

## Waterproofing Admixtures

### Overview

Waterproofing Admixtures are also called permeability-reducing admixtures (PRAs). There are different types, some suitable for concrete exposed to nonhydrostatic conditions (PRAN) and others for concrete exposed to hydrostatic conditions (PRAH).

The admixture is placed into the mix before or after loading to shut off the capillary system in the hardened concrete. As long as the product is properly placed and managed, it makes the concrete virtually impenetrable to water.

### Benefits

- Reduce permeability.
- Reduce freeze/thaw damage and deterioration due to corrosion of embedded steel reinforcement.
- Reduce drying shrinkage, reduced chloride-ion penetration, improved freeze/thaw resistance, and enhanced autogenous sealing.

### Technical Specifications

Admixture type	Coefficient of permeability of reference concrete	Coefficient of permeability of test concrete	Percent reduction in permeability
Crystalline	$4.29 \times 10^{-14}$	$1.28 \times 10^{-14}$	70
Colloidal silica	$1.98 \times 10^{-13}$	$1.61 \times 10^{-13}$	19
Hydrophobic pore blocker	$2.23 \times 10^{-12}$	$1.14 \times 10^{-12}$	49

Source: ACI 212.3-R10, "Report on Chemical Admixtures for Concrete"

### Common Uses

The reduced permeability allows for a more durable concrete in moist environments like zoos, aquariums, and fountains.

### Hilltop Project Examples

Hilltop Companies used waterproofing admixtures in projects at the Cincinnati Zoo, Smale Riverfront Park features and the Union Terminal Plaza.



### Plants

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#### Sales Team

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