

CRYSTALLINE WATERPROOFING ADMIXTURE

DESCRIPTION

PENETRON ADMIX® (integral crystalline waterproofing admix) is added to the concrete mix at the time of batching. PENETRON ADMIX® consists of Portland cement, very fine treated silica sand and various active, proprietary chemicals. These active chemicals react with the moisture in fresh concrete with the by-products of cement hydration to cause a catalytic reaction, which generates 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. The concrete is also protected from deterioration, due to harsh environmental conditions. After demolding, the structure needs no other waterproofing protection, apart from repairing of spalled and honeycombed areas with PENECEMENT MORTAR®. PENETRON ADMIX® has been specially formulated to meet varying project and temperature conditions (see Setting Time and Strength). Consult with PENETRON HELLAS S.A. for additional detailed support on your project.

RECOMMENDED FOR

- ▶ Reservoirs
- ▶ Sewage and water treatment plants
- ▶ Secondary containment structures
- ▶ Tunnels and subway system
- ▶ Underground vaults
- ▶ Foundations
- ▶ Parking structures
- ▶ Swimming pools
- ▶ Pre-Cast, Cast-in-Place and Shotcrete applications

ADVANTAGES

- ▶ Resists extreme hydrostatic pressure from either positive or negative surface of the concrete slab
- ▶ Becomes an integral part of the concrete
- ▶ Highly resistant to aggressive chemicals
- ▶ Can seal hairline cracks up to 0,5 mm (1/51")
- ▶ Allows concrete to breathe
- ▶ Non-toxic (NSF 61 certified for potable water applications)
- ▶ Less expensive than traditional methods
- ▶ Permanent
- ▶ Added to the concrete at time of batching and therefore is 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)

TECHNICAL CHARACTERISTICS

Technical characteristics of concrete after PENETRON ADMIX® application

Characteristic	Test Result	Test Method
Water permeability	$\leq 5,35 \times 10^{-13}$ cm/s after 56 days	DIN 1048
Compressive strength	$\geq 6\%$ after 28 days	ASTM C39

All data are average values obtained under laboratory conditions. Impractical use, temperature, humidity and absorption of the substrate may influence the above given values.

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DIRECTIONS FOR USE

Mixing: PENETRON ADMIX® 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 PENETRON HELLAS S.A.

Mixing ratios: 0.8-1.0% by weight of cement. Consult with PENETRON HELLAS S.A. for assistance in verifying the appropriate dosage rate and for further information regarding enhanced chemical resistance and optimum concrete performance for your project.

Application:

Ready Mix Plant - Dry Batch Operation: Add PENETRON ADMIX® 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 136-227 kg (300-500 lb) of aggregate. Mix the materials for 2-3 minutes to ensure the PENETRON ADMIX® 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:

Add to Aggregates: Mix PENETRON ADMIX® with the aggregates in the silo and the mixture is transported by the belt conveyor to the central mix drum, where cement and water is added (taking into account the quantity of water that is needed due to PENETRON ADMIX®). Pour the concrete into the truck and mix constantly, until the truck has reached its final destination, to ensure even distribution of PENETRON ADMIX® throughout the concrete.

Add to Drum: Mix PENETRON ADMIX® with water to form a very thin slurry [e.g., 18 kg (40 lb) of powder mixed with 23 L (6 gal) of water]. Pour the required amount of material into the drum of the ready-mix truck. The aggregate, cement 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 at fast rotary speed to ensure even distribution of PENETRON ADMIX® throughout the concrete.

Precast Batch Plant: Add PENETRON ADMIX® 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® with the concrete. Therefore, do not add dry PENETRON ADMIX® 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® for a specific project, consult PENETRON HELLAS S.A.

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 4 °C (40 °F).

PACKAGING

PENETRON ADMIX® is available in 18 kg (40 lb) bags, 3,75 kg (8 lb) jugs and 3 kg (6,6 lb) soluble bags. For large projects, customized packaging is available.

STORAGE / SHELF LIFE

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

SAFE HANDLING INFORMATION

PENETRON ADMIX® is alkaline. As a cementitious powder or mixture, PENETRON ADMIX® may cause significant skin and eye irritation. Penetron International, Ltd. also maintains comprehensive and up-to-date Material Safety Data Sheets on all its products. For further information please refer to Safety Data Sheet. PENETRON HELLAS S.A. has recently updated Safety Data Sheet on the safe use of PENETRON® products. Each Safety Data Sheet contains health and safety information for the protection of your employees and your customers.

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WARRANTY - DISCLAIMER

PENETRON HELLAS S.A. warrants that its products are manufactured under certified ISO Standard procedures, are of excellent quality and shall be free from material defects and contain all components in their proper proportion. Should any of the products be proven defective, the liability to PENETRON HELLAS S.A. shall be limited to replacement of the material proven to be defective, since the standard application procedures have been met and the suitability of the product for the particular application have been proven. PENETRON HELLAS S.A. makes no warranty as to merchantability of fitness for a particular purpose. User, after contacting the distributor of the product, shall determine the suitability of the product for his intended use and assume all risks and liability in connection therewith. While every care has been taken, the information provided in this product's data sheet make no part of any contract. All recommendations, technical data and test data contained in this product's data sheet are based upon the results of control laboratory tests or in actual field tests. However, PENETRON HELLAS S.A. makes no warranty of any kind, concerning this data. In any case, this data is given in good faith based in the PENETRON HELLAS S.A. experience, till the publication of this sheet. Due to variance in storage, handling and applications of the materials, PENETRON HELLAS S.A. accepts no liability for the results obtained. It is suggested that potential users try small applications to determine the suitability of each individual product for their specific requirements. The users should always refer to the most recent edition of the product's data sheet. PENETRON HELLAS S.A. may particularly differentiate its versions of the product's data sheet compared with those of PENETRON INTERNATIONAL LTD or respective PENETRON companies worldwide. These changes are due to text formatting, different application weathering and procedures or different product names and aim at the optimal consumer information.

CERTIFICATION


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DOP NO: 10.00004D121217-01

EN 934-2

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

Dangerous substances: NPD