

DESCRIPTION

PENETRON® is a surface-applied, integral crystalline waterproofing material, which waterproofs and protects concrete in-depth. It consists of Portland cement, specially treated quartz sand and a compound of active chemicals. PENETRON® needs only to be mixed with water prior to application. When PENETRON® is applied to a concrete surface, the active chemicals react with moisture and the by-products of cement hydration to cause a catalytic reaction that generates an insoluble, crystalline structure. These crystals fill the pores and minor shrinkage cracks in the concrete, to prevent any further water ingress (even under pressure). However, the PENETRON® will still allow the passage of vapor through the structure (i.e. the concrete will be able to “breathe”). Even after the concrete has cured, PENETRON® remains dormant in the concrete and will reactivate in the presence of moisture to seal capillary tracts and hairline cracks. In addition to waterproofing the structure, PENETRON® protects concrete against seawater, wastewater, aggressive ground water and many other aggressive chemical solutions. PENETRON® is approved for use in contact with potable water, and is therefore suitable for use in water storage tanks, reservoirs, water treatment plants, etc. PENETRON® is not a decorative material.

RECOMMENDED FOR

PENETRON® integral crystalline waterproofing can be applied to all structurally sound concrete – new or old. It may be applied to either the positive or negative sides of the concrete face. Typical areas of application are:

- ▶ Basement retaining walls
- ▶ Parking structures
- ▶ Concrete slabs (floor/roof/balcony, etc.)
- ▶ Tunnels and subway systems
- ▶ Construction joints
- ▶ Foundations
- ▶ Water retaining structures
- ▶ Underground vaults
- ▶ Swimming pools
- ▶ Sewage and water treatment plants
- ▶ Channels
- ▶ Reservoirs
- ▶ Bridges, dams and roads

ADVANTAGES

- ▶ Becomes an integral part of the concrete
- ▶ Can be applied to all structurally sound concrete – new or old
- ▶ Penetrates deeply and seals concrete’s capillary tracts and shrinkage cracks
- ▶ Can be applied from either the positive or negative side
- ▶ Waterproofing and chemical-resistance properties remain intact even if the surface is damaged
- ▶ Completely effective against high hydrostatic pressure
- ▶ More effective overall and less costly than hydrolytic membrane or clay panel systems
- ▶ Easy to apply, labor-cost effective
- ▶ Increases concrete’s compressive strength
- ▶ Will not come apart at the seams, tear or be punctured
- ▶ Does not require protection during backfilling, placement of steel or wire mesh, and other common procedures
- ▶ Seals hairline and shrinkage cracks of up to 1/51 (0,5 mm)
- ▶ Resists chemical attack (pH 3-11 constant contact, pH 2-12 intermittent contact) and provides a range of protection from freeze/thaw cycles, aggressive subsoil waters, sea water, carbonates, chlorides, sulfates and nitrates
- ▶ Can be applied to moist or “green” concrete
- ▶ Protects embedded steel (reinforcing steel and wire mesh)
- ▶ Nontoxic. Approved for potable water applications (NSF 61)
- ▶ Zero VOC – PENETRON powdered products contain zero volatile organic compounds and are safe for use both outdoors and in confined indoor spaces.

CRYSTALLINE WATERPROOFING COATING

TECHNICAL CHARACTERISTICS

Type	Cement-base powder
Color	Grey
Density	Approx. 1,25 kg/L (78 lb/ft ³)

Technical characteristics of concrete after PENETRON® application

Characteristic	Test Result	Test Method
Water permeability	≤ 1,9x10 ⁻¹⁴ cm/s after 28 days (before treatment 1,8x10 ⁻¹¹ cm/s)	CRD-C-48-73
Water permeability under head pressure	Can withstand ≥ 1.54 MPa (16 bar) or 232 PSI (514 ft. head pressure, or 156.78 m) with no measurable leakage	CRD-C-48-73
Compressive strength	≥ 6 % after 28 days	ASTM C39
Freeze/Thaw Cycle Test	50 Cycles – Marked decrease in erosion compared to untreated samples	ASTM C-672-76
Chemical resistance	Resistance to alkaline/acid conditions. pH range 3 – 11 constant contact	ASTM C-267-77
Radiation resistance	No effect from gamma radiation ≥ 5,76x10 ⁴ Rads	ASTM N69-1967
	No effect from gamma radiation 50 M Rads	ISO 7031
Chloride content	Negligible amounts of chlorides are contained in waterproofing substance. Penetron's waterproofing effects are NOT related to chlorides	AASHTO T-260
Nontoxic	PASSES European Union Environmental Lic	BS 6920: Section 2.5
	PASSES European Union Environmental Lic	16 CFR 1500
Potable water user	Approved	U.S. EPA and State of New York DOH

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: All concrete to be treated with PENETRON® must be clean and have an "open" capillary surface. Remove laitance, dirt, grease, etc. by means of high-pressure water jetting (300 bar), wet sandblasting or surface grinder. Faulty concrete in the form of cracks, honeycombing, etc. must be chased out, treated with PENETRON® and filled flush with PENECRETE MORTAR®. Surfaces must be carefully pre-watered prior to PENETRON® application. The concrete surface must be damp with no wet sheen on the surface.

