



nora[®] Transportation Solutions

High-performance flooring solutions for the international rail and bus industry

nora[®]
by Interface[®]

nora welcomes you aboard

At nora, we recognize the significant impact that floor coverings have on your vehicle. That's why we're committed to creating safer spaces for the rail and bus industry for more than 70 years. Thanks to innovative in-house developments backed up by trend-setting production processes and an uncompromisingly stringent quality assurance system, nora became the number one worldwide in this field – a professional complete system supplier for equipping trains and buses.

Benefits of nora rubber floor coverings for bus and trains

Highest performance

- dense and close, single-layered surface, extraordinarily durable, wear-resistant
- long lifetime above average, thus less frequent need of renovation
- natural, durable elasticity – without phthalate plasticizers: dimensionally stable, installation without welding possible

Certified environmental compatibility

- free of PVC, other halogenated polymers and phthalate plasticizers
- made of high-quality rubber, minerals from natural deposits and other components as for example colour pigments

Safety and comfort

- outstanding fire-protection properties: flame retardant (according to EN 13501) and fire toxicologically harmless (according to DIN 53436), no corrosive vapours in case of fire, no source for dioxins and furans; meeting the following international railway standards:
 - EN 45545
 - DIN 5510-2
 - BS 6853:1999
 - NFPA 130
 - NF-F 16-101
 - UIC 564-2/12
- resistant to cigarette burns
- antistatic: no electrostatic charge build-up when walked on, so no perceptible discharges
- high underfoot comfort
- high slip resistance in all passenger areas, tested according to DIN EN 16165 (classification according to surface structure in class R9, R10 or R11)



Subway Munich, noraplan®plus mobil (931)

© Uwe Miethe

Simplicity in installation

- fast and simple laying in just a few steps
- suitable for all types of subfloor

Easy and efficient cleaning and maintenance

- no coating necessary
- easy cleaning: low dirt adhesion, easy removal of contamination, including graffiti
- low care and maintenance costs
- resistant to chemicals and different media, tested according to EN ISO 26987

Our solution range

nora floor coverings are well prepared to meet all specific requirements in the worldwide transportation business. Leaving our customer satisfied is of utmost priority. Therefore we are proud to offer a comprehensive and compliant transport flooring product portfolio for the rail and bus industry. Within the portfolio are safety floors, inlays, stairtreads as well as accessories and installation tools.

Components at a glance

- huge product offering with regard to functionality, colour and design
- customized rubber floorings for your specific technical requirements
- norament® stairtreads – also available with signal or safety stripes
- extensive accessory range including stair nosings, stair angles, stringers and skirtings
- inlays according to customer drawing that can be laid without sealing the joints
- car kit delivery – easy and comfortable provision of material per car
- global advice and technical support
- installation and maintenance training
- nora nTx: a complete flooring system for all areas in rail vehicles and buses – easy to lay with instant bonding. Floor covering with self adhesive backing. After installation immediately ready for use.



Taylor-made inlays

© Keith Aden



Routed inlay

© nora



Special installation solutions for e.g. running covers © Dirk Wilhelmy



Stair nosing with signal stripes

© Keith Aden

Our revolutionary installation system nora® nTx

When time is a decisive factor, nora® nTx is the perfect solution. A complete flooring system for all areas in the rail and bus industry – easy to lay with instant bonding. Simple, effective and super fast.

How does it work?

nora nTx is a unique technology for installers to lay nora rubber floor coverings. The nTx flooring comes with a self adhesive backing. Because the powerful adhesive is factory-fitted, nora nTx is as simple as it is ingenious. In a few simple steps, the flooring can be cleanly and safely installed and used immediately.

Benefits at a glance

- fast and simple laying in just a few steps
- works on all types of subfloor
- installation on existing floor covering
- no need to interrupt your daily work
- no drying or waiting time
- no odour nuisance
- can be used immediately after laying
- complete system from a single supplier
- minimised downtime – economical for car builders and operators

nora nTx is already installed at many rail projects worldwide, a reference list will be sent upon request.

Please contact us for further information or visit www.nora.com/ntx..



Ongoing nora nTx installation

© nora



Pre-applied, solvent-free adhesive backing

© Steffie Paasche

Supplementing accessories

Additionally, we provide separate dry adhesives for the permanent fixing of noraplan® floor coverings and for the quick installation of skirtings, tools and materials for joint sealing and compatible accessories for the installation of our floor coverings.

Dry adhesives

nora dryfix 750

For permanent fixing of noraplan floor coverings.

