

Neodur® Varnish

Transparent two-component polyurethane glossy varnish,
with UV filters



Description

Transparent two-component solvent-based polyurethane glossy varnish with UV filters, cured with aliphatic polyisocyanates, suitable for the protection and decoration of micro-cement coatings and various other construction surfaces. May be also applied as a protective varnish in swimming pools.

Fields of application

- Protection and decoration of micro-cement coatings
- Protection and decoration of cementitious and metallic surfaces, natural stone, polyester, industrial floors, epoxy and other resinous systems in interior or exterior areas
- As a protective varnish in swimming pools on top of the epoxy coating **Neopox® Pool**, offering further resistance to the chlorination chemicals and protection against UV radiation, enhancing the durability of the epoxy coating, delaying at the same time the chalking phenomenon (*only the glossy version of Neodur® Varnish is proposed in pool applications*).



Packing

Sets (A+B) of 15kg, 5kg and 1kg

Appearance (cured)

Transparent, glossy

Properties - Advantages

- Protects against water absorption and enhances the mechanical strength of micro-cement coatings and several other substrates
- Contains UV filters, offering long-term resistance to solar radiation and yellowing
- Excellent adhesion properties on numerous substrates
- Offers a glossy finish of high hardness
- High resistance to chemicals (dilute acids, alkalis), abrasion and mechanical stress
- Very good gloss retention, even after several years
- Excellent resistance to adverse weather conditions – suitable for constructions in areas adjacent to the sea

Certificates – Test reports

- CE Certification acc. to EN 1504-2
Certificate of Conformity No. 1922-CPR-0386
- Test report by the external independent quality control laboratory Geoterra (No. 2019-300 & No. 2021/229_4)
- Technical report for its resistance to common stains acc. to ASTM D1308-2
- Complies with the V.O.C. content requirements acc. to the E.U. Directive 2004/42/CE

Technical characteristics

Mixing ratio A:B (by weight)	36:14
Density (EN ISO 2811-1)	0,98kg/L (±0,05)
Gloss (60°)	>98
Abrasion resistance (Taber Test, CS 10/1000/1000, ASTM D4060)	42mg
Adhesion strength (EN 1542)	>2,5N/mm ²
Flexibility (Mandrel Bend Test, ASTM D522, 180° bend, 1/8" mandrel)	Pass
Scratch hardness (Sclerometer Test - Elcometer 3092)	7N
Skid resistance (EN 13036-4, wet surface, with 2,5% w/w addition of Neotex® Antiskid M)	37 (PTV – slider 55)
Liquid water permeability (EN 1062-3)	0,003kg/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 (dry loading)	min. -30°C / max. +80°C
Consumption: ~125 gr/m² per layer (on properly prepared surfaces)	

Application conditions

Substrate moisture content	<4%
Relative air humidity (RH)	<65%
Application temperature (ambient - substrate)	+12°C min. / +35°C max.

Curing details

Pot life (RH 50%)	+12°C	2,5 hours
	+25°C	2 hours
	+30°C	1 hour
Dry to recoat (RH 50%)	+12°C	36 hours
	+25°C	24 hours
Full hardening		~ 7 days
<p><i>* Low temperatures and low humidity during application and/or curing prolong the above times, while high temperatures and high humidity reduce them</i></p>		

Instructions for use

Substrate preparation

The surface must be stable, clean, dry, protected from rising moisture and free of dust, oil, grease and loose materials. Any poorly adhering materials and older coatings should be removed, and the surface should be thoroughly cleaned by proper mechanical or chemical means. Depending on the substrate, appropriate mechanical preparation may be required, in order to smooth out the irregularities, open the pores and create the optimum conditions for adhesion.

Priming

Especially in the case of a micro-cement substrate, it is advisable to prime the surface with the hybrid primer **Neodur® Varnish PR** diluted 25-30% w/w with clean water. This way, the natural appearance of the micro-cement coating is mostly maintained, without darkening its colour or creating a “wet” effect after the application of **Neodur® Varnish**.

