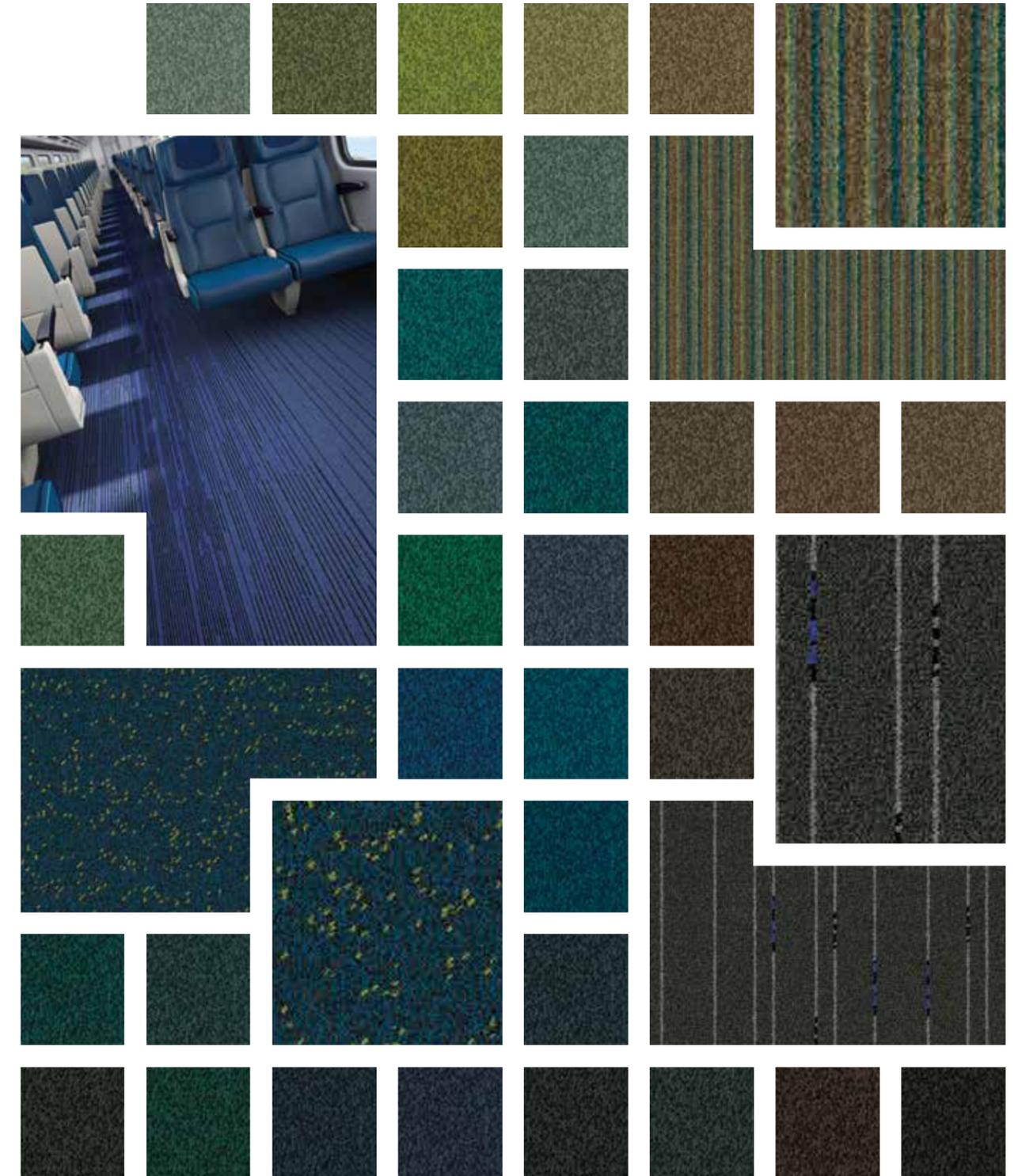
Coral Move FR is a bespoke made to order product and our design team will work to match design and colour requirements on an individual project by project basis.