Delivery unit: 1 roll of 30 m in one carton
(750 mm tape width)

Art. 6556

nora profix – dry adhesive tapes

- nora profix 50

For quick installation of noraplan floor coverings on covings, supplied in rolls.

Delivery unit: 4 rolls of 50 m in one carton
(50 mm tape width)

Art. 992

- nora profix 90

For quick installation of noraplan floor coverings on covings, supplied in rolls.

Delivery unit: 2 rolls of 50 m in one carton
(90 mm tape width)

Art. 993



nora profix

© nora

Tools for joint sealing

nora joint sealing compound

For colour-matched joint sealing of nora floor coverings, 300 ml cartridge, sufficient for 20–25 m.

Art. 928

nora joint cutter

Art. 116950

nora liquid wax

Art. 109914

nora smoothing spatula for nora joint sealing compound
(package of 2 pcs)

Art. 120184

nora hot welding rod for noraplan floor coverings

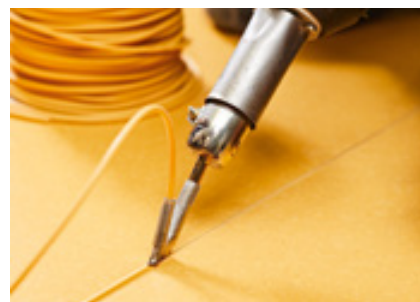
colour-matched, round, Ø 4 mm, rolls of 100 m.

Art. 946



nora joint sealing compound

© Elmar Witt

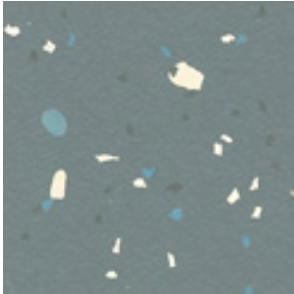


nora hot welding rod

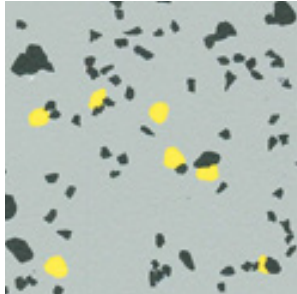
© Elmar Witt

Design options

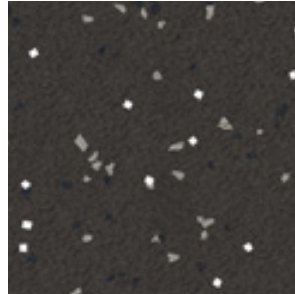
Please find below an overview on the different design options – detailed information is available on the following product information pages.