Application

The two components A & B are mixed at the predetermined ratio and stirred for app. 3 minutes with a low-speed electric stirrer until the mixture is homogeneous. The mixture should be left for app. 5 minutes and then, **Neodur® Varnish** is applied by roller, brush or airless spray, in at least two layers. For enhanced anti-slip properties, it is recommended that the final layer of **Neodur® Varnish** is applied after the product has been mixed 1,5-2,5% w/w with the anti-slip additive **Neotex® Antiskid M**.

Special notes

- High atmospheric humidity may negatively affect the curing of the varnish. In the case of exterior applications, the application of the varnish must be postponed if rainfall or highly humid conditions are expected to prevail in the next 48 hours.
- **Neodur® Varnish** should not be applied on surfaces where water repellent impregnation materials (e.g., siloxane-based) or waxes have been applied in the past
- **Neodur® Varnish** may be diluted with solvent **Neotex® 1021**.

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 $<+60^{\circ}\text{C}$)
- 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 $<+60^{\circ}\text{C}$) 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.

Preconditions for pools

- The pool should be filled with water after at least 7 days have passed from the application of the final layer of **Neodur® Varnish**, depending also on the prevailing weather conditions during curing.
- It is advisable that balancing and maintenance of the water chemistry is managed professionally. The proposed chemical levels for the most important aspects that need balancing are:
 - Total alkalinity (TA): ~150ppm
 - pH: 7,2 - 7,6
 - Calcium hardness: ~300ppm
 - Chlorine at the lowest possible levels - Ideally 0,5-1,5ppm / always under 3ppm
- All chemicals must enter the pool pre-dissolved and by dispersing the dilute solution inside the pool with agitation, in order to avoid large concentrations in places
- High levels of algaecides and over-chlorination must be avoided, since this may lead to the immediate appearance of chalking
- Monthly maintenance works are recommended, in order to remove any deposited salts, by brushing down intensively the walls and floor of the pool using long stiff bristle brooms. Following the scrubbing of the surface, the residues shall be allowed to settle and then be removed by appropriate means (pool vacuum, flocculant, etc.)

Chemical Resistance Table

Chemical substances (% content)	Contact time with chemicals (+20°C)		
	1 hour	5 hours	24 hours
Phosphoric acid (20%)	A	A	A
Sulphuric acid (20%)	A	A	A
Lactic acid (20%)	A	A	D
Nitric acid (20%)	A	D	D
Hydrochloric acid (20%)	A	A	B
Sodium hydroxide (10%)	A	A	A
Formaldehyde (20%)	A	A	B
Ammonia (10%)	A	A	A
Bleach (5%)	A	A	B
Diesel	A	A	A
Xylene	A	A	A
M.E.K.	A	A	A
Isopropyl alcohol	A	A	A
Saltwater 15%	A	A	A
Engine oil	A	A	A
Wine (red)	A	A	A

Evaluation of resistance

A: Excellent resistance

B: Good resistance (light discoloration)

C: Reduced resistance (intense discoloration)

D: Not recommended


Appearance (cured)	Transparent, glossy
Packing	Sets (A+B) of 15kg, 5kg and 1kg in metallic containers
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 AjSB “Two-pack reactive performance coating”: 500g/l (Limit 1.1.2010) - V.O.C. content of the ready-to-use product <500g/l
UFI code	<i>A component:</i> SYG0-D0N7-V006-VK53 <i>B component:</i> 4K50-5046-T00A-U8N9
Versions	Neodur® Varnish Mat , with mat appearance Neodur® Varnish Satine , with satin appearance Neodur® Varnish W Mat , water-based, with mat appearance



Storage stability

A component: 2 years, stored in its original sealed packing, protected from frost, humidity and exposure to sunlight

B component: 12 months, stored in its original sealed packing, protected from frost, humidity and exposure to sunlight. Component B must be stored in an absolutely dry place, protected from frost and humidity. In case of contact with ambient moisture it can be polymerized inside the container.

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1922-CPR-0386 DoP No.: 4950-47 EN 1504-2 Neodur® Varnish 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	Euroclass F
Dangerous substances	Complies with 5.3

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