

# PENETRON ADMIX<sup>®</sup>

## CRYSTALLINE WATERPROOFING AND DURABILITY ADMIXTURE

### DESCRIPTION

PENETRON ADMIX<sup>®</sup> (integral crystalline waterproofing and durability admix) is added to the concrete mix at the time of batching. PENETRON ADMIX<sup>®</sup>'s various active, proprietary chemicals react with the moisture in fresh concrete and with the by-products of cement hydration to cause a catalytic reaction generating a non-soluble crystalline formation throughout the pores and capillary tracts of the concrete. Thus, the concrete becomes permanently sealed against the penetration of water or liquids from any direction. However, PENETRON ADMIX<sup>®</sup> SB treated concrete 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 ADMIX<sup>®</sup> SB remains dormant in the concrete and will reactivate in the presence of moisture to seal capillary tracts and hairline cracks. The concrete is also protected from deterioration due to harsh environmental conditions.

PENETRON ADMIX<sup>®</sup> has been specially formulated to meet varying project and temperature conditions (see **Setting time and strength**). Consult with a Penetron technical representative for additional detailed support on your project.

### APPLICATIONS

Reservoirs  
Sewage and water treatment plants  
Secondary containment structures  
Tunnels and subway systems  
Underground vaults  
Foundations  
Parking structures  
Swimming pools  
Precast, cast-in-place and shotcrete applications

### DIRECTIONS FOR USE

#### Dosage rate:

**Powder:** 0.8-1.0% by weight of cementing materials. Consult with Penetron's Technical Department for assistance in verifying the appropriate dosage rate and for further information regarding enhanced chemical resistance and optimum concrete performance for your project.

**Liquid:** Add 16 ounces of PENETRON ADMIX<sup>®</sup> LIQUID for every 100 lb of cementing materials (1.0 l of PENETRON ADMIX<sup>®</sup> LIQUID for every 100 kg of cementing materials). Consult with Penetron's Technical Department for further information regarding enhanced chemical resistance and optimum concrete performance for your project.

#### Mixing:

**Powder:** PENETRON ADMIX<sup>®</sup> Powder must be added to the concrete at the time of batching.

**The sequence of procedures for addition will vary according to the type of batch plant operation and equipment. The following are some typical mixing guidelines. For more detailed information on dosing procedures, contact your Penetron representative.**

**Ready mix plant - Dry batch operation:** Add PENETRON ADMIX<sup>®</sup> in powder form to the drum of the ready-mix truck. Drive the truck under the batch plant and add 60%-70% of the required water, along with 300-500 lb (136-227 kg) of aggregate. Mix the materials for 2-3 minutes to ensure the PENETRON ADMIX<sup>®</sup> is distributed evenly throughout the mix water. Add the balance of materials to the ready-mix truck in accordance with standard batching practices.

**Ready mix plant - Central mix operation:** Mix PENETRON ADMIX<sup>®</sup> with water to form a very thin slurry (e.g. 40 lb (18 kg) of powder mixed with 6 gallons (22.7 l) of water). Pour the required amount of material into the drum of the ready-mix truck. The aggregate, cement, sand and water should be batched and mixed in the plant in accordance with standard practices (taking into account the quantity of water that has already been placed in the ready-mix truck). Pour the concrete into the truck and mix for at least 5 minutes to ensure even distribution of PENETRON ADMIX<sup>®</sup> throughout the concrete.

**Precast batch plant:** Add PENETRON ADMIX<sup>®</sup> in powder form, to the rock and sand, then mix thoroughly for 2-3 minutes before adding the cement and water. The total concrete mass should be blended using standard practices.

**NOTE:** It is important to obtain a homogeneous mixture of PENETRON ADMIX<sup>®</sup> with the concrete. Therefore, do not add dry PENETRON ADMIX<sup>®</sup> powder directly to wet concrete as this may cause clumping, and thorough dispersion will not occur. For further information regarding the proper use of PENETRON ADMIX<sup>®</sup> for a specific project, consult with a Penetron technical representative.