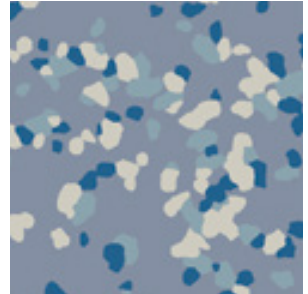
noraplan® stone plus*



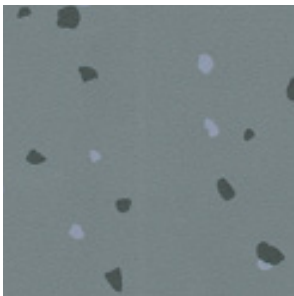
noraplan® grip plus*



noraplan® grip*



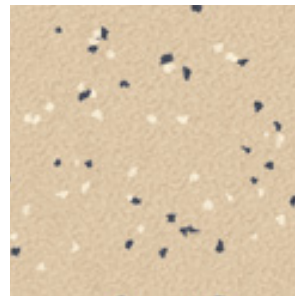
noraplan® plus*



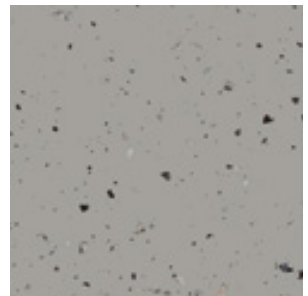
noraplan® effect spez.*



noraplan® sentica



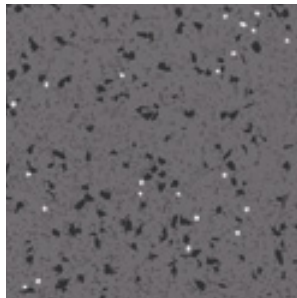
noraplan® stone*



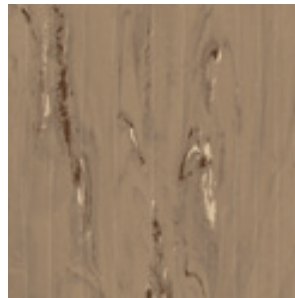
noraplan® unita



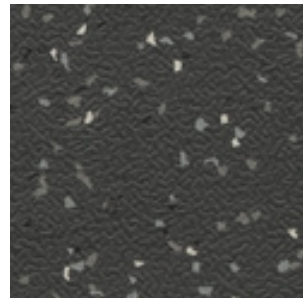
noraplan® signa



noraplan® ultra grip*



noraplan® valua



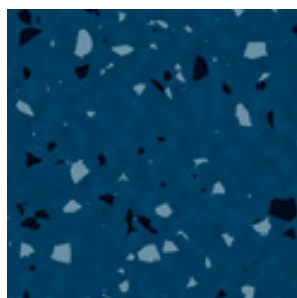
noraplan® voya*

* available as mix 931

Selected noraplan® designs are also available as nora nTx.



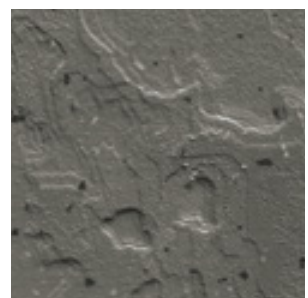
norament® 920/926



norament® 926 grano



norament® 926 satura



norament® 926 arago

Product information

noraplan® (mix 913)

Designs: sentica, signa, stone, valua, lona and unita

noraplan (mix 913) are single-layered rubber floor coverings available in rolls and tiles (except of noraplan® unita) in the above-named designs. The designs **sentica**, **signa** and **unita** have a smooth surface, **noraplan® stone** is available with smooth or reflection-breaking surface. The linear, organic texture of **noraplan® valua** as well as the silk-matte, lightly structured surface of **noraplan® lona** complete the product range. The floor coverings are fire-resistant and free of PVC, other halogenated polymers and phthalate plasticizers.

Technical data Properties acc. to EN 1817	Test method	Requirements	Average test results from running production
Thickness	EN ISO 24346	Mean value \pm 0.15 mm of nominal value	2.0 mm
Thermal conductivity	EN 10456	$\lambda = 0.17$ W/(m·K)	Fulfilled
Dimensional stability	EN ISO 23999	\pm 0.4 %	\pm 0.3 %
Cigarette-burn resistance	EN 1399	Procedure A (stubbed out) \geq level 4 Procedure B (burning) \geq level 3	Fulfilled
Flexibility	EN ISO 24344, procedure A	Mandrel diameter 20 mm, no fissuring	Fulfilled (exception: unita)
Hardness	ISO 48-4	\geq 75 Shore A	92 Shore A
Residual indentation	EN ISO 24343	Mean value \leq 0.15 at thickness < 2.5	0.03 mm
Abrasion resistance at 5 N load	ISO 4649, procedure A	\leq 250 mm ³	150 mm ³
Colour fastness to artificial light	ISO 105-B02, procedure 3, test conditions 6.1 a)	At least 6 on the blue scale, \geq 3 on the grey scale	Grey scale \geq 3 acc. to ISO 105-A02

Additional technical data			
Weight	EN ISO 23997		~3.36 kg/m ²
Slip resistance	DIN EN 16165		R 9* (smooth/linear surface structure) R 10* (reflection-breaking surface)
Improvement in footfall sound absorption	ISO 10140-3		6 dB
Effect of chemicals	EN ISO 26987		Resistant depending on concentration and time of exposure ^(A)
Electrostatic behaviour when being walked on	EN 1815		Antistatic, charging in case of rubber soles < 2 kV

Fire behaviour / smoke behaviour		Fulfils the requirements	
Fire behaviour	EN 13501-1	Hazard Level	B _s -s1, bonded
	EN 45545		HL1*
	DIN 5510-2		SF3*
	Directive 95/28/EG / FMVSS / CMVSS 302		Fulfilled*
	UIC 564-2/12		Class C*
	BS 476, part 7		Class 2 fulfilled*
	NT Fire 007		Class G*
Fire behaviour	ECE-R 118, Annex 8		Fulfilled*
Fire behaviour	ASTM E-648/ISO 9239-1	Federal Railroad Administration	Class1 (\geq 0.50 W/cm ²)*
Smoke density	ASTM E-662		After 1.5 minutes < 100, after 4 minutes < 200*
Fire behaviour	NF F 16-101 (NF P 92-501)	NF F 16-101 for grid 5/8	M2 on M0 substrate M3 on M3 substrate*
Smoke density / Smoke toxicity	NF F 16-101 (NF X 10-702/X 70-100)		F3*
Smoke toxicity	Bombardier SMP 800-C		Fulfilled*
	DIN 53436		Carbonisation gases are non-toxic*
	ISO 5659-2	DIN 5510-2	FED \leq 1*
	BS 6853, Annex B		R \leq 5 fulfilled*
Oxygen index	ISO 4589		~23 %

Colour variations due to different production batches as well as technical alterations to improve the product have to be accepted.

