



Nächster Halt:  
MÜNCHEN HBF  
Dieser Zug endet hier.  
Wir bitten alle Fahrgäste  
auszusteigen.

Ihre Anschlüsse

- U1 U2 U4 U5 U7
- S6 S7 S9 S2
- RB 100 130
- ICE, EC, AT, RB, M

MÜNCHEN

- WALPERTSKIRCHEN
- HÖRLKOFEN
- MARKT SCHWABEN
- MÜNCHEN OST

München Hauptbahnhof  
MÜNCHEN HBF

Orientierung am  
Münchener Hauptbahnhof

← Ausgang Nord → Ausgang Süd

↑ Ausgang Hauptbahnhof

← Taxi →

↑ Einfahrt auf Gleis 20

Ausstieg in Fahrtrichtung links

# nora<sup>®</sup> Transportation Solutions

Transportation 산업을 위한 고성능의 고무 바닥재 솔루션

**nora**<sup>®</sup>  
by Interface<sup>®</sup>

## NORA WELCOMES YOU ABOARD

Nora 는 교통 수단 분야에 많은 영향을 주어왔습니다. 70년 동안 철도와 버스 산업을 위해 안전한 공간을 만들어왔습니다. 트렌드에 맞는 생산 프로세스와 엄격한 품질 보증 시스템을 갖춘 혁신적인 개발 덕분에 Nora 는 transportation 분야에서 세계 1위가 되었으며, 기차와 버스와 같은 교통 수단을 위한 전문 시스템 공급업체가 되었습니다.

### 장점 알아보기.

#### 최고 성능

- 조밀한 표면으로 인해 내구성과 내마모성이 있습니다.
- 수명이 매우 길기 때문에 보수가 많이 필요하지 않습니다.
- 치수 안정성
- 편안함
  
- 뛰어난 화재 방지 성능
- 난연성, 화재 시 부식성 증기 없음, 다이옥신 및 푸란 발생 없음;
- 다음의 국제 철도 표준을 충족:
  - - EN 45545
  - - DIN 5510-2
  - - 학사 6853:1999
  - - NFPA 130
  - - NF-F 16-101
  - - UIC 564-2/12
- PVC, 가소제(프탈레이트) 및 할로겐(예: 염소) 없음
- 석면, 카드뮴, CFC 및 포름알데히드 없음
- 담뱃불 및 화재에 강함
- 정전기 방지: 걸을 때 정전기가 발생하지 않음.
- 걸을 때 편안함
- 미끄럼에 저항
- 환경 친화적
- 고품질 고무, 천연 자원의 미네랄 및 친환경적인 색상 안료로 만들어졌습니다.



Subway Munich, noraplan®plus mobil (931)

#### 간단한 설치 방식

- 빠르고 간단한 설치
- 모든 유형의 바닥에서 설치 가능

#### 유지 관리 비용 절감

- 코팅 불필요
- 먼지를 쉽게 접착하지 않음
- 유지 관리 비용 감소
- 화학 물질 및 다양한 매체에 대한 내성
- 낙서 제거 가능

## OUR SOLUTION RANGE

nora® 바닥재는 전 세계 운송 비즈니스의 특정 요구 사항을 충족하도록 잘 준비되어 있습니다. 고객을 만족시키는 것이 최우선입니다. 따라서 철도와 버스 산업을 위한 규정을 준수하는 고무 바닥재를 제공하게 된 것은 자랑스럽습니다. 포트폴리오에는 안전 바닥, 인레이, 계단뿐만 아니라 액세스리와 설치 도구가 있습니다.

### 구성 요소 개요

- 기능, 색상 및 디자인과 관련하여 다양한 제품 제공
- 특정 기술 요구 사항에 맞는 맞춤형 고무 바닥재
- Norament® 계단 - 신호 또는 안전 표시와 함께 사용 가능
- 계단코, 계단 앵글, 스트링거 및 스커트를 포함한 광범위한 액세스리 범위
- 조인트의 밀봉 없이 설치할 수 있는 고객 맞춤형 노라 inray
- 차량용 키트 배송 - 차량 1대당 쉽고 편리한 자재 공급
- 글로벌 조언 및 기술 지원
- 설치 및 유지 보수 교육
- nora®nTx: 철도 차량 및 버스의 모든 영역을 위한 완벽한 바닥재 시스템 - 즉각적인 접착으로 쉽게 시공할 수 있습니다.



Taylor-made inlays



Routed inlay



Special installation solutions for e.g. running covers



Stair nosing with signal stripes

## 혁신적인 설치 시스템 NORA® NTX

설치 시간이 중요할 때 nora® nTx 는 완벽한 솔루션입니다. 철도와 버스 산업의 모든 영역을 위한 완벽한 바닥재 시스템 - 즉각적인 접착으로 쉽게 시공할 수 있습니다. 간단하고 효과적이며 매우 빠릅니다.

어떻게 설치할 수 있나요?

nora® nTx 는 새롭고 독창적인 기술입니다. nora® 고무 바닥 시스템은 강력한 접착제가 공장에서 장착되기 때문에 Nora® nTx 는 독창적으로 개발되었지만 설치가 간단합니다. 몇 가지 간단한 단계만 거치면 바닥재를 깨끗하고 안전하게 즉시 설치하고 사용할 수 있습니다.



### 강점

- 몇 단계만 거치면 빠르고 간단한 설치
- 모든 유형의 바닥에 설치 가능
- 기존 바닥재에 설치
- 일상 업무에 지장 없음
- 건조 또는 대기 시간 없음
- 높은 직후에 사용할 수 있습니다
- 단일 공급업체의 완전한 시스템
- 가동 중지 시간 최소화 - 자동차 제조업체와 운전자에게 경제적



Pre-applied, solvent-free adhesive backing

NORA® NTX 가이미 설치된곳:

- Siemens Austria, Metro Riyadh
- CAF Spain, Metro Santiago de Chile
- CAF France, Metro Lyon (renovation)
- CAF Metro Istanbul
- CAF trains for Nedtrain
- SNCB Salzinnes (B)

## SUPPLEMENTING ACCESSORIES 악세서리 보조 장치

바닥재 설치를 위한 별도의 건식 접착제와 다양한 액세서리를 제공합니다.

