



Solutions for the  
pre-cast industry





# Master Builders Solutions from BASF

## Master Builders Solutions

The Master Builders Solutions brand brings all of BASF's expertise together to create chemical solutions for new construction, maintenance, repair and renovation of structures. Master Builders Solutions is built on the experience gained from more than a century in the construction industry.

The know-how and experience of a global community of BASF construction experts form the core of Master Builders Solutions. We combine the right elements from our portfolio to solve your specific construction challenges. We collaborate across areas of expertise and regions and draw on the experience gained

from countless construction projects worldwide. We leverage global BASF technologies, as well as our in-depth knowledge of local building needs, to develop innovations that help make you more successful and drive sustainable construction.

The comprehensive portfolio under the Master Builders Solutions brand encompasses concrete admixtures, cement additives, chemical solutions for underground construction, waterproofing solutions, sealants, concrete repair & protection solutions, performance grouts, performance flooring and tiling solutions.





## In-depth understanding of pre-cast industry

### Master Builders Solutions

from BASF has a long history of creating the most innovative solutions and formulations for the construction industry, making it the leading supplier of construction chemicals worldwide. Within the pre-cast market sector we pride ourselves on our understanding of the unique challenges our customers face. This understanding linked to our unparalleled commitment to research and development allows BASF to deliver innovative chemical solutions to the pre-cast industry.

Our Admixture Systems team supports you with realistic solutions specifically catered to the pre-cast industry. To complement our admixture products we also offer a wide range of ancillary products such as release and curing membranes, sealants, grouting and specialized repair materials. This complete product portfolio makes Master Builders Solutions the ideal solution provider for the pre-cast industry.





# Zero Energy System

## Setting the industry standard for pre-cast manufacturing

### Our mission

is to engineer materials to match the needs of the end-user. We add value for our customers through continuous targeted research and development. Our R&D teams are connected to partners who are globally recognized for their chemistry leadership, design insight and unsurpassed application abilities. Always focused upon customer needs, Master Builders Solutions from BASF raised the benchmark for the performance of concrete through painstaking research from molecular level to the finished admixture. In the pre-cast sector, there is a constant need for overall process improvement to increase quality and productivity within tight production timeframes, while managing costs.

Master Builders Solutions has developed a comprehensive range of products and systems that address these challenges, redefining industry standards for the quality, safety and production efficiency of pre-cast concrete.

### Crystal Speed Hardening concept

enables more sustainable concrete production thanks to the unique technology of the new Master X-Seed hardening accelerator. A previously unattainable hardening boost at all temperature levels is achieved in the early ages (6-12 hrs) due to the powerful seeding of the mix design, which is also able to support the final performance of the specified concrete.

The Crystal Speed Hardening concept exceeds, enhances and improves existing strength development for key industry needs and is fully compatible with all BASF admixture technologies, e.g. Smart Dynamic Concrete.

It allows the concrete industry to achieve better process economy, higher concrete quality and increased energy efficiency in order to save time and money and reduce CO<sub>2</sub> emissions.