* Tested and certified by an independent testing institute.

^(A) In case of increased impact of oils, greases, acids, alkalis and other aggressive chemicals as well as light oils and fuels – please contact us.

EN 1817: Specification for homogeneous and heterogeneous smooth elastomer floor coverings.



Carbon Neutral Floors™

Product information

noraplan® mobil (mix 931)

Designs: stone, stone plus, grip, grip plus, plus, effect, effect spezial and voya

noraplan® mobil (mix 931) are single-layered rubber floor coverings for heavy traffic areas with smooth or reflection-breaking surface. They have been especially developed for the use and the special requirements in rail vehicles. The floor coverings are fire-resistant and free of PVC, other halogenated polymers and phthalate plasticizers.

Technical data Properties acc. to EN 1817	Test method	Requirements	Average test results from running production
Thickness	EN ISO 24346	Mean value \pm 0.15 mm of nominal value	2.0 mm 2.5 mm
Thermal conductivity	EN 10456	$\lambda = 0.17 \text{ W/(m·K)}$	Fulfilled
Dimensional stability	EN ISO 23999	$\pm 0.4 \%$	$\pm 0.3 \%$
Cigarette-burn resistance	EN 1399	Procedure A (stubbed out) \geq level 4 Procedure B (burning) \geq level 3	Fulfilled
Flexibility	EN ISO 24344, procedure A	Mandrel diameter 20 mm, no fissuring	Fulfilled
Hardness	ISO 48-4	≥ 75 Shore A	85 Shore A
Residual indentation	EN ISO 24343	Mean value ≤ 0.15 at thickness < 2.5 Mean value ≤ 0.20 at thickness ≥ 2.5	0.05 mm
Abrasion resistance at 5 N load	ISO 4649, procedure A	$\leq 250 \text{ mm}^3$	130 mm^3
Colour fastness to artificial light	ISO 105-B02, procedure 3, test conditions 6.1 a)	At least 6 on the blue scale, ≥ 3 on the grey scale	Grey scale ≥ 3 acc. to ISO 105-A02

Additional technical data			
Weight	EN ISO 23997		2.0 mm $\sim 3.36 \text{ kg/m}^2$ 2.5 mm $\sim 4.18 \text{ kg/m}^2$
Tear strength	ISO 34-1, method B, procedure A		30 kN/m
Slip resistance	DIN EN 16165		R 9* (smooth surface) R 10* (reflection-breaking surface)
Improvement in footfall sound absorption	ISO 10140-3		6 dB
Effect of chemicals	EN ISO 26987		Resistant depending on concentration and time of exposure ^(A)
Electrostatic behaviour when being walked on	EN 1815		Antistatic, charging in case of rubber soles $< 2 \text{ kV}$

Fire behaviour / smoke behaviour		Fulfils the requirements	
Fire behaviour	EN 13501-1		B _s -s1
	EN 45545	Hazard Level	HL2*
	DIN 5510-2		SF3*
	UIC 564-2/12		Class A*
	JRMA		Difficult to burn*
	UNE 23727		M2 on wood*
UNI 8457 / UNI 9174	UNI 9177		Class 1A*
Fire behaviour	ASTM E-648 / ISO 9239-1	Federal Railroad Administration	Class 1 ($\geq 0.50 \text{ W/cm}^2$)*
Smoke density	ASTM E-662		After 1.5 minutes < 100 , after 4 minutes < 200 *
Fire behaviour	NF F 16-101 (NF P 92-501)	NF F 16-101 for grid 5/8	M2 on M1 substrate*
Smoke density / Smoke toxicity	NF F 16-101 (NF X 10-702 / X 70-100)		F1*
Smoke toxicity	Bombardier SMP 800-C		Fulfilled*
	ISO 5659-2	DIN 5510-2	FED ≤ 1 *
Fire behaviour	BS 476, part 7	For vehicle cat. 1b acc. BS 6853	Class 2 fulfilled*
Smoke density	BS 6853, annex D.8.6		A ₀ ≤ 350 *
Smoke toxicity	BS 6853, annex B		R ≤ 5 fulfilled*
Oxygen index	ISO 4589		$\sim 33 \%$

Colour variations due to different production batches as well as technical alterations to improve the product have to be accepted.

