Neodur® CM

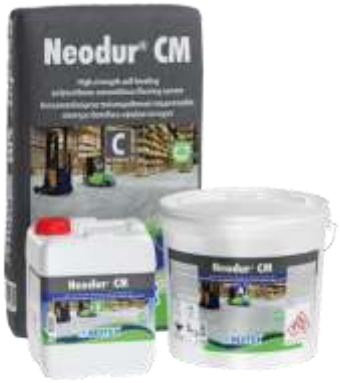
Self-leveling polyurethane-cementitious system for heavy duty flooring applications

Description

Three-component, self-leveling, hybrid polyurethane-cementitious system, for medium to heavy duty interior flooring applications, of 3-6mm thickness.

Certified excellent reaction to fire (**Class B_{fl}-s1**) acc. to **EN 13501-1**.

Suitable for the food industry in various food facilities – Complies with the overall migration limits for a wide variety of types of food, acc. to the Commission Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food.



Packing

Set (A+B+C) of 35,6kg

Colours

Wide variety of colour shades with the addition of inorganic powder pigments **Neotex® Colour NCM** to the mix (see also at the end of the present TDS)

- Standard Grey 740
- Brown Red 311
- Green 610
- Maize yellow 106
- Anthracite grey 716

Fields of application

As a final surface in interior industrial floors which are subjected to very high mechanical and chemical stress and/or thermal loads, e.g. in:

- Factories, laboratories, and warehouses
- Parking and service garages
- Food facilities and refrigerating rooms

Also suitable for use as a “scratch-coat” / leveling layer in resinous flooring systems

Properties - Advantages

- Excellent resistance to high mechanical and chemical stress
- Renders a smooth mat hard-wearing finish of high resistance to abrasion
- Broad service temperature range - Resistance to thermal shocks and wet loading with water up to +80°C
- Resistant to steam cleaning *(for system thickness of 6mm)*
- Increased anti-slip properties
- High adhesion on concrete substrate
- Excellent self-levelling properties
- Remarkable hardness and durability
- Quick project delivery – Full hardening in just 4 days after application

- Practically zero content in volatile organic compounds *(Zero VOC)* and limited total VOC (TVOC) emissions
- Certified high performance in terms of reaction to fire (Class **B_{fl}-s1** acc. to **EN 13501-1**)
- Tested and evaluated for its suitability in food facilities
- Odourless – Ideal for interior rooms, where solvent fumes are unwanted
- Applicable on substrates with high moisture content (e.g. fresh concrete >14 days)
- High glass transition temperature
- May be tinted in a wide variety of colour shades
- Classified as CT-AR0,5-B2,0-IR10 according to EN 13813

Certificates – Test reports

- CE Certification acc. to EN 1504-2
  Certificate of Conformity No. 1922-CPR-0386
- CE Certification acc. to EN 13813
  Classified as a cementitious screed material CT-AR0,5-B2,0-IR10
- Qualified for use in LEED projects globally, by showing compliance with the specifications for VOC content, as attested by the external independent specialized laboratory of Eurofins
  VOC Content Test report No. 392-2024-00059006 – Regulation: SCAQMD (South Coast Air Quality Management District) Rule 1113 (2016)
- Complies with the French regulation regarding indoor VOC emissions
  - *Attestation French VOC Regulation*
  - *VOC Emission Test report No. 392-2024-00059005 – French VOC Regulation: Decree of March 2011 and Arrête of April 2011 and French CMR components: Regulation of April and May 2009*
- Certified for its high performance in terms of reaction to fire acc. to EN 13501-1
  Classified as B_{fl}-s1 based on classification report No. 1480\DC\REA\24_6 acc. to EN 13501-1 and individual test reports acc. to EN ISO 9239-1 and EN ISO 11925-2 (No. 1480\DC\REA\24_4 & 5) by the independent accredited laboratory CSI S.p.A
- Tested and evaluated for its suitability in food facilities – Complies with the overall migration limits for all types of food, except for acidic foods (i.e. vinegar or foods with pH≤4,5), acc. to Table 3 of Annex III-Part 4 of the Commission Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food.
  Test report for the overall migration into food simulants A-B-D2 acc. to EN 1186-2, EN 1186-3 and EN 1186-9, by the external independent specialized laboratory of TÜV AUSTRIA Food Allergens Labs (Certificate No. 5012-GR01056283-24-08)
- Test reports by the external independent quality control laboratory Geoterra (No. 2023/702_3A & 3B)
- Test report for the determination of wear resistance by the Aristotle University of Thessaloniki – Civil Engineering Dept.
- Complies with the V.O.C. content requirements acc. to the E.U. Directive 2004/42/CE

