

# New Generation AAC additives go beyond chemistry as the foundation of production optimization

Every AAC plant looks for perfecting the proportions of the raw materials used in their recipe for optimizing the mix and give the final product its strength, durability, thermal conductivity and other desired properties. This is far from easy, as every addition or subtraction of certain components in the recipe comes with adjustment requirements to the other factors. Therefore, there is always room for recipe optimization and improvement in AAC plants.

The key to high-quality production at the lowest cost possible, lies in optimizing both the technology and the production process. For that reason, AAC production process optimization projects should involve both a chemical and mechanical set-up perspective. Needless to say, a well-proven track record of expertise in the AAC industry is an essential and inseparable part of the whole optimization process (Figure 1). Recently, chemical additives designed solely for AAC industry help plants worldwide in this optimization process.

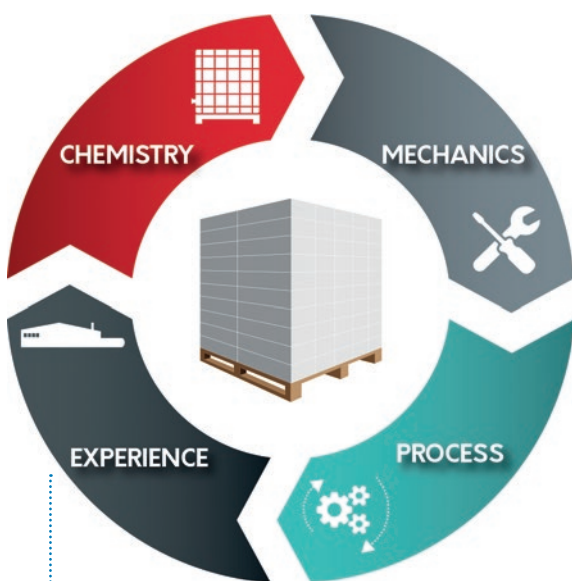


Fig. 1: Production process improvements involve a balanced blend of chemistry, mechanics, process know-how and experience in AAC industry

## ABOUT POROMIX

Poromix is a new generation of chemical additives developed specifically for Autoclaved Aerated Concrete (AAC) production optimization. Poromix helps to reduce raw materials and water required in the AAC at the same time improving homogenization, stabilizing the mix and catalyzing the reactions. As a result, the quality of the products is improved that can be observed with less cracks, less sticking and better pores distribution.

### POROMIX - 2

Lignosulfonate-based additive composed of a blend of natural components. Proven performance in higher density production and reinforced elements production.

### POROMIX - H

PCE-based additive composed of a range of selected polymers. Versatile application ranging from density 150kg/m<sup>3</sup> insulation materials to 600kg/m<sup>3</sup> density reinforced panels.

### POROMIX - ASH

A special blend of natural and non-toxic polymers designed for AAC production with fly-ash (PFA). Used in densities 400kg/m<sup>3</sup> and higher.

### POROMIX - ALU

A special blend designed to activate and de-grease aluminum particles in the AAC mix for better performance and lower consumption. Can be applied alone or with other Poromix types.



Fig. 2: Poromix is offered on different chemical basis in order to adjust various production environments

However, focusing only on the chemistry, while missing out on the equipment and process set-up will not lead to the desired optimal results. PMX Labs, the manufacturer and distributor of advanced AAC additives (Figure 2) specializing in AAC chemistry and AAC process design, now brings a holistic approach to optimization beyond chemistry. The whole optimization process is offered as a total solution together with a team of devoted AAC experts of chemical, mechanical and software engineers.

**An additives range enabling the full-potential of raw materials reactivity**

Admixtures that are commonly used in the cement and concrete industries as superplasticizers cannot be directly applied in AAC manufacturing. These plasticizers for the concrete industry focus mainly on hydration of cement, while in AAC production, hydration and reactions of cement, lime, gypsum and aluminium needs to be considered. AAC plant manag-