* Tested and certified by an independent testing institute.

^(A) In case of increased impact of oils, greases, acids, alkalis and other aggressive chemicals as well as light oils and fuels – please contact us.

EN 1817: Specification for homogeneous and heterogeneous smooth elastomer floor coverings.



Carbon Neutral Floors™

Product information

noraplan® ultra grip (mix 931)

noraplan® ultra grip (931) is a single-layered rubber floor covering for high performance with a smooth, sanded back. It was especially developed for application in railways to meet their specific requirements. The floor covering is fire-resistant and free of PVC, other halogenated polymers and phthalate plasticizers.

Technical data	Test method	Requirements	Average test results from continuous production
CE conformity	EN 14041		Manufacturer: nora systems GmbH, D-69469 Weinheim
DoP-No.	EN 14041	± 0.4 %	0033
Thermal conductivity	EN 10456	$\lambda = 0.17 \text{ W/(m}\cdot\text{K)}$	Fulfilled
Dynamic coefficient of friction	EN 13893	DS	Fulfilled
Reaction to fire	EN 13501-1	Not bonded	B _{fl} -s1
Properties acc. to EN 1817			
Thickness	EN ISO 24346	Mean value ± 0.15 mm of nominal value	2.0 mm 2.5 mm
Dimensional stability	EN ISO 23999	± 0.4 %	± 0.3 %
Cigarette-burn resistance	EN 1399	Procedure A (stuffed out) ≥ level 4 Procedure B (burning) ≥ level 3	Fulfilled
Flexibility	EN ISO 24344, procedure A	Mandrel diameter 20 mm, no fissuring	Fulfilled
Hardness	ISO 48-4	≥ 75 Shore A	85 Shore A
Residual indentation	EN ISO 24343	Mean value ≤ 0.15 at thickness < 2.5 Mean value ≤ 0.20 at thickness ≥ 2.5	0.05 mm
Abrasion resistance at 5 N load	ISO 4649, procedure A	≤ 250 mm ³	130 mm ³
Colour fastness to artificial light	ISO 105-B02, procedure 3, test conditions 6.1 a)	At least 6 on the blue scale, ≥ 3 on the grey scale	Grey scale ≥ 3 acc. to ISO 105-A02

Additional technical data			
Weight	EN ISO 23997		2.0 mm: ~3.36 kg/m ² 2.5 mm: ~ 4.2 kg/m ²
Tear strength	ISO 34-1, method B, procedure A		31 kN/m
Slip resistance	DIN EN 16165		R 11* (finely-structured surface)
	BS 7976 TRRL Pendulum		36+ Wet & Dry
Improvement in footfall sound absorption	ISO 10140-3		6 dB
Effect of chemicals	EN ISO 26987		Resistant depending on concentration and time of exposure ^(A)
Electrostatic behaviour when being walked on	EN 1815		Antistatic, charging in case of rubber soles < 2 kV

Fire behaviour / smoke behaviour		Fulfils the requirements	
Fire behaviour	EN 45545	Hazard Level	HL2*
	DIN 5510-2		SF3*
Fire behaviour	BS 476, part 7	For vehicle cat. 1b acc. to BS 6853	Class 2 fulfilled*
Smoke density	BS 6853, Annex D.8.6		A0 ≤ 350*
Smoke toxicity	BS 6853, Annex B		R ≤ 5 fulfilled*
Oxygen index	ISO 4589		~30 %

Colour variations due to different production batches as well as technical alterations to improve the product have to be accepted.

* Tested and certified by an independent testing institute.

^(A) In case of increased impact of oils, greases, acids, alkalis and other aggressive chemicals as well as light oils and fuels – please contact us.

EN 1817: Specification for homogeneous and heterogeneous smooth elastomer floor coverings.



Carbon Neutral Floors™

Product information

noraplan® mobil (mix 932)

Designs: stone, grip, grip plus, plus, mega, signa, sentica, effect and effect spezial

noraplan® mobil (mix 932) are single-layered rubber floor coverings for heavy traffic areas. They have been especially developed for the use and the special requirements in rail vehicles and are available in sheets and tiles in the above-named designs. The highly resilient and particularly tear-resistant material can be easily processed even in the most difficult installation situations. The floor coverings are fire-resistant and free of PVC, other halogenated polymers and phthalate plasticizers.