Technical characteristics	
Mixing ratio A:B:C (by weight)	5,3:5,3:25
Density A+B+C (EN ISO 2811-1)	1,80kg/L (±0,1)
Gloss (60°)	<5
Abrasion resistance (Taber Test, CS 10/1000/1000, ASTM D4060)	20mg
Adhesion strength (EN 13892-8)	≥2,5N/mm²
Hardness Shore D (ASTM D2240)	70
Impact resistance (EN ISO 6272)	≥10Nm – IR10
Scratch hardness (Sclerometer Test - Elcometer 3092)	10N
Compressive strength (EN 13892-2)	>50MPa
Flexural strength (EN 13892-2)	>15MPa
Wear resistance BCA (EN 13892-4)	31µm (AR0,5)
Skid resistance (EN 13036-4, wet surface)	>36 (PTV – slider 96)
Liquid water permeability (EN 1062-3)	<0,03kg/m^{2}h^{0,5}
Permeability to CO_2 – Diffusion-equivalent air-layer thickness Sd (EN 1062-6)	>50m
Water vapour permeability – Diffusion-equivalent air-layer thickness Sd (EN ISO 7783)	>5m (Class II)
Resistance to temperatures	• -10°C min. *(for a thickness of 3mm)* / +80°C max. • -25°C min. *(for a thickness of 6mm)* / +100°C max.
Reaction to fire (EN 13501-1)	Class B_{fl}-s1* **Classification report: No. 1480\DC\REA\24_6 - CSI S.p.A.*
Maximum application thickness per layer	6mm
Consumption: ~1,9kg/m² per mm of thickness	

Application conditions	
Substrate moisture content	<8% (no ponding water or rising moisture)
Relative air humidity (RH)	<80%
Application temperature (ambient - substrate)	+8°C min. / +35°C max.

Curing details

Pot life (+25°C, RH 50%)	15 minutes
Drying time (+25°C, RH 50%)	10 hours
Dry to recoat-overcoat (+25°C, RH 50%)	24 hours *(provided that the substrate moisture is within permissible limits)*
Full hardening	~4 days
** Low temperatures during application and/or curing prolong the above times, while high temperatures reduce them*	

Appropriate primers on concrete substrate

	Primer	Description - Details
Water-based	**Acqua Primer**	Two-component water-based epoxy primer
Solvent-free *(with broadcast of quartz sand 0,4-0,8mm in excess)*	**Epoxol® Primer SF**	Two-component, solvent-free epoxy primer for flooring applications
	Epoxol® Primer SF-P	Two-component, solvent-free epoxy primer, ideal in cases of substrates with increased porosity
	Neopox® Primer WS	Two-component, solvent-free epoxy primer for wet surfaces (without ponding water or rising moisture)
	Neopox® Primer AY	Two-component, solvent-free anti-osmotic epoxy primer, for floors with rising moisture

Instructions for use

Substrate preparation

The concrete must be min. Grade C20/25, with a tensile strength of ≥1,5MPa, and allowed to cure for at least 28 days, taking all the necessary maintenance measures during its curing period. The cementitious substrate must be properly prepared mechanically (e.g. grinding, shot blasting, milling etc.) to smooth out the irregularities, achieve an open-textured surface and ensure optimum adhesion.

The surface must be sufficiently dry and protected from rising moisture, stable, clean and free of dust, grease, oil, etc. Loose friable material must be fully removed by brushing or sanding with a suitable machine and a high suction vacuum cleaner.

The surface must be as smooth and flat as possible, as well as continuous (ie without voids, cracks etc.).

Repairs to the substrate, filling of joints, blowholes/voids and surface leveling must be carried out using appropriate repairing products, such as the epoxy putty **Epoxol® Putty**, after proper priming.

Priming

For the stabilization of the substrate and sealing of pores, as well as for creating the optimum conditions for stronger adhesion and higher coverage of the subsequent self-levelling coating, it is recommended to apply **Acqua Primer**.

Alternatively and depending on the substrate, it is proposed to apply another appropriate **NEOTEX®** primer followed by broadcast of quartz sand 0,4-0,8mm in excess (see table) or a thin layer (“scratch-coat”) of **Neodur® CM**.

In cases of substrates with increased porosity, an additional priming layer may be required. In case of full quartz broadcast, after drying any loose grains should be removed with a high suction vacuum cleaner, and any surface irregularities should be sanded down.