### DRY ADHESIVES

nora® dryfix 750  
noraplan® 바닥재의 영구 고정용, 롤로 제공, 30m x 0.75m Art. 6556

nora® profix  
마른 접착 테이프

- nora® profix 50
- 50mm(테이프 너비) x 50m(롤 길이) 로 제공되는 coving 에 noraplan® 바닥재를 빠르게 설치하기 위해 Art. 992 nora® profix 90 사용

noraplan® 바닥재를 코빙에 빠르게 설치하기 위해 롤로 제공됨, 90mm(테이프 너비) x 50m(롤 길이) Art. 993



nora® profix

### 조인트 실링에 필요한 도구

nora® 조인트 실링 컴파운드  
nora® 바닥재와 색상 일치  
조인트 실링용, 300ml 카트리지, 20-25 r.m.

nora® joint cutter  
Art. 116950

nora® liquid wax  
Art. 109914

nora® smoothing spatula for nora® joint sealing compound (package 1 pcs)  
Art. 120184

noraplan® 바닥재용 nora® 열간 용접봉 색상 일치, 원형, Ø 4 mm, 롤 100 r.m.



nora® joint sealing compound



nora® hot welding rod

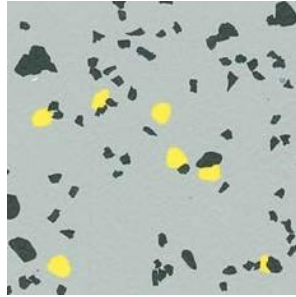
## DESIGN OPTIONS 디자인 옵션

다양한 디자인 옵션은 아래에서 확인하십시오. 자세한 정보는 다음 제품 정보 페이지에서 확인할 수 있습니다.

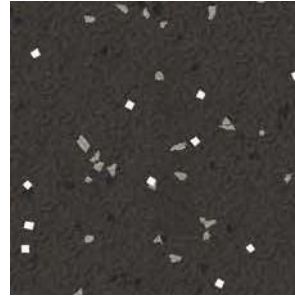
\* available as mix 931



noraplan® stone plus\*



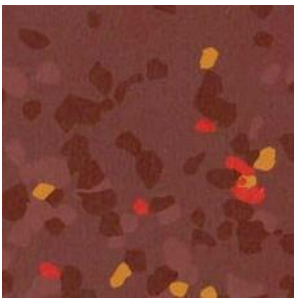
noraplan® grip plus\*



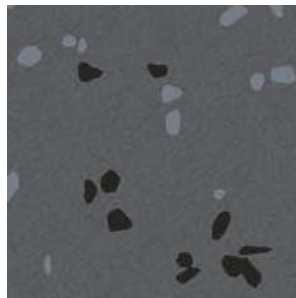
noraplan® grip\*



noraplan® effect\*



noraplan® plus\*



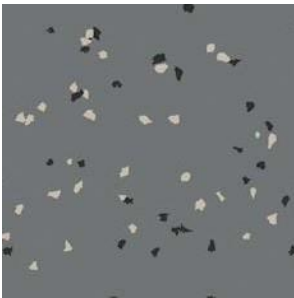
noraplan® effect spez.



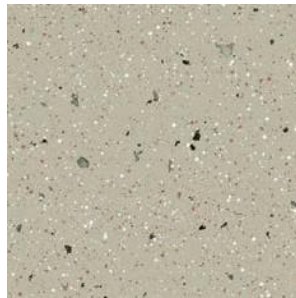
noraplan® eco\*



noraplan® sentica



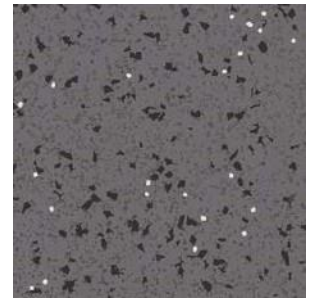
noraplan® stone\*



noraplan® unita



noraplan® signa



noraplan® ultra grip\*



noraplan® valua



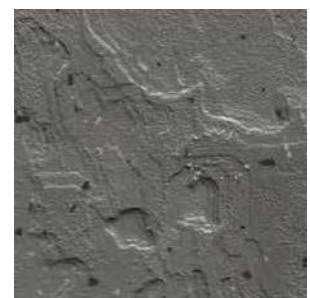
norament®920/926



norament®926 grano



norament®926 satura



norament®926 arago

# PRODUCT INFORMATION 제품 정보

noraplan® (mix 913)

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

noraplan® (mix 913)은 위에 언급된 디자인의 롤 타입과 타일로 제공되는 할로겐 프리, 단일 층 고무 바닥재입니다. noraplan®은 빛 반사를 차단하고 미세 구조 표면을 가지고 있습니다. 센티카, 시그나, 유니타 및 에코 디자인은 매끄러운 무반사 표면과 선형 표면 구조의 발루아로 제공됩니다.

