PENETRON®
TOTAL CONCRETE PROTECTION

PENETRON®

CRYSTALLINE WATERPROOFING COATING

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, 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 sea- water, wastewater, aggressive groundwater 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.

APPLICATIONS

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

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, wet sandblasting or wire brushing. 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 the PENETRON® application. The concrete surface must be damp but with no wet sheen on the surface.

Mixing:

PENETRON® is mechanically mixed with clean water to a creamy consistency or 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:

Application method	*Vertical surfaces*	*Horizontal surfaces*
Brush	5 parts PENETRON® to 2 parts water	3 parts PENETRON® to 1 part water
Spray	5 parts PENETRON® to 2.75-3.25 parts water	

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.

Application rates:

Vertical surfaces: Two coats of PENETRON® at 1.25-1.5 lb/yd² (0.7-0.8 kg/m²) applied by brush or spray. Please contact your Penetron Representative 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 1.8 lb/yd² (1 kg/m²) and trowel-applied to fresh concrete when it has reached initial set.

Construction joints: PENETRON® at 3 lb/yd² (1.6 kg/m²) applied in slurry or dry powder consistency immediately prior to placing the next lift/bay of concrete.

Blinding concrete: PENETRON® at 2.5 lb/yd² (1.4 kg/m²) 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 five days and must be protected against direct sun, wind and frost, by covering with polyethylene sheeting, damp burlap or similar.

CLEAN UP

Use water to clean all tools immediately after use.

SPECIAL CONSIDERATIONS

- → Do not apply PENETRON® at temperatures at or below freezing or to frozen or freezing 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.
- → PENETRON® is not a decorative material.

PACKAGING

PENETRON® is available in 50-lb (22.7-kg) bags or 55-lb (25-kg) pails.

STORAGE / SHELF LIFE

PENETRON products must be stored dry at a minimum temperature of 45°F (7°C). Shelf life is one year when stored under proper conditions.

TECHNICAL SERVICES

For more detailed instructions, alternative application methods, or information concerning the compatibility of the PENETRON treatment with other products or technologies, contact the Penetron Technical Department or your local Penetron representative.

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 Sheet. KEEP OUT OF REACH OF CHILDREN.

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Penetron International, Ltd.
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PENETRON
for structural and non-structural repair CC mortar
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
Permeability to water vapour: Class I < 5 m
Corrosion protection: Coated zones free from corrosion
Capillary absorption and Permeability to water: < 0,1 kg/m^2·h^{0,5}
Resistance to Severe Chemical attack: Class II < 50% reduction in hardness

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 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, seawater, carbonates, chlorides, sulfates and nitrates
- Can be applied to moist or "green" concrete
- Protects embedded steel (reinforcing steel and wire mesh)
- Non-toxic (NSF/ANSI 61 certified for potable water applications)
- Zero VOC - PENETRON powdered products contain zero volatile organic compounds and are safe for use both outdoors and in confined indoor spaces

WARRANTY: PENETRON INTERNATIONAL, LTD. 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 PENETRON INTERNATIONAL, LTD. shall be limited to replacement of the material proven to be defective, and PENETRON INTERNATIONAL, LTD. shall in no case be liable otherwise or for incidental or consequential damages. **PENETRON INTERNATIONAL, LTD. 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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