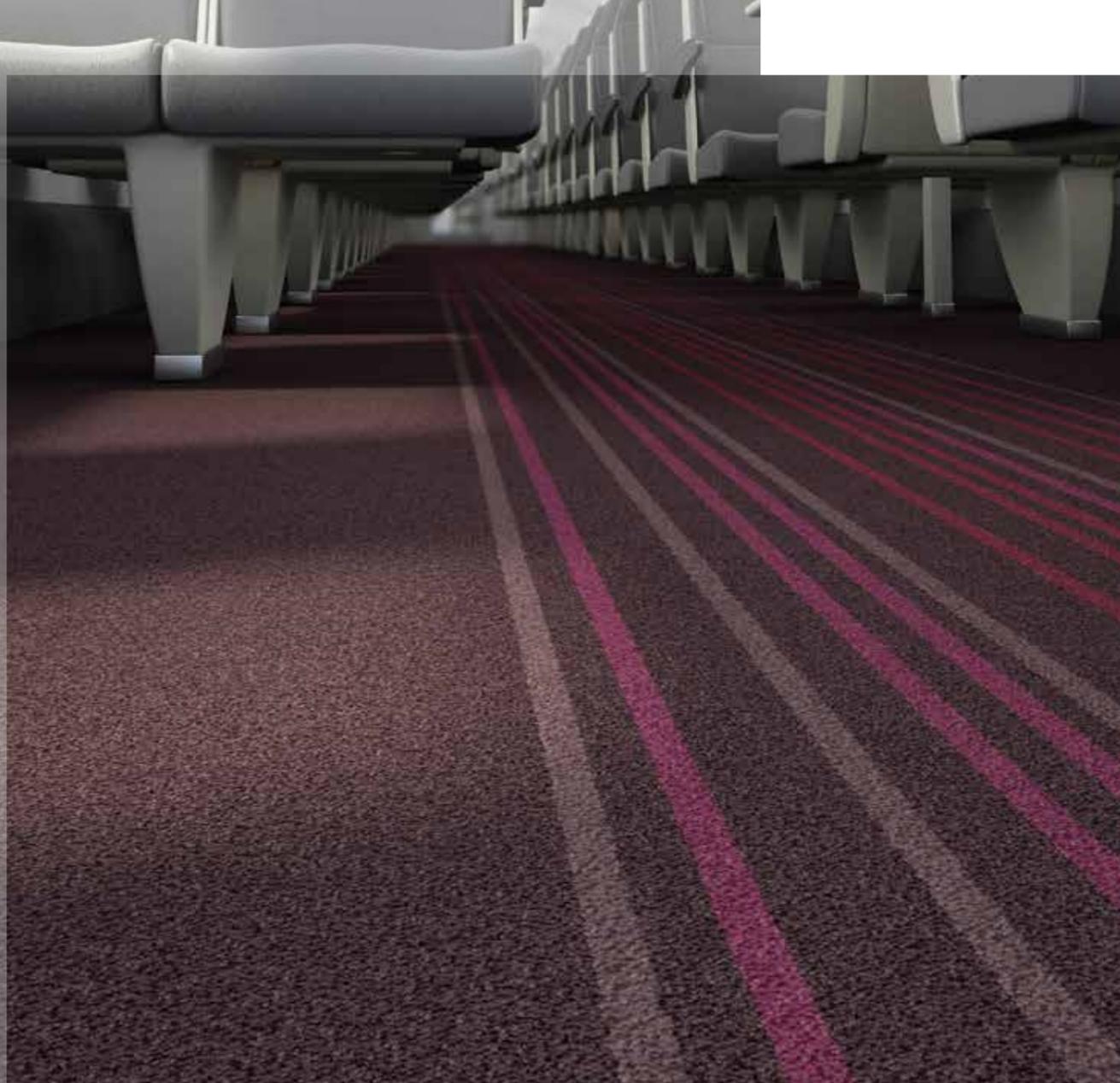
Above is only a selection of the colours available, for further information on the full range, please contact us.