Technical data Properties acc. to EN 1817	Test method	Requirements	Average test results from running production
Thickness	EN ISO 24 346	Mean value $\pm$ 0.15 mm of nominal value	2.0 mm
Dimensional stability	EN ISO 23 999	$\pm$ 0.4 %	$\pm$ 0.3%
Cigarette-burn resistance	EN 1399	Procedure A (stubbled out) $\geq$ level 4 Procedure B (burning) $\geq$ level 3	Fulfilled
Flexibility	EN ISO 24 344, procedure A	Mandrel diameter 20 mm, no fissuring	Fulfilled (exception: unita)
Hardness	ISO 7619	$\geq$ 75 Shore A	92 Shore A
Residual indentation	EN ISO 24 343	Mean value $\leq$ 0.15 at thickness < 2.5 Mean value $\leq$ 0.20 at thickness $\geq$ 2.5	0.05 mm
Abrasion resistance at 5 N load	ISO 4649, procedure A	< 250 mm <sup>3</sup>	150 mm <sup>3</sup>
<b>Additional technical data</b>			
Weight	EN ISO 23 997, test procedure 3, test	$\geq$ 3 on the grey scale (=	acc. to ISO 105-A02
Tear strength	ISO 34-1, method B, procedure A		28 N/mm
Slip resistance	DIN 51 130		R 9 (smooth/linear surface structure) R 10 (finely-structured surface)
Improvement in footfall sound absorption	ISO 10 140-3		6 dB
Effect of chemicals	EN ISO 26 987	Depending on concentration and time of exposure	Resistant <sup>(A)</sup>
<b>Fire behaviour/smoke behaviour</b>		<b>Fulfils the requirements</b>	
Fire behaviour on	BS 476, part 7		Class 2 fulfilled
	CNTK/UIC-Codex 564-2/12		Class C
	DIN 5510-2	Deutsche Bahn AG	SF3
	EN 13501-1	bonded	B-s1
	NT Fire 007		Class G
	Directive 95/28/EG/FMVSS/CMVSS 302		Fulfilled
Fire behaviour	EN 45 545		HL1
	ASTM E-648/ISO 9239-1	Federal Railroad Administration	Class1 ( $\geq$ 0.50 W/cm <sup>2</sup> )
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
	BS 6853, annex B		R $\leq$ 5 fulfilled
	DIN 53 436		Carbonisation gases are non-toxic
Oxygen index	ISO 5659-2	DIN 5510-2	FED $\leq$ 1
	ISO 4389	ISO 4389	~23%

(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.

# PRODUCT INFORMATION 제품 정보

noraplan® mobil (mix 931)

Designs: stone, effect, eco, grip, plus, stone plus and grip plus

noraplan® mobil(931)은 부드럽고 샌딩된 뒷면과 함께 고성능의 단일 고무 바닥재입니다.

noraplan® mobil(931)은 철도 공간의 특정 요구 사항을 충족하기 위해 특별히 개발되었으며 내화성이 뛰어나고 할로겐이 없습니다.

noraplan® 스톤, 그립, 스톤 플러스, 그립 플러스에는 매트 반사 시스템과 잘게 쪼개진 표면을 가지고 있으며, 에코는 매끄러운 무반사 표면으로 제공됩니다.

Technical data	Test method	Requirements	Average test results from running production
Properties acc. to EN 1817			
Thickness	EN ISO 24 346	Mean value $\pm$ 0.15 mm of nominal value	2.0/2.5 mm
Dimensional stability	EN ISO 23 999	$\pm$ 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 24 344, procedure A	Mandrel diameter 20 mm, no fissuring	Fulfilled
Hardness	ISO 7619	$\geq$ 75 Shore A	85 Shore A
Residual indentation	EN ISO 24 343	Mean value $\leq$ 0.15 at thickness < 2.5 Mean value $\leq$ 0.20 at thickness $\geq$ 2.5	0.05 mm
Abrasion resistance at 5 N load	ISO 4649, procedure A	< 250 mm <sup>3</sup>	130 mm <sup>3</sup>
<b>Additional technical data</b>			
Weight	EN ISO 24 997, test conditions 6.1 a)	$\geq$ 3 on the grey scale (= 350 MJ /m <sup>2</sup> )	2.0 mm $\approx$ 3.5 kg/m <sup>2</sup> 2.5 mm $\approx$ 4.2 kg/m <sup>2</sup>
Tear strength	ISO 34-1, method B, procedure A		31 N/mm
Slip resistance	DIN 51 130		R 9 (smooth surface) R 10 (finely-structured surface)
Improvement in footfall sound absorption	ISO 10 140-3		6 dB
Effect of chemicals	EN ISO 26 987	Depending on concentration and time of exposure	Resistant <sup>(A)</sup>
Electrostatic behaviour	EN 1815		Antistatic, charging in
<b>Fire behaviour/smoke behaviour</b>		<b>Fulfils the requirements</b>	
Fire behaviour	CNTK/UIC-Codex 564-2/12		Class A
	DIN 5510-2	Deutsche Bahn AG	SF3
	JRMA		Difficult to burn
	UNE 23727		M2 on wood
	UNI 8457/UNI 9174	UNI 9177	Class 1A
	EN 45 545		HL2
Fire behaviour	ASTM E-648/ISO 9239-1	Federal Railroad Administration	Class 1 ( $\geq$ 0.50 W/cm <sup>2</sup> )
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
Fire behaviour	BS 476, part 7	Vehicle cat. Ia acc. to BS 6853	Class 2 fulfilled
Smoke density	BS 6853, annex D.8.6		A <sub>0</sub> $\leq$ 220 fulfilled
Smoke toxicity	BS 6853, annex B		R $\leq$ 5 fulfilled
Smoke toxicity	Bombardier SMP 800-C		Fulfilled
Oxygen index	DIN 53 436		Carbonisation gases are non-toxic
	ISO 5659-2	DIN 5510-2	FED $\leq$ 1
	ISO 4589		$\sim$ 33%

<sup>(A)</sup> In case of increased impact of oils, greases, acids, alkalis and other aggressive chemicals as well as light oils and fuels - please contact us.



# PRODUCT INFORMATION 제품 정보

## noraplan® ultra grip (mix 931)

noraplan® 울트라 그립 (931)은 부드럽고 샌딩된 뒷면과 함께 고성능을 위한 단일층 고무 바닥재입니다. noraplan® 울트라 그립 모빌(931)은 특정 요구 사항을 충족하기 위해 철도용으로 특별히 개발되었으며 내화성이 뛰어나고 할로겐이 없습니다.