Mixing: PENETRON® is mechanically mixed with clean water to a creamy consistency or that resembling thick oil. Mix only as much material as can be used within 20 minutes and stir mixture frequently. If the mixture starts to set do not add more water, simply re-stir to restore workability.

Mixing ratios:

5 parts PENETRON® to 3 – 3,5 parts of water (by volume).

Application:

Slurry Consistency: Apply PENETRON® in one or two coats according to specification by masonry brush or appropriate power spray equipment. When two coats are specified apply the second coat while the first coat is still "green".

Dry Powder Consistency (for horizontal surface only):

The specified amount of PENETRON® is distributed in powder form through a sieve or a semi-mechanical barrow spreader and troweled into the freshly placed concrete once this has reached initial set.

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Application Rates:

Vertical Surfaces: Two coats of PENETRON® at 0,7-0,8 kg/m² (1,25-1,5 lb/yd²) applied by brush or spray. Please contact PENETRON ROMANIA for alternative application methods that may be applicable to your project and help to increase production.

Horizontal Flatwork: PENETRON® at 2 lb/yd² (1,1 kg/m²) applied in one slurry coat to hardened concrete. Alternatively, PENETRON® can be dry sprinkled at 1 kg/m² (1,8 lb/yd²) and trowel applied to fresh concrete when it has reached initial set.

Construction Joints: PENETRON® at 1,6 kg/m² (3 lb/yd²) applied in slurry or dry powder consistency immediately prior to placing the next lift/bay of concrete.

Blinding Concrete: PENETRON® at 1,4 kg/m² (2,5 lb/yd²) applied in slurry or dry powder consistency immediately prior to placing the overlying concrete slab.

Post-treatment: The treated areas should be kept damp for a period of three to five days and must be protected against direct sun, wind and frost, by covering with polyethylene sheeting, damp burlap or similar.

SPECIAL CONSIDERATIONS

Do not apply PENETRON® at temperatures at or below freezing or to froze surfaces. PENETRON® cannot be used as an additive to concrete or plasters (PENETRON ADMIX® should be considered for these applications). PENETRON® should not be confused with a coating or membrane.

PACKAGING

PENETRON® is available in 22,7 kg (50 lb) bags, 25 kg (55 lb) and 5 kg (11 lb) pails.

STORAGE / SHELF LIFE

When properly stored in a dry place in unopened and undamaged original packaging, shelf life is 12 months.

SAFE HANDLING INFORMATION

PENETRON® contains cement which is alkaline. Will irritate eyes and skin and may cause skin sensitization. Wear appropriate eye, skin and breathing protection when using this product. Avoid contact with skin and eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. For further information please refer to Safety Data Shee
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

1305

Penetron International, Ltd.
601 South Tenth Street, Unit 300
Allentown, PA 18103
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1035-CPR-1390

DOP NO: 10.00001D200321-01

EN 1504-2

PENETRON

Products and systems for the protection and repair of
concrete structures

Adhesive bond: R3 (≥ 1,5 MPa)

Permeability to water vapour: Class I < 5 m

Capillary absorption and Permeability to water:
< 0,1 kg/m²·h^{0.5}

Resistance to Severe Chemical attack: Class II < 50%
reduction in hardness

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1085-CPR-0040

DOP NO: 10.00001D200321-01

EN 1504-3

PENETRON

Products and systems for the structural and non-structural
protection and repair of concrete structures

Compressive strength: R3 (≥ 25 MPa)

Chloride content: < 0,05 % by mass

Adhesive bond: R3 (≥ 1,5 MPa)

Restrained shrinkage, expanding: NPD

Corrosion behaviour: Deemed to have no corrosive effect

Elastic modulus: NPD

Thermal compatibility: NPD

Reaction to fire: Class A1

Dangerous substances: NPD

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DOP NO: 10.00001D200321-01

EN 1504-7

PENETRON

Products and systems for the protection and repair of
concrete structures

Corrosion protection: Coated zones free from corrosion

CRYSTALLINE WATERPROOFING COATING

WARRANTY – DISCLAIMER

BEST IMPORT PRODUCTS PENETRON warrants that the products manufactured by it shall be free from material defects and will conform to formulation standards and contain all components in their proper proportion. Should any of the products be proven defective, the liability to BEST IMPORT PRODUCTS PENETRON shall be limited to replacement of the material proven to be defective, and BEST IMPORT PRODUCTS PENETRON shall in no case be liable otherwise or for incidental or consequential damage. BEST IMPORT PRODUCTS PENETRON MAKES NO WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED. User shall determine the suitability of the product for its intended use and assume all risks and liability in connection therewith.

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