Below are just some examples of the designs you can create with Coral Move FR.

Coral Move is available in 136 colours



All Coral Move material is made to order.



TECHNICAL SPECIFICATIONS

Technical specifications

Coral meets the requirements of EN 1307

Coral move FR

	Total thickness	ISO 1765	8 mm
	Roll width	EN-ISO 24341	185 cm (customizable)
	Roll length	EN-ISO 24341	27.5 m (customizable)
	Minimum order quantity		500 m ²
	Total weight	ISO 8543	3000 gram/m ²
	Pile installation weight	ISO 8543	750 gram/m ²
	Pile thickness	ISO 1766	5.5 mm
	Pile material		100% polyamide BCF ECONYL®
	Colour fastness ratings:		
	Light	EN ISO 105/B02	8
	Rubbing	EN ISO 105/X12	4-5
	Water	EN ISO 105/E01	4-5
	Seawater	EN ISO 105/E02	5
	Water stains	EN 1307 annex G	5
	Shampoo	BS 1006	4-5
	Organic solvents	EN ISO 105/X05	5
	Contact sound insulation	EN ISO 717-2	Δ Lw = 28 dB
	Application	EN 1307	Class 32
	TVOC after 28 days	ISO 16000-9	<50 µg/m ³
	Tested flammability standards	EN 45545-2	HL3 Subfloor: Plywood Adhesive: Eurocol 640
	Coral meets the requirements of EN 14041		
	Fire behaviour	EN 13501-1	B _{fl} -s1
	Body voltage	ISO 6356	< 2 kV
	Thermal conductivity	EN 12524	0.108 m ² K/W

Coral move FR is made to order



coral[®] move FR



SERVICE PRODUCTS



Uni welding rod



Multicolour welding rod

Welding rods

Welding rods ensure high levels of hygiene because they make seams easy to clean while preventing water from penetrating the floor covering. Forbo offers welding rods in matching colours with each item.



Installation tools and training

Based on our experience and our continuous research we can recommend and supply a complete assortment of high-grade installation tools. These will help you to achieve a simple and professional installation of our floor coverings. Forbo can provide you with an off- or onsite installation training.

Adhesives

Forbo Flooring offers their own adhesives for all of their flooring products, we can offer the best adhesive for your specific type of application.



Aquajet

We recognise that sometimes a client wishes to create something totally unique, perhaps something specific to a particular project, such as signage to facilitate the restrictions and safety guidelines within the train. Whatever may be required, our in-house design team has skills and experience to turn ideas into reality.

From an initial concept, detailed drawing, or computer file, our design team prepares a flooring design that is transferred electronically to our Aquajet cutting

machines. These computer-controlled machines represent state-of-the-art cutting technology and produce precision cut items accurate to a fraction of a millimetre. The pattern is inlaid and, importantly, retains all the performance characteristics of the original product. Whether it is a complete rail layout in floor covering, a company logo, signage or thematic design, the possibilities are limitless.



Cleaning and Maintenance data sheets are available online at forbo-flooring.com/transport

For more information about any of the products and services offered by Forbo Flooring Systems, to request samples/brochures or a visit then contact us:

Email:
transport@forbo.com

Website:
www.forbo-flooring.com/transport

Tel:
+44 (0)1773 744121

Let us keep you up-to-date

Visit us at transport-flooring.com for more information

 LinkedIn: Forbo Flooring Transport

 @forbotransport

TRANSPRESS

Email us at transport@forbo.com to sign up to our transport newsletter for:

- PRODUCT INFORMATION
- DESIGN INSPIRATION
- FORBO TRANSPORT NEWS
- INDUSTRY NEWS

A
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**COMMITTED
TO THE HEALTH
OF ONE**



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creating better environments

forbo

FLOORING SYSTEMS