

## **PENETRON<sup>®</sup> Surface Applied, Integral Crystalline Waterproof Coating**

### **DESCRIPTION**

PENETRON<sup>®</sup> 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<sup>®</sup> needs only to be mixed with water prior to application. When PENETRON<sup>®</sup> 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, PENETRON<sup>®</sup> 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<sup>®</sup> 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<sup>®</sup> protects concrete against seawater, wastewater, aggressive ground water and many other aggressive chemical solutions. PENETRON<sup>®</sup> 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<sup>®</sup> is not a decorative material.

### **ADVANTAGES**

- Becomes an integral part of the concrete, forming a complete body of strength and durability;  
PENETRON should not be confused with coating and membrane system's
- 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, labour-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 0.4 mm (1/64") 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, sulphates and nitrates
- Can be applied to moist or "green" concrete
- Protects embedded steel (reinforcing steel and wire mesh)
- Non-toxic. Approved for potable water applications. UK & International certificates available by request.
- Zero VOC - Penetron powdered products contain zero volatile organic compounds and are safe for use both outdoors and in confined indoor spaces.

### **RECOMMENDED FOR**

PENETRON<sup>®</sup> 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
- Underground Vaults
- Parking Structures
- Swimming Pools
- Concrete Slabs (floor/roof/balconies).
- Sewage and Water treatment plants
- Tunnels and Subway Systems
- Channels
- Reservoirs
- Water Retaining Structures
- Foundations
- Bridges, Dams & Roads

### **Penetron UK Ltd Sales.**

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### DIRECTIONS FOR USE

**Surface Preparation:** All concrete to be treated with PENETRON<sup>®</sup> 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<sup>®</sup> and filled flush with PENECEMTE MORTAR. Surfaces must be carefully pre-watered prior to the PENETRON<sup>®</sup> application. The concrete surface must be damp but with no wet sheen on the surface.

**Mixing:** PENETRON<sup>®</sup> 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 Ratio		Vertical Surfaces	Horizontal Surfaces
	Brush Application	5 parts Penetron to 2 parts water	3partsPenetron to 1 part water
	Spray Application	5 parts PENETRON to 2.75-3.25 parts Water	

### APPLICATION

**Slurry consistency:**

Apply PENETRON<sup>®</sup> in one or two coats per 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<sup>®</sup> is distributed in powder form through a sieve or a semi mechanical barrow spreader and trowelled into the freshly placed concrete once this has reached initial set.

**Application Rates:**

**Vertical Surfaces:**

Two coats of PENETRON<sup>®</sup> at 0.7-0.8 kg/m<sup>2</sup> (1.251.5 lb/yd<sup>2</sup>) 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<sup>®</sup> at 0.7-0.8kg/m<sup>2</sup> (2 lb./yd<sup>2</sup>) applied in one slurry coat to hardened concrete. Alternatively, PENETRON<sup>®</sup> can be dry sprinkled at 1 kg/m<sup>2</sup> (1.8 lb/yd<sup>2</sup>) and trowel applied to fresh concrete when it has reached initial set.

**Construction joints:**

PENETRON<sup>®</sup> at 1.6 kg/m<sup>2</sup> (3 lb./yd<sup>2</sup>) applied in slurry or dry powder consistency immediately prior to placing the next lift/bay of concrete.

**Blinding concrete:**

PENETRON<sup>®</sup> at 1.4 kg/m<sup>2</sup> (2.5 lb./yd<sup>2</sup>) 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 days and must be protected against direct sun, wind and frost, by covering with polyethylene sheeting, damp burlap or similar.

**Decorative materials:**

Allow Penetron treated surfaces to cure for 14 days before applying other Penetron products or decorative finishes. Surfaces should be mechanically cleaned (with metal brush, water jet, etc.) to provide adequate surface key for additional finishes.

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**SPECIAL CONSIDERATIONS:**

Do not apply PENETRON at temperatures below +5 degrees centigrade or to freezing or frozen 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 25 kg, 10 kg, 5 kg pails.

**STORAGE/SHELF LIFE:**

When properly stored in a dry place in unopened and undamaged original packaging, shelf life is 18 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.

# CE

1504-CPR-0282

Penetron

manufactured at the

waterproofing materials plant "Penetron" JSC

Office 77, 35- Novgorodtseva, Str.

620072 Yekaterinburg, Russia

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EN 1504-3

PENETRON

Concrete restoration CC mortar (based on hydraulic cement)

EN1504-3 R1

Compressive strength	: $\geq 10$ N/mm
Chloride content	: $\leq 0,05\%$
Capillary water absorption	: class R1
Adhesion strength	: $\geq 0,8$ N/mm <sup>2</sup>
Carbonation resistance	: class R1
Elastic Modulus	: class R1
Corrosion behaviour	: contains components only listed in EN 934-1:2008, Annex A.1.
Dangerous substances	: no
Reaction to fire	: Euro class A.

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 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 intended use and assume risks and liability connection therewith.

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