PRODUCT DATA SHEET

PENECOAT™ CLEAR

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TRANSPARENT LIQUID-APPLIED POLYURETHANE WATERPROOFING COATING

PENETRON® ADVANCED WATERPROOFING & PROTECTION SYSTEMS

DESCRIPTION

PENECOAT™ CLEAR is a transparent, hard-elastic, one component, aliphatic polyurethane, high-solids coating, used for long-lasting waterproofing. This high-technology coating is UV-stable, non-yellowing, weather stable, alkali and chemical resistant and even after aging, it remains transparent and elastic. PENECOAT™ CLEAR protects and waterproofs mineral surfaces against water penetration, frost, smog and acid rain. Aged and oxidized plastic surfaces look more transparent, after coating with PENECOAT™ CLEAR. It waterproofs damaged glass surfaces and protects of glass fragments, in case of breaking. PENECOAT™ CLEAR is using a unique curing system (moisture triggered), and unlike other similar systems, it does not react with moisture (moisture-cured) and does not form bubbles.

RECOMMENDED FOR

PENECOAT™ CLEAR is used as a protective transparent waterproofing coating of:

- Balconies and terraces
- Ceramic surfaces
- Glass
- Glass-brick walls
- Natural stones
- Transparent plastics (e.g. polyacrylate, polycarbonate)
- Wood and Bamboo
- Porous natural rocks

PENECOAT™ CLEAR can be used as a binder resin for sandcarpet exterior floor coating applications, with the proper graded quartz sand aggregates.

ADVANTAGES

- Easy application (single component, by roller or brush)
- Color stable
- UV stable
- When applied forms seamless transparent membrane
- No chalking effect
- Resistant to water and frost. Resistant to puddle water
- Crack-bridging
- Provides water vapor permeability, so the surface can breathe
- Provides excellent thermal resistance. No softening
- Provides excellent adhesion to ceramic tiles and glazed surface
- Provides excellent weather resistance. Maintains its mechanical properties over a temperature span of -40 ºC to 90 ºC (-40 ºF to 194 ºF)
- The waterproofed surface can be used for domestic pedestrian traffic
- Resistant to detergents, oils, seawater and domestic chemicals
- Even if the membrane gets mechanically damaged, it can be easily repaired locally within minutes
- Over 10 years of positive feedback worldwide

TECHNICAL CHARACTERISTICS

Characteristics	Test Result	Test Method
Composition	Aliphatic polyurethane resin	
Color	Clear	
Application temperature	5 ºC to 35 ºC (41 ºF to 95 ºF)	Conditions: 20 ºC (68 ºF), 50% RH
Tack free time	6-8 hours	
Light pedestrian traffic time	24 hours	
Final curing time	7 days	

Technical characteristics of PENECOAT™ CLEAR

Characteristic	Test Result	Test Method
Elongation at break	220%	ASTM D412
Tensile strength	25 N/mm^2	ASTM D412
E-modulus	69,5 N/mm^2	DIN EN ISO 527
Tear resistance	56,9 N/mm^2	DIN ISO 34, Method B
Elongation at break after 2000h of accelerated aging (DIN EN ISO 4892-3, 400 MJ/m^2)	<10% change	DIN EN ISO 527
Tensile strength after 2000h of accelerated aging (DIN EN ISO 4892-3, 400 MJ/m^2)	<10% change	DIN EN ISO 527
Gloss retention after 2000h of accelerated aging (DIN EN ISO 4892-3, 400 MJ/m^2)	Good	DIN 67530
Surface chalking after 2000h of accelerated aging (DIN EN ISO 4892-3, 400 MJ/m2)	No chalking observed. Chalking grade 0.	DIN EN ISO 4628-6
Hardness (Shore D Scale)	25	ASTM D 2240
Hardness (Shore A Scale)	>80	ASTM D 2240
Permeability to CO_2 (measured in CE system)	0,4 g/m^{2}d	EN 1062-6
Water vapor permeability (measured in CE system)	2,3 g/m^{2}d	EN ISO 7783
Capillary absorption and permeability to water (measured in CE system)	0,012 kg/m^2.h^{0,5}	EN 1062-3
Resistance to water pressure	No leak (1m water column, 24)	DIN EN 1928
Adhesion to absorbent ceramic tile	> 2,0 N/mm^2 (ceramic tile failure)	EN 1542
Hydrolysis (5% KOH, 7 days cycle)	No significant elastomeric change	Inhouse Lab
Service temperature	-40 ºC to 90 ºC	Inhouse Lab
Chemical properties	Good resistance against acidic and alkali solutions (10%), detergents, seawater and oils	