Technical data Properties acc. to EN 1817	Test method	Requirements	Average test results from running production
Thickness	EN ISO 24346	Mean value \pm 0.15 mm of nominal value	2.0 mm
Thermal conductivity	EN 10456	$\lambda = 0.17$ W/(m·K)	Fulfilled
Dimensional stability	EN ISO 23999	\pm 0.4 %	\pm 0.2 %
Cigarette-burn resistance	EN 1399	Procedure A (stubbed out) \geq level 4 Procedure B (burning) \geq level 3	Fulfilled
Flexibility	EN ISO 24344, procedure A	Mandrel diameter 20 mm, no fissuring	Fulfilled
Hardness	ISO 48-4	\geq 75 Shore A	85 Shore A
Residual indentation	EN ISO 24343	Mean value \leq 0.15 mm at thickness $<$ 2.5 mm	0.07 mm
Abrasion resistance at 5 N load	ISO 4649, procedure A	\leq 250 mm ³	180 mm ³
Colour fastness to artificial light	ISO 105-B02, procedure 3, test conditions 6.1 a)	At least 6 on the blue scale, \geq 3 on the grey scale	Grey scale \geq 3 acc. to ISO 105-A02

Additional technical data			
Weight	EN ISO 23997		\sim 3.20 kg/m ²
Slip resistance	DIN EN 16165		R 9* (smooth surface) R 10* (reflection-breaking surf.)
Improvement in footfall sound absorption	ISO 10140-3		6 dB
Effect of chemicals	EN ISO 26987		Resistant depending on concentration and time of exposure ^(A)
Electrostatic behaviour when being walked on	EN 1815		Antistatic, charging in case of rubber soles $<$ 2 kV

Fire behaviour / smoke behaviour		Fulfils the requirements	
Fire behaviour	EN 13501-1		B _s -s1
	EN 45545	Hazard Level	HL1*
	DIN 5510-2		SF3*
Smoke density / Smoke toxicity	NF F 16-101 (NF X 10-702/X 70-100)	NF F 16-101 for grid 5/8	F1*
Smoke toxicity	ISO 5659-2	DIN 5510-2	FED \leq 1*

Colour variations due to different production batches as well as technical alterations to improve the product have to be accepted.

* Tested and certified by an independent testing institute.

^(A) In case of increased impact of oils, greases, acids, alkalis and other aggressive chemicals as well as light oils and fuels – please contact us.

EN 1817: Specification for homogeneous and heterogeneous smooth elastomer floor coverings.



Carbon Neutral Floors™

Product information

noraplan® mobil (mix 935) Designs: stone, stone plus, grip and grip plus

noraplan® mobil (mix 935) are single-layered rubber floor coverings for heavy traffic areas. They were especially developed for the application in railways with the highest requirements on fire safety. The particularly tear-resistant material is available in sheets. All designs mentioned above are available with reflection-breaking surface. The floor coverings are extremely fire-resistant and free of PVC, other halogenated polymers and phthalate plasticizers.

Technical data Properties acc. to EN 1817	Test method	Requirements	Average test results from running production
Thickness	EN ISO 24346	Mean value \pm 0.15 mm of nominal value	2.0 mm 2.5 mm
Thermal conductivity	EN 10456	$\lambda = 0.17 \text{ W/(m}\cdot\text{K)}$	Fulfilled
Dimensional stability	EN ISO 23999	$\pm 0.4 \%$	$\pm 0.3 \%$
Cigarette-burn resistance	EN 1399	Procedure A (stubbed out) \geq level 4 Procedure B (burning) \geq level 3	Fulfilled
Flexibility	EN ISO 24344, procedure A	Mandrel diameter 20 mm, no fissuring	Fulfilled
Hardness	ISO 48-4	≥ 75 Shore A	93 Shore A
Residual indentation	EN ISO 24343	Mean value ≤ 0.15 mm at thickness < 2.5 mm Mean value ≤ 0.20 mm at thickness ≥ 2.5 mm	< 0.1 mm
Abrasion resistance at 5 N load	ISO 4649, procedure A	$\leq 250 \text{ mm}^3$	110 mm^3
Colour fastness to artificial light	ISO 105-B02, procedure 3, test conditions 6.1 a)	At least level 6 on the blue scale, \geq level 3 on the grey scale	Grey scale ≥ 3 acc. to ISO 105-A02
Tensile strength	ISO 37		> 6 MPa
Elongation at break			$> 70 \%$