Mixing

Prior to mixing, mechanical stirring of component A for ~1 minute is recommended. Then the inorganic powder pigments **Neotex® Colour NCM** are added to it in the recommended ratio* for the desired colour shade, and the mixture is mechanically stirred with a low-speed stirrer until a uniform shade is obtained. The mixture (component A + pigments **Neotex® Colour NCM**) is transferred to a clean container with a capacity of min. 22L, where component B is added in the predetermined ratio and the new mixture is stirred for ~1 minute with a low-speed mechanical stirrer, until it becomes homogeneous. Component C is then gradually added to the mixture under constant stirring, ideally with a double-paddle mixer (scraping the walls-bottom of the container periodically with a flat trowel if necessary), and stirred for ~1-2 minutes, until a completely homogeneous mixture is obtained, without any lumps.

** The **Neotex® Colour NCM** pigments are available in their packages ready pre-weighed in the appropriate quantity per shade, so that the required ratio of addition is 1 pack of **Neotex® Colour NCM** per 35,6kg set (A+B+C) **Neodur® CM** to achieve the indicated colour shade (for available colour shades, see also at the end of the present technical data sheet)*

Application

Neodur® CM is poured on the surface and applied by notched trowel in one layer of 3-6mm thickness, using at the same time a spiked roller, in order to release any trapped air and achieve a smooth surface, without any imperfections. During this procedure, the use of spiked shoes is also required.

Special notes

- On the concrete surface and before the application of the system, "termination joints/anchor grooves" must be created at a distance of 7-8cm from all "free edges", i.e. from the existing joints, the bases of the columns, the perimeter walls, the drainage channels, the door thresholds, around bases of machines, etc.. In case of movement joints, such anchor grooves should be created right next to each side of the joint.
  It is recommended that such "termination joints/anchor grooves" have a square cross-section with a side dimension equal to twice the thickness of the final floor coating and be covered in the initial stages of the application with a leveling “scratch-coat” of **Neodur® CM**.
- **Neodur® CM** should not be applied under wet conditions, or if wet conditions are expected to prevail during the application or the curing period of the product. After the application, **Neodur® CM** should be protected from humidity for at least 24 hours. The area should be well ventilated in order to avoid excessive humidity during drying.
- It is extremely important that the mixture is quickly placed on the floor and applied within the limited available time it remains workable, as well as that mixing of the subsequent batch starts straight away, in order to ensure uniformity between mixes.
- The components should not have been stored at very low or very high temperatures, especially before mixing. Mixing and stirring of the mixture should be preferably done in the shade. The stirring of the mixture must be done mechanically and not manually with a rod, etc.
- Excessive stirring of the material should be avoided, in order to mitigate the risk of air entrapment. After stirring the mixture, it is recommended to apply the material shortly in order to avoid the development of high temperatures and potential hardening inside the can.

- The substrate temperature must be at least 3°C above dew point to reduce the risk of condensation or blooming on the floor finish.
- Due to the nature of the material, the direct and constant exposure of the final coating to UV radiation may cause the phenomenon of chalking over time. For this reason, **Neodur® CM** is not recommended for exposed applications outdoors. Generally, a gradual change in the shade of the coating is possible overtime, which depends on the levels of UV and the thermal stress in the area and, therefore cannot be predicted.
- After the application of the system, it is recommended that the floor's expansion joints are sealed with the elastomeric polyurethane sealant **Neotex® PU Joint** or with the epoxy repairing material **Epoxol® Putty** in its elastic version (mixing ratio 1A : 2-2,5B w/w).

Maintenance instructions

- In case of minor spills and stains, it is recommended to remove them as soon as possible by using a soft cloth along with warm clean water (temperature <+80°C)
- For the maintenance cleaning of the surface from dust and dirt, it is recommended to use a vacuum cleaner or a soft bristle broom. The use of hard brushes or wires to remove the stains should be avoided.
- For cleaning the surface from hardened stains, it is recommended to use a hard foam mop with a solution of water and ammonia (~3% dilution). Then, rinse off with clean warm water (temperature (temperature <+80°C) and dry the surface with a soft towel.
- In case of using commercial cleaning products, the use of neutral ones is recommended (pH between 7 and 10). Soaps or all-purpose cleaners containing water-soluble salts or harmful ingredients with high concentration in alkalis or acids should be avoided. Follow the manufacturer's recommendations with respect to the optimum dilution with water. In any case, the first time a commercial cleaning product is used, it is recommended that a trial is made in a small surface area.