Technical data	Test method	Requirements	Average test results from continuous production
CE conformity	EN 14 041		Manufacturer: nora systems GmbH, D-69469 Weinheim
DoP-No.	EN 14 041	± 0.4 %	0033
Dynamic coefficient of friction	EN 13 893	DS	Fulfilled
Thermal conductivity	EN 10 456	$\lambda = 0.17 \text{ W}/(\text{m}^*\text{K})$	Fulfilled
Reaction to fire	EN 13 501-1	Not bonded	B-s1
<b>Properties acc. to EN 1817</b>			
Thickness	EN ISO 24 346	Mean value ± 0.15 mm of nominal value	2.0 mm 2.5 mm
Dimensional stability	EN ISO 23 999	± 0.4 %	± 0.3%
Cigarette-burn resistance	EN 1399	Procedure A (stubbed out) ≥ level 4 Procedure B (burning) ≥ level 3	Fulfilled
Flexibility	EN ISO 24 344, procedure A	Mandrel diameter 20 mm, no fissuring	Fulfilled
Hardness	ISO 7619	≥ 75 Shore A	85 Shore A
Residual indentation	EN ISO 24 343	Mean value ≤ 0.15 at thickness < 2.5 Mean value < 0.20 at thickness > 2.5	0.05 mm
<b>Additional technical data</b>			
Weight fastness to artificial light	EN ISO 23 897, procedure 3, test	At least 6 on the blue scale, ≥ 3 on the grey scale (=	2.0 mm: 3.36 kg/m <sup>2</sup> 2.5 mm: 4.05 kg/m <sup>2</sup>
Tear strength	ISO 34-1, method B, procedure A		31 N/mm
Slip resistance	DIN 51 130		R 11 (finely-structured surface)
	BS 7976 TRRL Pendulum using 96 slider		> 36 Wet & Dry
Improvement in footfall sound absorption	ISO 10 140-3		6 dB
Effect of chemicals	EN ISO 26 987	Depending on concentration and time of exposure	Resistant <sup>(A)</sup>
Electrostatic behaviour	EN 1815		Antistatic, charging in
<b>Fire behaviour/smoke behaviour</b>		<b>Fulfils the requirements</b>	
Fire behaviour	DIN 5510-2	Deutsche Bahn AG	SF3*
	EN 45 545	Hazard Level	HL2
Fire behaviour	BS 476, part 7	Vehicle cat. la acc. to BS 6853	Class 2 fulfilled
Smoke density	BS 6853, Annex D.8.6		A <sub>0</sub> ≤ 220 fulfilled
Smoke toxicity	BS 6853, Annex B		R ≤ 5 fulfilled
Oxygen index	ISO 4589		~30%

<sup>(A)</sup> In case of increased impact of oils, greases, acids, alkalis and other aggressive chemicals as well as light oils and fuels - please contact us.

# PRODUCT INFORMATION 제품 정보

noraplan® mobil (mix 932)

Designs: effect, mega, eco, plus, stone and grip

noraplan® mobil(mix 932) 은 고성능의 단층 고무 바닥재입니다. 디자인 효과, 메가, 에코 플러스는 구조층이 없는 매끄럽고 매트한 무반사 표면을 가지고 있습니다. noraplan® 스톤과 그립은 반사 차단 기능이 있는 매트입니다. noraplan® mobil (mix 932) 은 내화성이 뛰어나고 할로겐이 없습니다. 재료 타입은 위에서 언급한 디자인의 롤과 타일로 제공됩니다. 특히 탄력 있고 찢어지지 않는 특성으로 인해 까다로운 적용 분야에도 쉽게 설치할 수 있습니다.

Technical data Properties acc. to EN 1817	Test method	Requirements	Average test results from running production
Thickness	EN ISO 24 346	Mean value $\pm$ 0.15 mm of nominal value	2.0 mm
Dimensional stability	EN ISO 23 999	$\pm$ 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 24 344, procedure A	Mandrel diameter 20 mm, no fissuring	Fulfilled
Hardness	ISO 7619	$\geq$ 75 Shore A	90 Shore A
Residual indentation	EN ISO 24 343	Mean value $\leq$ 0.15 at thickness $\geq$ 2.5 mm Mean value $\leq$ 0.20 at thickness $\geq$ 2.5 mm	0.07 mm
Abrasion resistance at 5 N load	ISO 4649, procedure A	$<$ 250 mm <sup>3</sup>	170 mm <sup>3</sup>
<b>Additional technical data</b>			
Weight	EN ISO 23 997, procedure B, test	$\geq$ 3 on the grey scale (=	acc. to ISO 105-A02
Tear strength	ISO 34-1, method B, procedure A		25 N/mm
Slip resistance	DIN 51 130		R 9/10
Improvement in footfall sound absorption	ISO 10 140-3		6 dB
Effect of chemicals	EN ISO 26 987	Depending on concentration and time of exposure	Resistant <sup>(A)</sup>
Electrostatic behaviour	EN 1815		Antistatic, charging in
<b>Fire behaviour/ smoke behaviour</b>		<b>Fulfils the requirements</b>	
Fire behaviour	DIN 5510-2	Deutsche Bahn AG	SF3*
	EN 13 501-1	Not bonded	B-s1
	EN 45 545	(Hazard Level)	HL1
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

<sup>(A)</sup> In case of increased impact of oils, greases, acids, alkalis and other aggressive chemicals as well as light oils and fuels - please contact us.

# PRODUCT INFORMATION 제품 정보

norament®926

Designs: arago, satura and grano, uni with pastilles

norament®926 단층 고무 바닥재는 arago와 grano, satura 디자인의 타일로 제공됩니다. 통행량이 매우 많은 공간을 위한 norament®926 바닥재는 오일과 그리스에 대한 내성이 크며 화재 독성 측면에서 안전하고 할로겐이 없습니다. 극심한 환경에 노출되어도 기능이나 외관이 손상되지 않습니다.

