PRODUCT DATA SHEET

PENETRON®

CRYSTALLINE WATERPROOFING COATING

PENETRON® INTEGRAL CAPILLARY CONCRETE WATERPROOFING SYSTEMS

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 which 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, forming a complete body of strength and durability; PENETRON® should not be confused with a coating or membrane
- 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 hydrolitic membrane or clay panel systems
- Easy to apply, labor-cost effective
- Increases concrete's compressive strength
- Cannot 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 1/64" (0.4 mm) rather than merely masking or bridging them
- 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)

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 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:

	Vertical surfaces	*Horizontal Surfaces*
Brush Application	5 parts PENETRON® to 2 parts water	3 parts PENETRON® to 1 part water
Spray Application	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 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 polyethythene sheeting, damp burlap or similar.

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).

PACKAGING

PENETRON® is available in 50 lb (22.7 kg) bags or 55 lb (25 kg) 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 Material Safety Data Sheet. KEEP OUT OF REACH OF CHILDREN.

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ICS Penetron International Ltd.
601 South Tenth Street, Unit 300
Allentown, PA 18103

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PENETRON
for structural and
non-structural repair CC
mortar

Compressive strength:
Class R3 (≥ 25 MPa)

Chloride content:
< 0,05 % by mass
Adhesive bond: NPD
Restrained shrinkage,
expanding: NPD
Elastic modulus: NPD
Thermal compatibility (Part 1):
≥0,8 MPa
Corrosion behaviour:
deemed to have
no corrosive effect
Reaction to fire: NPD
Dangerous substances: NPD

WARRANTY

ICS 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 ICS PENETRON INTERNATIONAL LTD. shall be limited to replacement of the material proven to be defective and shall in no case be liable otherwise or for incidental or consequential damages. ICS 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 his intended use and assume all risks and liability in connection therewith.

ICS Penetron International, Ltd.
45 Research Way, Suite 203
East Setauket, NY 11733, USA
+1 (631) 941-9700
penetron.com
info@penetron.com