All data are average values obtained under laboratory conditions. Impractical use, temperature, humidity and absorption of the substrate may influence the above given values.

DIRECTIONS FOR USE

Surface Preparation: The surface needs to be clean, dry and sound, free of any contamination, which may harmfully affect the adhesion of the coating. Remove all loosing materials. New concrete structures need to dry for at least 28 days. Maximum moisture content should not exceed 5%. Old coatings, dirt, fats, oils, organic substances and dust need to be removed by a grinding machine. Any loose surface pieces and grinding dust need to be thoroughly removed.

NOTE: Careful surface preparation is essential for optimum finish and durability. Do not wash surface with water.

Expansion joint sealing: Prime the expansion joints with the appropriate primer (U-SEAL 110 for porous substrates). Apply a polyethylene backing rod, of the appropriate section (PENETRON® BACKING ROD) inside the joint and fill the joint with the appropriate sealer, U-SEAL or SiMP®SEAL.

Application as a Liquid-Applied Coating:

Priming:

Prime (activate) non-absorbent glazed surfaces, like glazed ceramic tiles, glass and glass bricks with PENECOAT™ CLEAR TILE PRIMER. Apply PENECOAT™ CLEAR TILE PRIMER by soaking a clean and dry cloth, and wipe the entire surface off. By this application procedure, you ensure, that, besides the chemical activation (priming) of the surface, the surface is getting also very effectively degreased. Change cloths often. Make sure that enough quantity of PENECOAT™ CLEAR TILE PRIMER is applied, on the entire surface to be primed and make sure that you do not leave any untreated spots.

NOTE: If applied on transparent plastics (polycarbonate, polyacrylate, etc), do not use PENECOAT™ CLEAR TILE PRIMER.

Mixing: Stir PENECOAT™ CLEAR thoroughly, using a mixing drill, prior to application.

Application: Apply the first layer of PENECOAT™ CLEAR onto the primed surface and lay it out by roller or by suitable teeth trowel, until all surface is covered. After 12 hours (but not later than 18 hours), apply a second layer of PENECOAT™ CLEAR, by using roller or brush. For better waterproofing and wear resistance results, apply a third layer of PENECOAT™ CLEAR.

Finishing: If a satin matt surface is desired, apply one layer of the PENECOAT™ CLEAR MAT FINISH, by roller, 8-12 hours after the last layer of PENECOAT™ CLEAR.

COVERAGE

0,8 – 1,2 kg/m^2 (0,16 to 0,25 lb/ft^2) in two or three layers.

This coverage is based on application by roller onto a smooth surface in optimum conditions. Factors, like surface porosity, temperature and application method can alter consumption.

Application as a Binder Resin for Sandcarpet:

Priming: Prime the porous substrates, such as concrete, mortars and stucco with PENEPRIMER™ PU. Apply the primer, using a roller or an appropriate brush. After 2-3 hours and while the surface is still “tacky”, apply the sandcarpet.

Alternatively, in a clean empty pail mix, PENECOAT™ CLEAR, diluted with 50% solvent PENECLEANER™ A PLUS and mix thoroughly with a low speed (300 rpm) mixing drill, for about 3 minutes. Let the mixture stand and apply it on the surface, using a roller or an appropriate brush. Apply the sandcarpet, after 24 hours (but not later than 48 hours).

NOTE: Apply the primer PENEPRIMER™ PU and the sandcarpet in the same day, to ensure maximum bondings between the two layers.