Technical data Properties acc. to EN 1817 / EN 12 199	Test method	Requirements	Average test results from running production
Thickness	EN ISO 24 346	Mean value $\pm$ 0.20 mm of nominal value	3.5 mm/4.0 mm
Dimensional stability	EN ISO 23 999	$\pm$ 0.4 %	$\pm$ 0.3%
Tear strength	ISO 34-1, method B, procedure A	Mean value $\geq$ 20 N/mm	35 N/mm
Cigarette-burn resistance	EN 1399	Procedure A (stubbed out) $\geq$ level 4 Procedure B (burning) $\geq$ level 3	Fulfilled
Flexibility	EN ISO 24 344, procedure A	Mandrel diameter 20 mm, no fissuring	Fulfilled
Hardness	ISO 7619	$\geq$ 75 Shore A	82 Shore A
Residual indentation	EN ISO 24 343	Mean value $\leq$ 0.25	0.15 mm
<b>Additional technical data</b>			
Weight	EN ISO 23 997	At least 6 on the blue scale, 5 on the orange scale	4.56 g/cm <sup>2</sup>
Tear strength	ISO 34-1, method B, procedure A	Mean value $\geq$ 20 N/mm	35 N/mm
Slip resistance	DIN 51 130		R 9 (arago: R 10)
Improvement in footfall sound absorption	ISO 10 140-3		10 dB - 3.5 mm 12 dB - 4.0 mm
Effect of chemicals	EN ISO 26 987	Depending on concentration and time of exposure	Resistant <sup>(*)</sup>
Electrostatic behaviour	EN 1815		Antistatic, charging in
<b>Fire behaviour/smoke behaviour</b>		<b>Fulfils the requirements</b>	
Fire behaviour	DIN 5510-2		SFS*
	EN 13 501-1	bonded	B-s1
	Directive 95/28/EG / FMVSS/CMVSS 302		Fulfilled
	EN 45 545	Hazard Level	HL1
Fire behaviour	ASTM E-648/ISO 9239-1	Federal Railroad Administration	Class 1 ( $\geq$ 0.50 W/cm <sup>2</sup> )
Smoke density	ASTM E-662	Federal Railroad Administration	After 1.5 minutes < 100, after 4 minutes < 200
Smoke toxicity	DIN 59 436	(*) In case of increased impact of oils, greases, acids, alkalis and other aggressive chemicals as well as light oils and fuels - please contact us.	
			Carbonisation gases are non-toxic

# PRODUCT INFORMATION 제품 정보

norament®920

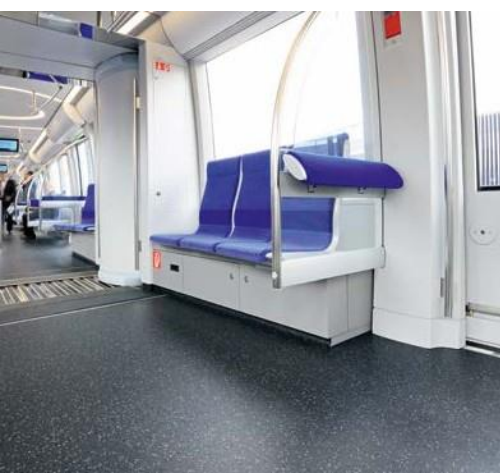


norament® 920 은 통행량이 많은 지역을 위한 단색, 내화성, 할로겐 프리 고무 바닥재입니다. norament® 920 은 오일과 그리스에 대한 내성이 크며 탄력 있는 바닥재에서 고객이 기대하는 모든 이점을 제공합니다. 극심한 환경에 노출되면 기능이나 외관이 손상되지 않습니다.

Technical data Properties acc. to EN 12 199	Test method	Requirements	Average test results from running production
Thickness	EN ISO 24 346	Mean value $\pm$ 0.20 mm of nominal value	4.0 mm
Dimensional stability	EN ISO 23 999	$\pm$ 0.4 %	$\pm$ 0.3%
Tear strength	ISO 34-1, method B, procedure A	Mean value $\geq$ 20 N/mm	42 N/mm
Cigarette-burn resistance	EN 1399	Procedure A (stubbled out) $\geq$ level 4 Procedure B (burning) $\geq$ level 3	Fulfilled
Flexibility	EN ISO 24 344, procedure A	Mandrel diameter 20 mm, no fissuring	Fulfilled
Hardness	ISO 7619	$\geq$ 75 Shore A	83 Shore A
Residual indentation	EN ISO 24 343	Mean value $\leq$ 0.25 mm	0.15 mm
Abrasion resistance at 5 N load	ISO 4649, procedure A	$\leq$ 250 mm <sup>3</sup>	130 mm <sup>3</sup>
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 (= 350 MJ / m <sup>2</sup> )	Grey scale $\geq$ 3 acc. to ISO 105-A02
<b>Additional technical data</b>			
Weight	EN ISO 23 997		$\sim$ 6.50 kg/m <sup>2</sup>
Improvement in footfall sound absorption	ISO 10 140-3		12 dB
Effect of chemicals	EN ISO 26 987		Resistant depending on concentration and time of exposure <sup>(A)</sup>
Electrostatic behaviour when being walked on	EN 1815		Antistatic, charging in case of rubber soles < 2 kV
Dielectric strength	EN 60 243-1, VDE 0303, part 21		$\leq$ 34 kV
Electrical insulation properties	IEC 60 093, VDE 0303 T.30		> 10 <sup>10</sup> Ohm
<b>Fire behaviour/ smoke behaviour</b>			
Fire behaviour	EN 13 501-1		Br-s1
	EN 45 545	Hazard Level	HL3
	UIC-Codex 564-2/12		Class A
Fire behaviour, sea going vessels (surface flammability)	IIMO Res. MSC.307 (88) - (F.T.P. Code 2010) <sup>(A)</sup> In case of increased impact of oils, greases, solvents, alcohols and other aggressive chemicals as well as light oils and fuels – please contact US		Fulfilled
Smoke density and toxicity, sea going vessels			Fulfilled (glued with Uzin KR430 or nora 310 PU)
<b>Approvals</b>			
EC-Type Examination Certificate for use on board of sea going vessels in compliance with directive 2014/90/EU			Certificate No. 124041-04