**POROMIX ANTI-COAGULATION EFFECT**

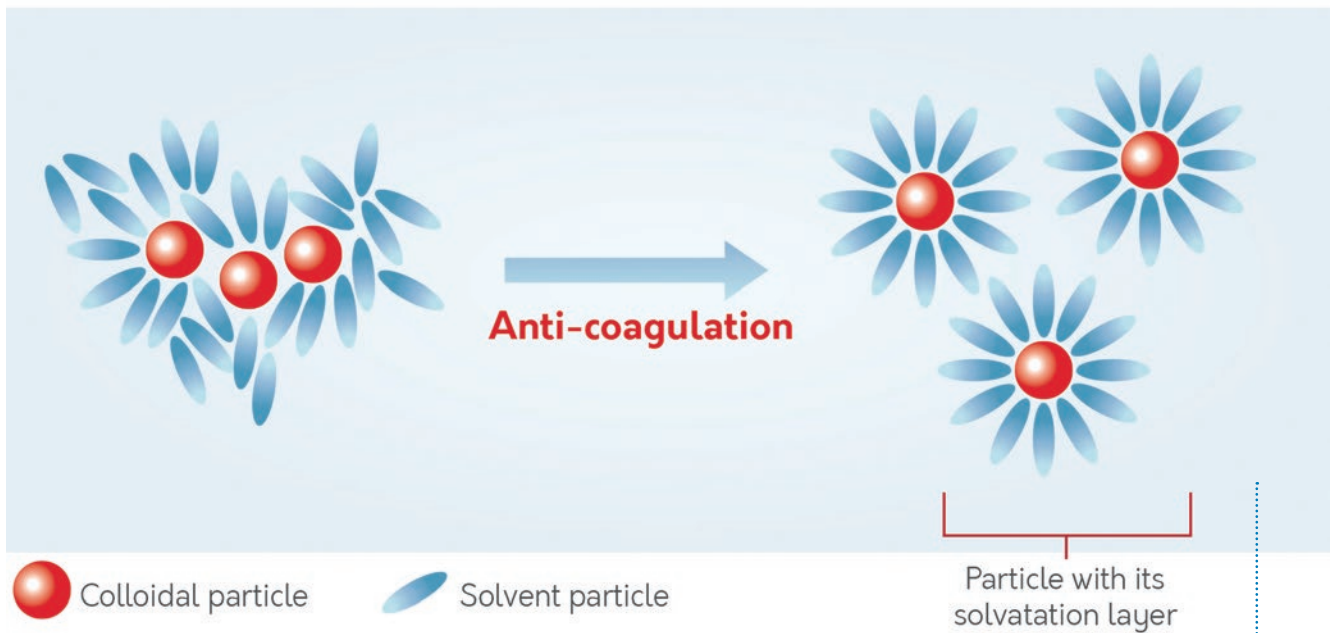


Fig. 3: Coagulation prevention allows better hydration and dispersion of particles

**POROMIX EFFECT OF REDUCING WATER SURFACE TENSION**

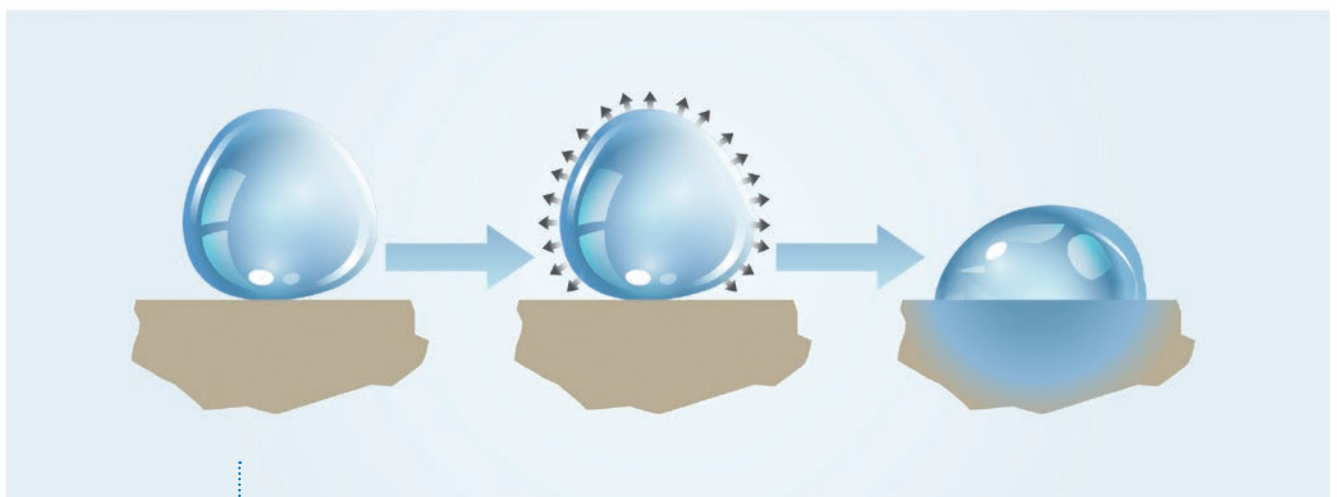


Fig. 4: Water surface tension reduction allows efficient use of water in the mix

ers know very well the positive impact of optimally designed recipes on the overall plant and product performance.

Production of AAC is rather a sophisticated technological process, where multiple variables have a direct or indirect impact on the final product quality and cost. These variables range from the equipment selection (i.e. production technology) to formula management and chemistry set-up.

Poromix is a multi-component substance based on a modified polycarboxylate ethers (PCE). It is a blend of polymers that allows for efficient and reduced usage of raw materials. In many cases, these reductions are around 10% of water and up to 15% of cement and/or lime. These optimizations allow for making higher quality product at lower costs thanks to the application of Poromix.

The Poromix design and implementation is based on the in-depth understanding of the importance of the energy balance as well as the mineral balance in the recipe design. The key functions to use full potential of the raw materials reactivity in the mix can be summarized as:

1. Coagulation prevention to allow better hydration and dispersion of particles (Figure 3)
2. Water surface tension reduction to allow more efficient use of water in the mix (Figure 4)

### Proven quantitative results

Positive results of Poromix have been confirmed in many factories worldwide, in various density ranges (from 150 kg/m<sup>3</sup> to 700 kg/m<sup>3</sup>) and in production based on sand and fly ash. Benefits of the additive apply both in the flat-cake systems as well as the tilt-cake systems.

Every implementation and successful test prove higher savings than the costs of the additive. In addition to savings on the reduced raw material costs, which are quantifiable, there are also qualitative improvements such as better pores distribution, stronger corners and edges, less sticking and shorter autoclaving time potential. ●



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**AAC** WORLDWIDE



## Autoclaved Aerated Concrete

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