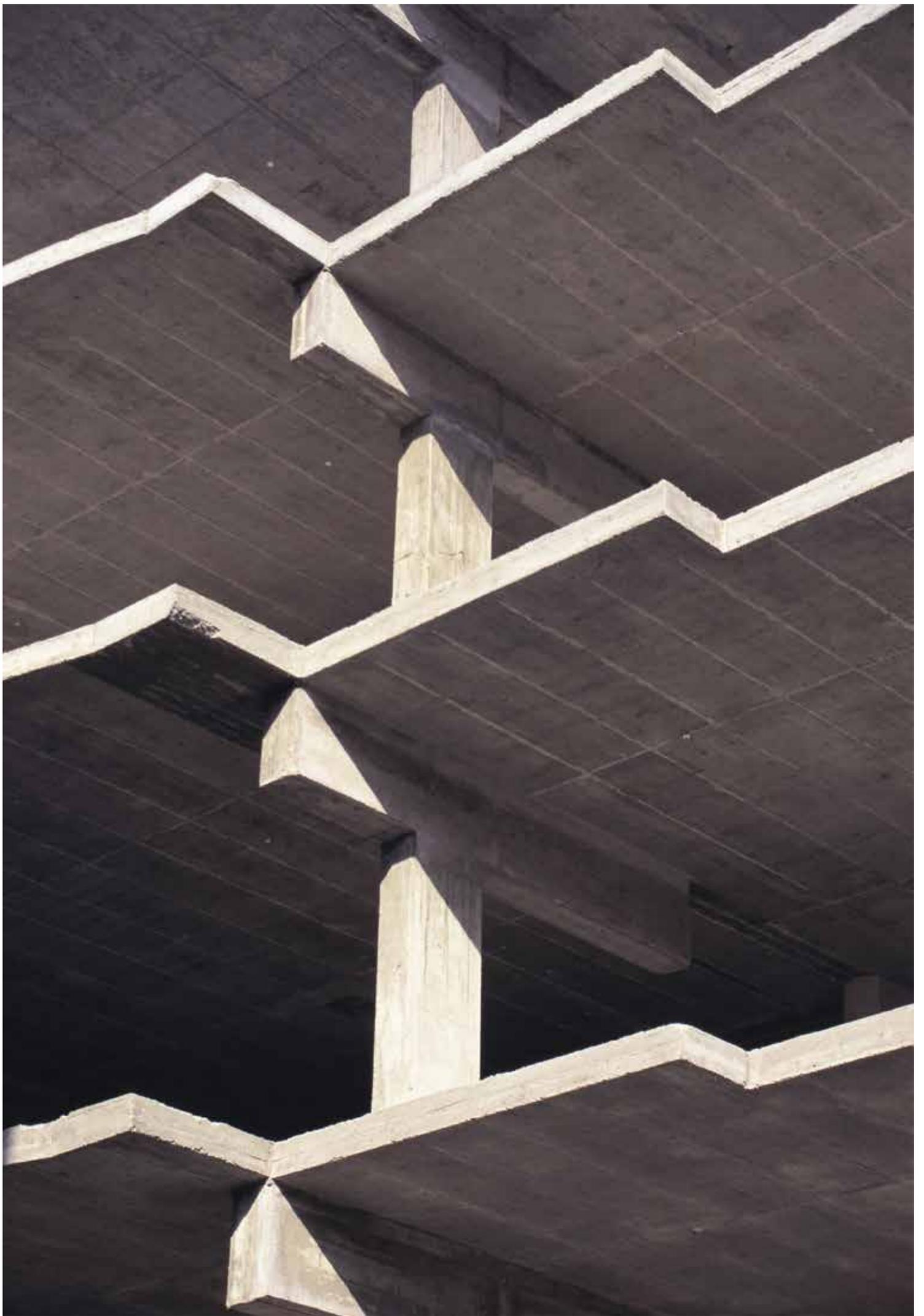
Master X-Seed is the essential component of the Crystal Speed Hardening concept. It consists of synthetically produced nanoparticles suspended in a liquid and boosts the hardening properties of the concrete mix.

While traditional acceleration methods such as heat application or common accelerators typically affect concrete's cost and durability, Master X-Seed brings a level of hardening acceleration to the mix that supports natural hydration and long-term performance properties by offering attractive overall cost saving potential.

### In the pre-cast

concrete sector, Master Builders Solutions proven Zero Energy System concept has utilized state of the art polymer technology to transform pre-cast production into a much more sustainable process.

Pre-casting is characterized by a great number and variety of types of components and production processes which includes unreinforced, non-prestressed, prestressed, cast, extruded and spun. Despite this diversity, the entire pre-cast industry seeks to manufacture high quality concrete components that satisfy industrial and economical requirements while continually increasing productivity and improving profitability in the face of rising materials, labour and equipment costs.





For some manufacturing processes, depending on the cycle time, the ambient temperatures and the composition of the mix, the full benefits of the Zero Energy System can be compounded by combining the effectiveness of MasterGlenium ACE with the technology of self-compacting concrete - Smart Dynamic Concrete. Such concrete can be placed without vibration, achieving the required performance without the need of heat curing. The flexibility of the Zero Energy System ensures the optimum utilization of energy required for the pre-casting of concrete elements

The production, placement and curing of pre-cast concrete can require large amounts of energy and labour. The Zero Energy System from Master Builders Solutions, is proven to reduce the energy and labour requirements whilst extending the life of the moulds and also reducing the carbon footprint of the industry.

Our Zero Energy System achieves an optimum balance between quality, economic and ecological considerations which consist of:

- Reduced energy consumption
- Eliminated vibration and associated noise
- Increased productivity
- Reduced production cycles
- Increased durability
- Improved health and safety aspects of the production process

The two key elements of the Zero Energy System are MasterMatrix and MasterGlenium ACE, a hyper performing superplasticizer for Smart Dynamic Concrete.



### Smart Dynamic Concrete

The Smart Dynamic Concrete concept consists of a robust mix design utilizing a tailor-made MasterGlenium ACE superplasticizer plus the unique MasterMatrix, a BASF exclusive, state-of-the-art viscosity modifying agent (VMA) as the key element of this revolutionary concept.

MasterMatrix has now made it possible to achieve unmatched performance levels due to the smart and self-organizing molecules. It creates a new generation of concrete which combines the benefits of traditionally vibrated concrete with those of self-compacting concrete that is easy to produce and robust.



The Smart Dynamic Concrete concept is suitable for upgrading high workability concrete mixes to higher performance levels with self-compacting characteristics. It allows the pre-cast industry to achieve optimal process economy, higher concrete durability and increased energy efficiency in order to save time and money and reduce CO<sub>2</sub> emissions.

