FACT SHEET

Admixtures in Precast Concrete

Concrete additives have been used since Roman and Egyptian times, when it was discovered that adding volcanic ash allowed concrete to set underwater. The Romans knew that adding horse hair reduced cracking, whilst blood made concrete more frost-resistant. Modern admixtures can improve the durability, strength and workability of concrete whilst accelerating the production of precast components and speed of on-site construction. Today's admixtures can also be used to improve frost resistance and thermal properties, minimize shrinkage cracks, improve stability during placement and transport, reduce corrosion in steel reinforcement, or inhibit the surface mortar to expose the aggregate.

Admixtures can assist the precast manufacturer to increase productivity, reduce power, and use resources more efficiently. Polymer chemical admixtures accelerate the curing process without the need for external heat, thus reducing energy consumption. During manufacture, other admixtures reduce the energy to run concrete mixers and vibrators, improve the flowability of concrete to allow more slender forms, and enable moulds to be removed quickly for fast turnaround and reduced cycle times.

Many admixtures are highly active chemicals and if two or more are being used in a mix design, they should be checked for compatibility. They should not be used without the approval of the design engineer nor should they be regarded as a substitute for good concreting practice. Admixtures should conform with AS 1478.1-2000 and should be sampled and tested in accordance with AS 1478.2-2005.

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