Mixing: Mix 1 kg (2,2 lb) PENECOAT™ CLEAR with 8-10 kg (17-22 lb) proper graded quartz sand aggregates (QUARTZ SAND MIX or similar), in a clean empty pail, with a low speed (300 rpm) mixing drill, for about 3 minutes, until the mixture becomes fully homogenous.

Application: After priming and drying period, apply the sandcarpet on the prepared surface and lay the mixture on the desired thickness, using a flat trowel, by pressing it for filling gaps.

Finishing: Apply a layer of PENECOAT™ CLEAR, diluted with 50% solvent PENECLEANER™ A PLUS, within 48 hours, since the sandcarpet application, for sealing the gaps.

SPECIAL CONSIDERATIONS

Surfaces with trapped moisture (e.g. trapped moisture under balconies tiles) must be left to dry completely (max. 5% moisture), before the application of PENECOAT™ CLEAR coating.

DO NOT apply PENECOAT™ CLEAR on ceramic surfaces with ascending nitric salts in the joints, without suitable pre-treatment.

DO NOT apply PENECOAT™ CLEAR on surfaces treated in the past with active silane, siloxane, silicon or other water-repellents, because of expected poor adhesion. We recommend an adhesion test, if circumstances and surface history are not clear. On marble and granite, please perform an adhesion test, to ensure that adhesion is proper.

For the best results, the temperature application and curing should be between 5 ºC to 35 ºC (41 ºF to 95 ºF). Low temperatures cause curing retardation, while high temperatures speed up curing. High humidity may affect the final finish.

PENECOAT™ CLEAR is slippery, when wet or during wet days. We recommend dry-shake well graded quartz aggregate (QUARTZ SAND MIX or similar) on fresh material, to create a non-slip surface.

DO NOT apply PENECOAT™ CLEAR over 1 mm (3/64’’) thickness (dry film) per layer. Do not fill joints over 1 mm (3/64’’) depth between tiles or stones, with PENECOAT™ CLEAR. Lay the excess material using a brush.

Hands and tools should be cleaned, before polymerization with the solvent PENECLEANER™ A PLUS

Contact PENETRON HELLAS S.A. for specific instructions, regarding your project.

PACKAGING

PENECOAT™ CLEAR is available in 20 kg (44 lb), 10 kg (22 lb), 5 kg (11 lb) and 1 kg (2,2 lb) containers.

STORAGE / SHELF LIFE

PENECOAT™ CLEAR can be stored for 9 months in its original packing (unopened container) at 5 ºC – 30 ºC (41 ºF – 86 ºF) in a cool, dry place. Keep away from wet areas and direct sunlight.

SAFE HANDLING INFORMATION

Flammable. No smoking. Avoid skin and eye contact. If contact is made, flush areas with lots of water and seek medical advice. Protective gloves, mask and goggles should be worn. For further information please refer to Safety Data Sheet. PENETRON HELLAS S.A. has recently updated Safety Data Sheet on the safe use of PENETRON® products. Each Safety Data Sheet contains health and safety information for the protection of your employees and your customers. KEEP OUT OF REACH OF CHILDREN.

CERTIFICATION

CE

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22
1128-CPR-10.09.0479
DOP NO: 14.013-02-01D160922-05
EN 1504-2
PENECOAT CLEAR
Surface protection product – coating:
Protection against ingress [Method 1.3]
(Used with PENECOAT CLEAR TILE PRIMER
and PENECOAT CLEAR MAT FINISH)
Linear shrinkage: NPD
Coefficient of thermal expansion: NPD
Adhesion by cross-cut test: NPD
Permeability to CO_2: S_D>50m
Water vapour permeability: Class II: 5 m ≤ S_D ≤ 50 m
Capillary absorption and permeability to water: ω < 0,1 kg/m^2.h^{0,5}
Thermal compatibility: NPD
Resistance to thermal shock: NPD
Chemical resistance: NPD
Crack bridging ability: NPD
Adhesion strength by pull-off test: ≥ 1,5 (1,0) N/mm^2
Reaction to fire: Class F
Slip / skid resistance: NPD
Behavior after artificial weathering: NPD
Antistatic behavior: NPD
Adhesion on wet concrete: NPD
Dangerous substances: According 5.3

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