



**ELEMENTS**  
QUÍMICA APLICADA

**E<sup>5</sup> WRA 15**  
Water reducer and retarder



# e<sup>5</sup> WRA 15

## Description

**e<sup>5</sup> WRA 15** is a water reducer and retardant, manufactured with high technology polymers to allow interaction with cement particles and to break their flocculating effects. It allows water reductions greater than 5%. It fully complies with ASTM C-494 for type D admixtures.

## Benefits

- Increases mechanical resistance of concrete.
- Improves rheological properties of concrete.
- Allows adequate transportation of fresh concrete in warm climates.
- Reduces the permeability of concrete.
- Reduces the water/binding agent relationship.
- Increases the durability of the concrete mixes.

## Technical information

Specific gravity 1.22

Physical appearance: dark brown liquid

## Presentation

19 L pails, 200 L drums and bulk

Useful life: 12 months in its original container

## Principal applications

- Conventional concretes
- Pumpable concrete
- Structural concrete
- Concretes poured in warm climates, in conformance with the recommendations of ACI 305.
- Concrete placed under water can be prepared in combination with our following admixtures **e<sup>5</sup> AWA** (Anti-Washout Admixture) and **e<sup>5</sup> SP 2000**.

## Directions for use

Lab testing with job materials is recommended for better results that will allow all the necessary adjustments in the concrete mix. These are appearance, workability, consistency, air content, yield, setting times and the dosage of the admixtures. Then it is important to run tests under job conditions (humidity, temperatura, time for transportation of fresh concrete, etc.) with the purpose of making the last adjustments.

Load all the materials: aggregates, cement and 80% of the calculated mix water. Allow these materials to mix for at least 2 minutes. Then load the established amount of admixture along with the remaining 20% of the mix water. This will allow the calcium sulphate to form ettringite with the tricalcium aluminate of the cement, thus improving the behavior of the admixture.

Dosages can vary from 4 to 9 cc/kg of cement and these will depend on the concrete mix design. An over dosage can result in delays in the speed of cement hidration.

When used in combination with an integral waterproofer it is necessary to check the air content and setting times in the concrete mix.

## Cautions

-  Admixture over dosage can cause delays in the cement's speed of hidration as well as excessive air contents.
-  Perform tests in combination with other admixtures to check the behavior of admixture synergies, specially focusing on air content and setting times.
-  It is compatible with all admixtures.
-  In the case of any important variation of materials (change of aggregates, cement, etc.) it is necessary to make the required adjustments in the dosages used.
-  Do not allow the product to freeze.
-  Always keep the product in its orignal container.
-  Never add the admixture to the aggregates or to the cement without its initial hidration as this will cause a decrease in the admixture's efficiency.



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