SIEMENS SUBWAY MUNICH  
NORAPLAN® PLUS MOBIL (931)





WUPPERTAL SUSPENSION RAILWAY  
NORAPLAN® SENTICA





ALSTOM CORADIA CONTINENTALENNO  
NORAPLAN® STONE





儿童购票标准 1.2m  
Children's ticket standard 1.2m

RAILWAYS HIGHSPEED CRH380A, CHINA  
NORAPLAN® GRIP PLUS (934)







SHANGHAI METRO LINE 12  
NORAPLAN® SIGNA





ALSTOM LINT NETINERA  
NORAPLAN® STONE





SOUND TRANSIT EXPRESS SEATTLE  
NORAPLAN® STONE



# WE TAKE PRIDE IN OUR DIVERSE WORLDWIDE PROJECTS

## METROS/SUBWAYS

Project	Country	Manufacturer/Customer	Year	nora® flooring
U-Bahn München	Austria	Siemens	2012	noraplan® plus (931)
Metro Melbourne	Australia	Siemens	2001	noraplan® stone (931)
MTM Newport Australia	Australia	Siemens	2014	noraplan® stone (931)
Brussels	Belgium	STIB/MIVB	2001	norament® 923
Brussels	Belgium	Bombardier	2002	norament® 923
Metro Brussels	Belgium	CAF	2005	norament® 923 grano
Metro Brazil	Brazil	Rotem	2005	noraplan® stone
São Paulo	Brazil	Rotem	2008	noraplan® stone (931)
Salvador Phase 2 112 Cars	Brazil	Rotem	2015	noraplan® stone (931)
São Paulo CPTM 240 Cars	Brazil	Rotem	2015	noraplan® stone plus (931)
City of Montreal	Canada	Bombardier	2000	noraplan® mega
Canada	Canada	Rotem	2006	noraplan® uni
Xi'an Metro Line 3	China	CNR Dalian	2015	noraplan® sentica
Tianjin Metro Line 3	China	CSR Qingdao	2009	noraplan® stone (931)
Tianjin Metro Line 2	China	CNR Dalian	2009	noraplan® stone (931)
Shanghai Metro Line 9	China	CNR Changke	2016	noraplan® mega
Shanghai Metro Line 2, 13	China	CSR Puzhen	2009, 2011	noraplan® stone (931), plus
Shanghai Metro Line 12	China	CBRC Changke/Bombardier	2011	noraplan® signa
Shanghai Metro Line 11, 16	China	CSR Zhuzhou	2011, 2012	noraplan® mega
Nanning Metro Line 1	China	CSR Zhuzhou	2014	noraplan® signa
Kunming Metro Line 1, 2, 3, 6	China	CSR Zhuzhou	2011, 2015, 2016	noraplan® mega
Zhengzhou Metro Line 2	China	CSR Zhuzhou	2016	noraplan® mega
Beijing Metro Line 2, 5, 8, 10	China	CNR Changke	2007, 2008	noraplan® stone, mega, plus
Beijing Metro airport Line	China	CNR Changke	2008	noraplan® grip
Beijing Metro Xijiao Line	China	CNR Dalian	2014	noraplan® stone
Subway Kairo	Egypt	Kinki Sharyo	1992	norament® 921
Metro Helsinki	Finland	Bombardier	2000	noraplan® mega
Metro de Lyon	France	SLT.C	2001	noraplan® plus (931)
MS 61	France	RATP	2005	noraplan® plus (931)
MS 67	France	RATP	2005	noraplan® plus (931)
MI 79	France	Alstom	2009	noraplan® plus (931)
Metro Berlin	Germany	Bombardier	1987	noraplan® viva
Berlin	Germany	BVG	1999	noraplan® stone
Metro Munich	Germany	ADtranz	1999	noraplan® effect
Metro Athens	Greece	Rotem	2003	noraplan® stone
Metro Delhi	India	Bombardier	2011	noraplan® stone (931)
Metro Chennai (Car Kit)	India	Alstom	2013	noraplan® grip / stone
Metro Hyderabad	India	Rotem	2013	noraplan® stone (931)
RS 10 Delhi	India	Rotem	2014	noraplan® stone (931)
Iran	Iran	Rotem	2007	noraplan® stone (931)
Tokyo Metro	Japan	Takara	2010	noraplan® stone (931)
Yurikamome	Japan	Takara	2011	noraplan® stone(931)
Seibu Railway Maintenance	Japan	Takara	2011	noraplan® stone(931)
Tokyo Metro 10000 series	Japan	Takara	2011	noraplan® stone plus (931)
Daegu Line 2	Korea	Rotem	2004	noraplan® stone (931)
Seoul Line 2,3 +4	Korea	Heung Il	2004	noraplan® uni (931)
Seoul Line 6,7 +8	Korea	Rotem	2004	noraplan® stone (931)
Seoul Line 1,2,3 +4	Korea	ROWIN	2005	noraplan® uni (931)
Seoul Line 5,6 +8	Korea	Heung Il	2005	noraplan® stone (931)
Seoul Line 6,7 +8	Korea	Rotem	2005	noraplan® stone (931)
Seoul Line 5	Korea	SLS Heavy	2006	noraplan® stone (931)
Seoul Line 2	Korea	Rotem	2007	noraplan® stone / grip
Seoul Line 9	Korea	Rotem	2009	noraplan® stone (931)
Malaysia	Malaysia	Rotem	2008	noraplan® plus
Metro Oslo	Norway	Siemens	2005	noraplan® plus