**Liquid:** PENETRON ADMIX<sup>®</sup> LIQUID must be added to the concrete at the time of batching. PENETRON ADMIX<sup>®</sup> LIQUID should be introduced into the

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concrete with the initial batch water. PENETRON ADMIX® LIQUID replaces 14.4 oz of mix water/16 oz used (900 ml of mix water/1 liter used).

## Setting time and strength:

The setting time of concrete is affected by the chemical and physical composition of ingredients, temperature of the concrete and climatic conditions. Retardation of set may occur when using PENETRON ADMIX®. The amount of retardation will depend upon the concrete mix design and the dosage rate of PENETRON ADMIX®. However, under normal conditions, PENETRON ADMIX® will provide a normal set concrete. Concrete containing PENETRON ADMIX® may develop higher ultimate strengths than plain concrete. Trial mixes should be carried out under project conditions to determine setting time and strength of the concrete.

Concrete treated with PENETRON ADMIX® should be placed and finished in accordance with good concrete practices. ACI guidelines and recommendations should be observed.

## SPECIAL CONSIDERATIONS

When incorporating PENETRON ADMIX®, the temperature of the concrete mix should be above 40°F (4°C).

## PACKAGING

**Powder:** PENETRON ADMIX® is available in 40-lb (18-kg) bags, 55-lb (25-kg) pails, and 6.6-lb (3-kg) soluble bags. For large projects, customized packaging is available.

**Liquid:** PENETRON ADMIX® LIQUID is available in 264-gallon (1000-l) and 275-gallon (1041-l) totes.

## STORAGE / SHELF LIFE

**Powder:** PENETRON products must be stored dry at a minimum temperature of 45°F (7°C). Shelf life is 24 months when stored under proper conditions.

**Liquid:** PENETRON products must be stored at a minimum temperature of 45°F (7°C). Shelf life is 24 months when stored under proper conditions. Agitate periodically if storing for an extended period of time. DO NOT ALLOW TO FREEZE!

## 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 ADMIX® is alkaline. As a cementitious powder, liquid or mixture, PENETRON ADMIX® may cause significant skin and eye irritation. Penetron International, Ltd. also maintains comprehensive and up-to-date Safety Data Sheets on all its products. Each sheet contains health and safety information for the protection of your employees and customers. KEEP OUT OF REACH OF CHILDREN.

Contact Penetron International, Ltd. or your local Penetron representative to obtain copies of Safety Data Sheets prior to product storage or use.

## ADVANTAGES

- Resists extreme hydrostatic pressure from either positive or negative surface of the concrete element
- Becomes an integral part of the concrete
- Highly resistant to aggressive chemicals
- Seals hairline cracks up to 1/51" (0.5 mm)
- Allows concrete to breathe
- Non-toxic (NSF 61 certified for potable water applications)
- Less expensive than traditional methods
- Permanent
- Added to the concrete at the time of batching and therefore not subject to climatic restraints
- Reduces construction scheduling time
- Improves durability of concrete
- Permeability Reducing Admixture for Hydrostatic conditions (PRAH)
- Zero VOC – PENETRON powdered products contain zero volatile organic compounds and are safe for use both outdoors and in confined indoor spaces
- Exceeds requirements of ASTM C494-S (Specific Performance Admixtures)
- A non-toxic, non-staining green tracer in the bleed water during concrete placement and curing visually confirms the addition of Penetron Admix®



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Penetron International, Ltd.  
601 South Tenth Street, Unit 300  
Allentown, PA 18103  
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PENETRON ADMIX  
Crystalline Capillary Admixture  
Water Resisting Admixture

Chloride content: < 0,10 % by mass

Alkali content: < 10,3 % by mass

Compressive strength: ≥ 85 % of control

Conventional dry material content: > 99,5 %

Air content in fresh concrete: ≤2 % by volume

Capillary Absorption (after 90 day curing): ≤60 % by mass

**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.

**PENETRON INTERNATIONAL, LTD.**

45 Research Way, Suite 203, East Setauket, NY 11733  
(631) 941-9700 • info@penetron.com • penetron.com