

Master X-Seed

Our Innovative Hardening Accelerator

The Concept

Our Crystal Speed Hardening concept facilitates the sustainable production of concrete – thanks to the unique technology of the hardening accelerators from the Master X-Seed product range. The powerful seeding results in a previously unattainable acceleration of the hardening process in the early stages (4–12 hours) across all temperature ranges. The concept is especially valuable for precast and ready-mix concrete producers looking for economical ways to achieve high early strength and flexible usage of production capacities as well as securing productivity during winter conditions.

The Crystal Speed Hardening concept outperforms all existing solutions for the concrete industry and is compatible with advanced BASF concrete admixture technologies, including the Zero Energy System.

This enables the concrete industry to optimize processes, improve concrete quality and energy efficiency whilst saving time and costs and reducing CO₂ emissions.

The key element of the Crystal Speed Hardening concept is Master X-Seed: Consisting of synthetically produced nanoparticles suspended in a liquid, it accelerates the strength development of the concrete mix.

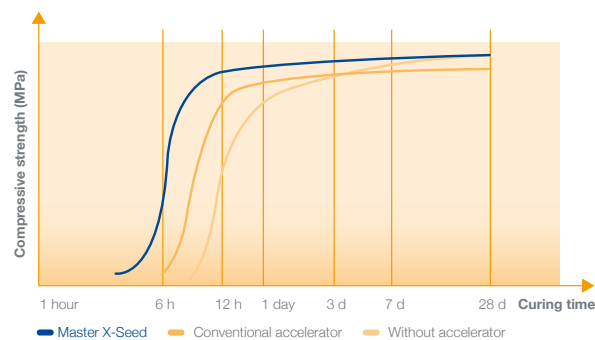
Mechanism of Action

During standard cement hydration, the main clinker phases C₃S and C₂S react with water to form calcium silicate hydrate crystals (CSH) and calcium hydroxide. The nucleation of the CSH crystals is an exothermic reaction on the surface of the cement grains which for continued growth has to overcome several reaction barriers.



Unlike conventional acceleration methods, such as heat curing or the use of traditional accelerators, Master X-Seed accelerates concrete hardening by boosting the natural hydration of the cement. Master X-Seed does not have any negative impact on the final strength and durability of the concrete. It does not impair the rheological properties of fluid concrete mixes and extended workability times, in combination with the early setting of the concrete, is achievable.

Strength Development – The Effect of the Accelerator (380 kg/m³ CEM I 52.5 R)



Now, for the first time, Master X-Seed offers the possibility to use ultra fine, synthetically produced CSH crystals in a ready-to-use suspension for concrete production. This method is called “crystal seeding”.

Crystal Speed Hardening is a unique accelerator technology that supports the sustainable production of concrete:

- Obtaining maximum early strength
- Increasing productivity
- Improving energy efficiency
- Excelling in winter concreting

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