## METROS/SUBWAYS

Project	Country	Manufacturer/Customer	Year	nora® flooring
Metro Lisbon	Portugal	ADtranz	1998	norament® 923
Metro Porto	Portugal	ADtranz	2001	noraplan® stone
Syrian Railway	Syria	Rotem	2005	noraplan® stone
Metro Taipei	Taiwan	Siemens	2003	noraplan® vario
City of Ankara	Turkey	Bombardier	1983	noraplan® vario
Metro Istanbul	Turkey	Alstom	2008	noraplan® stone
Metro Izmir 120 cars	Turkey	Rotem	2013	noraplan® stone (931)
Metro North	USA	Bombardier	1997	noraplan® vario
Amtrak Metro Liner	USA	Bombardier	1999	norament® 925
New Jersey Transit	USA	A.A.I	2000	noraplan® stone
Los Angeles Transit	USA	Bombardier	2001	norament® 825
New York City Transit	USA	Kawasaki	2001	norament® 925 lago
New York City Transit	USA	NYCTA	2001	norament® 925 lago
New Jersey Transit	USA	Bombardier	2002	noraplan® vario
New York City Transit	USA	Bombardier	2002	norament®925 lago/terrazzo
Los Angeles Transit	USA	Rotem	2008	norament® 825
NYCT R-160	USA	Kawasaki	2010	norament® 925 lago
NYCT R-188	USA	Kawasaki	2012	norament® 925 lago

## LIGHT RAIL SYSTEMS

Project	Country	Manufacturer/Customer	Year	nora® flooring
Alger	Algeria	Alstom	2009	noraplan® stone (931)
Constantine	Algeria	Alstom	2009	noraplan® stone (931)
Oran	Algeria	Alstom	2009	noraplan® stone (931)
ULF Vienna	Austria	Siemens	2003	noraplan® stone (931)
V-Wagen	Austria	Siemens	2013	noraplan® stone (931)
Tramway Brussels	Belgium	STIB/MIVB	1993	norament® 923 grano
Tramway Brussels	Belgium	Bombardier	2005	noraplan® stone(931)
Zhuhai Line	China	CRRRC Dalian	2016	noraplan® stone
Wuhan Line 1, 6	China	CSR Zhuzhou	2015, 2016	noraplan® stone, signa
Shanghai Metro Line 17	China	CNR Changchun	2016	noraplan® plus (931)
Shanghai Line 3, 4	China	Shanghai Alstom	2016	noraplan® stone (931)
Nanning Metro Line 2	China	CSR Zhuzhou	2016	noraplan® signa
CITADIS Lyon	France	Alstom	1999	noraplan® plus (931)
CITADIS Valenciennes	France	Alstom	2000	noraplan® plus (931)
CITADIS Orleans	France	Alstom	2001	noraplan® plus (931)
CITADIS Montpellier	France	Alstom	2002	noraplan® plus (931)
CITADIS Bordeaux	France	Alstom	2003	noraplan® plus (931)
Mulhouse	France	Alstom	2005	noraplan® stone (931)
Strasbourg	France	Alstom	2005	noraplan® plus (931)
Grenoble	France	Alstom	2006	noraplan® plus (931)
Le Mans	France	Alstom	2006	noraplan® stone (931)
Reims	France	Alstom	2006	noraplan® stone (931)
Angers	France	Alstom	2007	noraplan® stone (931)
Nice	France	Alstom	2007	noraplan® plus (931)
CITADIS Le Havre	France	Alstom	2011	noraplan® stone (931)
CITADIS Brest	France	Alstom	2011	noraplan® stone (931)
CITADIS Dijon	France	Alstom	2011	noraplan® stone (931)
CITADIS Rouen	France	Alstom	2011	noraplan® stone (931)
CITADIS Toulouse	France	Alstom	2013	noraplan® stone (931)
CITADIS Aubagne	France	Alstom	2013	noraplan® plus (931)
CITADIS Constatine	France	Alstom	2013	noraplan® stone (931)
CITADIS Bordeaux	France	Alstom	2013	noraplan® plus (931)
CITADIS Strasbourg	France	Alstom	2014	norament® 920
Tramway Munich	Germany	ADtranz	1989	noraplan® stone
S-Bahn Berlin, BR 481	Germany	ADtranz	1992	noraplan® viva
Tramway Berlin	Germany	ADtranz	1993	noraplan® stone
ET 474	Germany	Alstom	1995	noraplan® mega