Additional technical data			
Weight	EN ISO 23997		2.0 mm: $\sim 3.10 \text{ kg/m}^2$ 2.5 mm: $\sim 3.85 \text{ kg/m}^2$
Tear strength	ISO 34-1, method B, procedure A		48 kN/m
Slip resistance	DIN EN 16165		R 9* (smooth surface) R 10* (reflection-breaking surf.)
Improvement in footfall sound absorption	ISO 10140-3		2.0 mm: 3 dB 2.5 mm: 4 dB
Effect of chemicals	EN ISO 26987		Resistant depending on concentration and time of exposure ^(A)
Electrostatic behaviour when being walked upon	EN 1815		Antistatic, charging in case of rubber soles $< 2 \text{ kV}$
Dielectric strength	EN 60243-1, VDE 0303, part 21		40 kV
Electrical insulation properties	EN 1081 R1		$> 10^{10} \text{ Ohm}$

Fire behaviour / smoke behaviour			
Fire behaviour	EN 45545	Hazard Level	HL3*
	BS 476, part 7	For vehicle cat. 1b acc. BS 6853	Class 2 fulfilled*
	UK Defence Standard 07-247, Annex A		Category A1
Smoke density	BS 6853, Annex D.8.6		$A_0 \leq 220^*$
Smoke toxicity	BS 6853, Annex B		$R \leq 5$ fulfilled*
Oxygen index	ISO 4589		$\sim 32 \%$

Colour variations due to different production batches as well as technical alterations to improve the product have to be accepted.

* Tested and certified by an independent testing institute.

^(A) In case of increased impact of oils, greases, acids, alkalis and other aggressive chemicals as well as light oils and fuels – please contact us.

EN 1817: Specification for homogeneous and heterogeneous smooth elastomer floor coverings.



Product information

norament® 926

Designs: arago, satura and grano, one-coloured with pastilles

norament® 926 single-layered rubber floor coverings are available in tiles in the above named designs with directional relief structure (arago), hammerblow surface (grano, satura) and one-coloured with round pastilles. **norament® 926** floor coverings for extremely heavy traffic areas are largely resistant to oils and greases. Exposure to extreme stresses impairs neither the functionality nor its visual appearance. The floor coverings are fire-resistant and free of PVC, other halogenated polymers and phthalate plasticizers.

Technical data Properties acc. to EN 1817/EN 12199	Test method	Requirements	Average test results from running production
Thickness	EN ISO 24346	Mean value \pm 0.20 mm of nominal value	3.5 mm 4.0 mm
Thermal conductivity	EN 10456	$\lambda = 0.17 \text{ W/(m}\cdot\text{K)}$	Fulfilled
Dimensional stability	EN ISO 23999	$\pm 0.4 \%$	$\pm 0.3 \%$
Cigarette-burn resistance	EN 1399	Procedure A (stubbed out) \geq level 4 Procedure B (burning) \geq level 3	Fulfilled
Flexibility	EN ISO 24344, procedure A	Mandrel diameter 20 mm, no fissuring	Fulfilled
Hardness	ISO 48-4	≥ 75 Shore A	82 Shore A
Residual indentation	EN ISO 24343	Mean value ≤ 0.25	0.15 mm
Abrasion resistance at 5 N load	ISO 4649, procedure A	$\leq 250 \text{ mm}^3$	115 mm^3
Colour fastness to artificial light	ISO 105-B02, procedure 3, test conditions 6.1 a)	At least 6 on the blue scale, ≥ 3 on the grey scale	Grey scale ≥ 3 acc. to ISO 105-A02

Additional technical data			
Weight	EN ISO 23997		3.5 mm: $\sim 5.30 \text{ kg/m}^2$ 4.0 mm: $\sim 5.60 \text{ kg/m}^2$
Tear strength	ISO 34-1, method B, procedure A	Mean value $\geq 20 \text{ kN/m}$	44 kN/m
Slip resistance	DIN EN 16165		R 9* R 10* (arago)
Improvement in footfall sound absorption	ISO 10140-3		10 dB – 3.5 mm 12 dB – 4.0 mm
Effect of chemicals	EN ISO 26987		Resistant depending on concentration and time of exposure ^(A)
Electrostatic behaviour when being walked on	EN 1815		Antistatic, charging in case of rubber soles $< 2 \text{ kV}$

Fire behaviour / smoke behaviour		Fulfils the requirements	
Fire behaviour	EN 13501-1	Bonded	B _{fl} -s1
	DIN 5510-2		SF3*
	Directive 95/28/EG/ FMVSS/CMVSS 302		Fulfilled (Art. 0354)*
	EN 45545	Hazard Level	HL1 (Art. 0354)*
Fire behaviour	ASTM E-648/ISO 9239-1	Federal Railroad Administration	Class 1 ($\geq 0.50 \text{ W/cm}^2$)*
Smoke density	ASTM E-662	Federal Railroad Administration	After 1.5 minutes < 100 , after 4 minutes < 200 *
Smoke toxicity	Bombardier SMP 800-C		Fulfilled*
	DIN 53436		Carbonisation gases are non-toxic*
	ISO 5659-2	DIN 5510-2	FED ≤ 1 *

Colour variations due to different production batches as well as technical alterations to improve the product have to be accepted.