Chemical Resistance Table

Chemical substances (% content)	Contact time with chemicals (+20°C)			
	1 hour	5 hours	24 hours	3 days
Phosphoric acid (10%)	A	B	B	B
Phosphoric acid (20%)	A	B	B	B
Phosphoric acid (30%)	A	B	B	B
Phosphoric acid (75%)	A	B	B	C
Phosphoric acid (85%)	B	C	C	C
Sulphuric acid (10%)	A	B	B	B
Sulphuric acid (20%)	A	B	B	B
Sulphuric acid (50%)	A	B	B	B
Sulphuric acid (80%)	B	C	C	C
Hydrochloric acid (10%)	B	B	B	B
Hydrochloric acid (20%)	B	B	B	B

Hydrochloric acid (31,45%)	B	B	B	C
Lactic acid (10%)	A	B	B	B
Lactic acid (20%)	A	B	B	B
Lactic acid (80%)	A	B	C	C
Nitric acid (5%)	A	B	B	B
Nitric acid (10%)	B	B	B	B
Nitric acid (20%)	B	C	C	C
Nitric acid (40%)	C	C	C	C
Nitric acid (70%)	C	C	C	C
Citric acid (5%)	A	B	B	B
Citric acid (30%)	A	B	B	B
Isopropanol (100%)	A	A	A	A
Sodium hydroxide (5%)	A	A	A	A
Formaldehyde (10%)	A	A	A	A
Ammonia (25%)	A	A	A	A
Hydrogen peroxide (30%)	A	B	B	B
Xylene	A	A	A	A
Alcohol 95^0	A	A	A	A

Evaluation of resistance
A: Excellent resistance
B: Good resistance (light discoloration)
C: Reduced resistance (intense discoloration)
D: Not recommended

Appearance (cured)	Mat
	*Standard colour shades – with addition of the respective ready-made inorganic powder pigments **Neotex® Colour NCM** in a ration: 1 pack / 35,6kg set (A+B+C) **Neodur® CM***
Colours	Standard Grey 740 Brown Red 311 Green 610 Maize yellow 106 Anthracite grey 716

Colours (cont'd)

*Available upon order – with addition of the respective ready-made inorganic powder pigments **Neotex® Colour NCM** in a ratio: 1 pack / 35,6kg set (A+B+C) **Neodur® CM**)*

Light Grey 747

Agate Grey 738

Pebble Grey 732

Blue 515

Ochre yellow 127

Wide variety of complementary colour shades available upon request

Packing

Neodur® CM: Set (A+B+C) of 35,6kg

Neotex® Colour NCM: In plastic packs – Quantity of each unit depending on colour shade acc. to the table below – In order to achieve the indicated respective colour shade, 1 pack / 35,6kg set (A+B+C) **Neodur® CM** is required

Colour shade	*Quantity per unit (gr)*
Standard Grey 740	50
BrownRed 311	200
Green 610	200
Maize yellow 106	100
Anthracite grey 716	200
Light Grey 747	308
Agate Grey 738	195
Pebble Grey 732	370
Blue 515	260
Ochre yellow 127	285

Cleaning of tools – Stains removal

By **Neotex® 1021** immediately after application. In case of hardened stains, by mechanical means

Volatile organic compounds (V.O.C.)

V.O.C. limit acc. to the E.U. Directive 2004/42/CE for this product of category AjWB: 140g/l (Limit 2010). V.O.C. content of the ready to use product <140g/l

UFI code	*Component A:* 5DM0-Q0P7-300D-JQRU *Component B:* RHM0-40XH-E00G-0K1R *Component C:* TRM0-P00Q-A00Y-YKSX
Storage stability	12 months, stored in its original sealed packing, protected from frost, humidity and exposure to sunlight

CE

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24

DoP No.: 4951-01

EN 13813 CT-AR0,5-B2,0-IR10

Neodur® CM

Cementitious screed material
for interior use

Release of corrosive substances	CT
Wear resistance	AR0,5
Impact resistance	IR10
Bond strength	B2,0
Reaction to fire	B_{fl}-s1

CE

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24

DoP No.: 4951-02

EN 1504-2

Neodur® CM

Surface protection products

Coating

Water vapour permeability	Class II
Adhesion strength	≥1,5N/mm^2
Capillary absorption and permeability to water	W<0,1Kg/m^{2}h$^{0.5}$
Permeability to CO_2	S_D>50m
Reaction to fire	B_{fl}-s1
Dangerous substances	Complies with 5.3

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