MasterMatrix is the essential component of the Smart Dynamic Concrete concept. It comprised of a water-soluble polymer which modifies the rheological properties of the concrete mix. MasterMatrix brings a level of viscosity to the mix that creates the right balance between fluidity, passing ability and resistance to segregation.



# MasterGlenium ACE

## An essential

component of the Zero Energy System is MasterGlenium ACE, a superplasticizer of the latest generation of polycarboxylate ether (PCE) polymers, especially developed for pre-cast applications.

The molecular structure of polycarboxylate ether polymers is essential for the early development of strength. With conventional PCE superplasticizers, the molecules cover the entire surface of the cement grain and build a barrier against contact with water, and therefore the hydration process takes place slowly. MasterGlenium ACE molecules, however, are rapidly absorbed on the surface of the cement grains and act through electrostatic and steric repulsion to powerfully disperse the individual particles of cement.

The unique, proprietary molecular structure of MasterGlenium ACE exposes increased surface of the cement grains to react with water. As a result of this effect, it is possible to obtain earlier development of the heat of hydration, faster development of the hydration products and, as a consequence, higher strengths at very early age. This advantage can even be utilized at low temperatures.

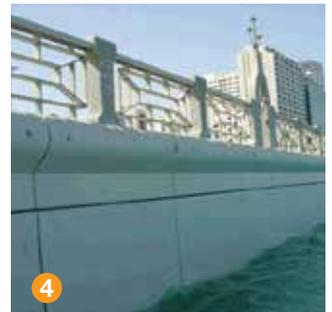




## Systems you can trust

Master Builders Solutions offers an extensive range of durable and reliable products and systems to overcome the problems associated with refurbishments and the protection of reinforced concrete. Repairing and protecting concrete structures successfully means

addressing each problem individually, from corrosion in reinforcement in existing buildings or structural strengthening of reinforced concrete elements in new construction.



### 1. Concrete repair mortars

With a successful track record spanning over 30 years, the ease of application and excellent performance of MasterEmaco makes the brand name synonymous with repairs for reinforced and unreinforced concrete.

### 2. Crack repair and injection resins

As part of a repair program, cracks often need to be 'stitched' together or sealed to ensure structural stability and durability.

The MasterInject range comprised of epoxy and polyurethane resins for injecting into the structure in live and dead cracks.

### 3. Protective coatings

Ensuring enhanced durability and improved aesthetics, MasterSeal protective coatings can be used wherever reinforced concrete and other building materials require protection from chlorides, carbonation, aggressive chemicals and harsh impact.

### 4. Durability enhancing admixtures

Solutions to extend the life-cycle of structures. Products include waterproofing and corrosion inhibiting admixtures.



## Product guide

Product	Product Description	Admixtures	Concrete Repair	Grouting	Curing Compounds	Release Agents	Watertight System
MasterMatrix	Unique rheology modifying admixtures, enabling the production of self-consolidating concrete	●					
MasterEmaco	A comprehensive range of repair offering solutions from aesthetic to structural repair		●				
MasterFlow	A range of cementitious and resin based precision grouts			●			
MasterKure	Resin and water based curing compounds				●		
MasterFinish	A full range of mould release agents					●	
MasterSeal	Waterproofing membranes and sealants						●



**With Master Builders Solutions**

from BASF, you will find a competent and professional partner that will optimize the use of concrete in every situation. Increasing quality and durability, safety and aesthetics, we work within the framework of environmental responsibility and the economic realities of the industry.

Maximizing the performance of concrete is central to everything we do.



# Master Builders Solutions from BASF for the Construction Industry

## MasterAir®

Complete solutions for air entrained concrete

## MasterBrace®

Solutions for concrete strengthening

## MasterCast®

Solutions for the manufactured concrete product industry

## MasterCem®

Solutions for cement manufacture

## MasterEmaco®

Solutions for concrete repair

## MasterFinish®

Solutions for formwork treatment

## MasterFlow®

Solutions for precision grouting

## MasterFiber®

Comprehensive solutions for fiber reinforced concrete

## MasterGlenium®

Solutions for hyperplasticized concrete

## MasterInject®

Solutions for concrete injection

## MasterKure®

Solutions for concrete curing

## MasterLife®

Solutions for enhanced durability

## MasterMatrix®

Advanced rheology control solutions for self-consolidating concrete

## MasterPel®

Solutions for water tight concrete

## MasterPolyheed®

Solutions for mid-range concrete

## MasterPozzolith®

Solutions for water-reduced concrete

## MasterProtect®

Solutions for concrete protection

## MasterRheobuild®

Solutions for high strength concrete

## MasterRoc®

Solutions for underground construction

## MasterSeal®

Solutions for waterproofing and sealing

## MasterSet®

Solutions for set control

## MasterSure®

Solutions for extraordinary workability retention

## MasterTile®

Solutions for tile fixing system

## MasterTop®

Solutions for industrial and commercial floors

## Master X-Seed®

Advanced accelerator solutions for concrete

## Ucrete®

Flooring solutions for harsh environments

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