* Tested and certified by an independent testing institute.

^(A) In case of increased impact of oils, greases, acids, alkalis and other aggressive chemicals as well as light oils and fuels – please contact us.

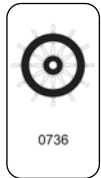
EN 1817: Specification for homogeneous and heterogeneous smooth elastomer floor coverings.

EN 12199: Specification for homogeneous and heterogeneous profiled elastomer floor coverings.



Carbon Neutral Floors™

Product information



norament® 920

norament® 920 is a one-coloured, single-layered rubber floor covering for extremely heavy traffic areas. **norament® 920** is largely resistant to oils and greases and offers all the advantages our customers rightfully expect from a resilient floor covering, too. Exposure to extreme stresses impairs neither its functionality nor its visual appearance. The floor covering is extremely fire-resistant and free of PVC, other halogenated polymers and phthalate plasticizers.

Technical data Properties acc. to EN 12199	Test method	Requirements	Average test results from running production
Thickness	EN ISO 24346	Mean value \pm 0.20 mm of nominal value	4.0 mm
Thermal conductivity	EN 10456	$\lambda = 0.17$ W/(m·K)	Fulfilled
Dimensional stability	EN ISO 23999	\pm 0.4 %	\pm 0.3 %
Cigarette-burn resistance	EN 1399	Procedure A (stubbed out) \geq level 4 Procedure B (burning) \geq level 3	Fulfilled
Flexibility	EN ISO 24344, procedure A	Mandrel diameter 20 mm, no fissuring	Fulfilled
Hardness	ISO 48-4	\geq 75 Shore A	83 Shore A
Residual indentation	EN ISO 24343	Mean value \leq 0.25 mm	0.15 mm
Abrasion resistance at 5 N load	ISO 4649, procedure A	\leq 250 mm ³	130 mm ³
Colour fastness to artificial light	ISO 105-B02, procedure 3, test conditions 6.1 a)	At least 6 on the blue scale, \geq 3 on the grey scale	Grey scale \geq 3 acc. to ISO 105-A02

Additional technical data			
Weight	EN ISO 23997		\sim 6.50 kg/m ²
Tear strength	ISO 34-1, method B, procedure A	Mean value \geq 20 kN/m	42 kN/m
Slip resistance	DIN EN 16165		R 9*
Improvement in footfall sound absorption	ISO 10140-3		12 dB
Effect of chemicals	EN ISO 26987		Resistant depending on concentration and time of exposure ^(A)
Electrostatic behaviour when being walked on	EN 1815		Antistatic, charging in case of rubber soles < 2 kV
Dielectric strength	EN 60243-1, VDE 0303, part 21		50 kV
Electrical insulation properties	EN 1081 R1		> 10 ⁹ Ohm

Fire behaviour / smoke behaviour			
Fire behaviour	EN 13501-1		B _{fl} -s1
	EN 45545	Hazard Level	HL3*
	UIC-Codex 564-2/12		Class A
	UK Defence Standard 07-247, Annex A		Category A1
Fire behaviour, sea going vessels (surface flammability)	IMO Res. MSC.307 (88) – (F.T.P. Code 2010)		Fulfilled
Smoke density and toxicity, sea going vessels			Fulfilled (glued with nora PU 102 or UZIN KR 430)

Approvals	
EC-Type Examination Certificate for use on board of sea going vessels in compliance with directive 2014/90/EU	Certificate No. 124041-04

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EN 12199: Specification for homogeneous and heterogeneous profiled elastomer floor coverings.





**Siemens Subway Munich
noraplan® plus mobil (931)**

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Alstom Coradia Continental Enno
noraplan® stone

Photos: © Uwe Mieth





High Speed Train CRH380A, China
noraplan® grip plus (934)

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Wuppertal Suspension Railway
noraplan® sentica

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Alstom Lint Netinera
noraplan® stone

Photos: © Uwe Mieth





Shanghai Metro Line 12
noraplan® signa

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nora systems GmbH
Höhnerweg 2-4
69469 Weinheim | Germany
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