## HEAVY RAILWAYS

Project	Country	Manufacturer/Customer	Year	nora® flooring
Metrolinx 263	Canada	Bombardier	2013	noraplan® ultra grip
Taiwan EMU	Taiwan	TRSC	2012 - 2016	noraplan® eco, stone
EMU High Speed Trains	China	CSR Qingdao	2010 - 2016	noraplan® grip plus, plus, stone, grip (934)
EMU High Speed Trains	China	Qingdao Bombardier	2006, 2008, 2010 - 2015	noraplan® grip, plus (931)
EMU High Speed Trains	China	CNR Tangshan/Changchun	2008 - 2014	noraplan® grip, plus
Qinghai - Tibet Line	China	Qingdao Bombardier	2004	noraplan® (931)
Taiwan Common Railways	Taiwan	TRSC	2012	noraplan® eco stone
Egyptian Railways	Egypt	Temoinsa	2002	noraplan® vario
Finnish Railways	Finland	Alstom	2003	noraplan® plus, norament® 921
TER X72500	France	Alstom	1998	noraplan® plus (931)
TER X73500	France	Alstom DDF	1999	noraplan® plus (931)
Transilien	France	SNCF	2007	noraplan® grip (931)
Double-deck coaches KISS	Germany	Stadler	2011	noraplan® stone
Kiss CFL	Germany	Stadler	2012	noraplan® effect (932)
FLIRT ET-SW (DB)	Germany	Stadler	2012	noraplan® stone
FLIRT ENR	Germany	Stadler	2013	noraplan® stone
FLIRT MSH	Germany	Stadler	2013	noraplan® ultra grip/unita
KISS + FLIRT EMIL	Germany	Stadler	2014	noraplan® stone
LINT KÖLN (Car Kit)	Germany	Alstom	2012	noraplan® effect
LINT Netinera (Car Kit)	Germany	Alstom	2013	noraplan® stone
LINT LNVG 7 (Car Kit)	Germany	Alstom	2013	noraplan® effect
LINT DNOW	Germany	Alstom	2014	noraplan® effect (932)
ICX	Germany	Siemens	2014	noraplan® ultra grip
Tsukuba Express	Japan	Takara	2011	noraplan® stone (931)
SGM III / SGM II	Netherlands	Bombardier	2002	noraplan® plus (931)
Aeroexpress Russia	Russia	Stadler	2014 - 2015	noraplan® grip plus
SBB Double-deck coaches	Switzerland	Bombardier	2010 - 2015	noraplan® stone
Rhätische Bahn	Switzerland	Stadler	2011	noraplan® grip
Zentralbahn	Switzerland	Stadler	2011 - 2013	noraplan® stone
Kawasaki PA5	USA	Kawasaki	2010	norament® 925 grano
CTA	USA	Bombardier	2013	noraplan® stone plus
BART	USA	MCI	2013	noraplan® stone plus
WMATA	USA	WMATA	2013	norament® 925 grano
Sun Rail 256	USA	Bombardier	2013	norament® 926 grano
WMATA 7000	USA	Kawasaki	2014	norament® 925 lago
AMTRAK Baggage Cars	USA	CAF	2014	norament® 925 grano
M8	USA	Kawasaki	2014	noraplan® plus
Metra Amerail	USA	MCI	2014	norament® 925 grano
Metra BUDD	USA	MCI	2014	norament® 925 grano
Metra Nippon Sharyo	USA	Nippon Sharyo	2014	noraplan® ultra grip
Smart DMU	USA	Nippon Sharyo	2014	noraplan® stone

## LIGHT RAIL SYSTEMS

Project	Country	Manufacturer/Customer	Year	nora® flooring
BR 642	Germany	Siemens	1999	noraplan® effect
Tramway Dresden	Germany	Bombardier	1999	noraplan® stone
ET 423	Germany	Alstom	2000	noraplan® effect
LINT	Germany	Alstom	2001	noraplan® effect
Tramway Essen	Germany	Bombardier	2001	noraplan® stone
Tramway Jena	Germany	Bombardier	2001	noraplan® stone
LINT	Germany	Alstom	2002	noraplan® effect
Tramway Rhein-Neckar	Germany	Bombardier	2003	noraplan® stone
Double-Deck Coaches	Germany	Bombardier	2004	noraplan® effect
CITADIS Kassel	Germany	Alstom	2007	noraplan® effect
ET 422	Germany	Alstom	2008	noraplan® stone
Tramway Bremen	Germany	Bombardier	2008	noraplan® stone
CITADIS Dublin	Ireland	Alstom	2001	noraplan® plus (931)
Jerusalem	Israel	Alstom	2008	noraplan® plus (931)
Macau APM MHI	Japan	Takara	2012	norament® 926 grano
Rabat	Marocco	Alstom	2009	noraplan® stone (931)
CITADIS Casablanca	Marocco	Alstom	2011	noraplan® stone (931)
Tramway Krakow	Poland	Bombardier	2000	noraplan® stone
Tenerife	Spain	Alstom	2005	noraplan® stone (931)
Istanbul	Turkey	Alstom	2008	noraplan® stone (931)
CITADIS Dubai	U.A.E.	Alstom	2013	noraplan® stone (931)
CITADIS Nottingham	UK	Alstom	2012	noraplan® grip (931)
Salt Lake City LRV	USA	Siemens	2011	norament® 925 grano
San Diego LRV	USA	Siemens	2011	norament® 925 grano
Siemens - Twin Cities	USA	Siemens	2013	norament® 925 grano
TriMet 3	USA	Siemens	2013	norament® 926 grano
Cincinnati-Kansas Transit	USA	CAF	2014	noraplan® stone plus
Houston LRV	USA	CAF	2014	noraplan® stone plus

## HIGH SPEED TRAINS

Project	Country	Manufacturer/Customer	Year	nora® flooring
Velaro China	China	Tangshan	2008	noraplan® grip
CRH1 EMU 796	China	Bombardier	2008	noraplan® plus (931)
CRH1 EMU 797	China	Bombardier	2008	noraplan® grip (931)
CRH3 EMU	China	Siemens Tangshan	2009	noraplan® grip
CRH1 EMU 799	China	Bombardier	2010	noraplan® grip (931)
CRH3 Zhengzhoushanxi	China	Siemens Tangshan	2010	noraplan® grip
CRH1 EMU 798	China	Bombardier	2011	noraplan® grip
CHR2	China	Qingdao Sifang	2011	noraplan® grip
CRH1 EMU 806	China	Bombardier	2011	noraplan® grip
CRH1 EMU 803	China	Bombardier	2012	noraplan® plus (931)
CRH6 - 160 KM	China	CSR Sifang	2013	noraplan® stone (934)
CRH6 - 200 KM	China	CSR Sifang	2013	noraplan® stone (934)
Qingdao E27 train	China	CSR Sifang	2013	noraplan® grip plus (934)
Qingdao E28 train	China	CSR Sifang	2013	noraplan® grip plus (934)
BST 798	China	Qingdao Bombardier	2013	noraplan® grip plus (931)
BSP 807	China	Qingdao Bombardier	2013	noraplan® grip plus (931)
Qingdao E21 Train	China	CSR Sifang	2014	noraplan® grip plus (934)
TGV	France	SNCF	1989	noraplan® duo
ICE 1-3	Germany	Alstom	1989	noraplan® stone
Amtrak	USA	Bombardier	1999	norament® 925 grano

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