MasterGlenium SKY
Solutions for High Performance Concrete in the Ready-Mix Industry
Master Builders Solutions from BASF

Building on partnership. Our Master Builders Solutions experts find innovative and sustainable solutions to meet your specific construction needs. Our global experience and network help you to be successful – today and tomorrow.

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 and protection solutions, performance grouts, performance flooring solutions.
Total Performance Control

The Total Performance Control concept ensures that ready-mix producers, contractors and take down engineers achieve a concrete that is of the same high quality as originally specified: starting from production at the batching plant, to delivery and application into place, and followed by its hardening process. Rheodynamic concrete, a latest-generation self-compacting concrete, provides a concrete mix with exceptional placing characteristics, accelerated cement hydration for early strength development and high-quality concrete.

Total Performance Control is the state-of-the-art technology that gives you improved short and long-term concrete performance by controlling the two distinct features essential for high-quality concrete: extended workability and low water/cement ratio.

A key element of the Total Performance Control concept is the MasterGlenium SKY superplasticizer.

Our reference in Fuessen (Germany): Bridge on the Federal Motorway 7
MasterGlenium SKY is an innovative superplasticizer based on BASF’s proprietary polymer technology. It is derived directly from the Total Performance Control concept and is specially engineered by our experts to provide high water reduction and slump retention for ready-mix concrete simultaneously. Compared to conventional PCE superplasticizers, you will be able to obtain a high-quality concrete mix with accelerated strength development and extended workability without delayed setting characteristics.

Utilising BASF’s global R&D capacities, the experts at Master Builders Solutions are pushing the technical limits of the concrete industry. With a holistic approach to concrete and polymer technology, Master Builders Solutions’ products and systems are able to control the chemical and physical behavior of polymers and their interactions with cement by augmenting chain length, side chain length and density, and electrical charges, as well as free functional groups. As a result, our MasterGlenium SKY range better meets local requirements and conditions.
Mechanism of action

The dispersion effect of superplasticizers is based on the adsorption of molecules on cement particles, imparting a negative charge that causes electrostatic repulsion and steric hindrance between them and, therefore, dispersion. Hydration, and particularly the formation of ettringite, work against the superplasticizer. Already adsorbed molecules are covered by the ettringite lawn, and are thus ineffective. The particular configuration of the MasterGlenium SKY molecules allows their delayed adsorption onto the cement particles and disperses them efficiently over a long period of time.

The molecular structure is essential for the early development of strength. With superplasticizers based on conventional polycarboxylate ether, the molecules, cover the entire surface of the cement grain and build a barrier against contact with water. Therefore, the hydration process takes place slowly. The MasterGlenium SKY molecules, on the other hand, leave sufficient room on the cement surface to allow a rapid hydration reaction, resulting in high early strength development.
Benefits of Total Performance Control

Ready-mix producer

Ready-mix concrete is characterized by a great number and variety of different mix designs. Utilizing different types of fillers, cements and binders, together with the trend towards special concretes for specific applications such as coloured or white concrete, increases this variety. At the same time, ready-mix producers must maintain their profitability in the face of rising materials, labor and machine costs, during a period of falling prices. As a result, producers are optimizing their production and logistics costs. Our Total Performance Control concept supports you by providing the capability to deliver high-quality concrete to the job site at any time. This new concept facilitates the production of concrete with both extended workability and a low water/cement ratio meeting the requirements of EN 206-1. We will help you save production costs through mix design optimization for cement types and aggregate composition. In addition, the standalone product MasterGlenium SKY is suitable for many applications. As a result, it enables ready-mix producers to optimize inventory, facilitate logistics and reduce investments in tanks and dispenser equipment, thus also decreasing maintenance costs.
**Contractor**

The focus of the contractor is twofold. During the placing process, contractors require easy placing and finishing characteristics as well as extended workability in order to save labour. As a result, the structure consists of high-quality concrete with improved concrete surfaces. After placing, the need for fast strength development arises. Certain minimal strengths must be achieved before a structural element can be removed from its form and borne off. The faster a form can be reused, the more profitable the process. Increased early strength makes more rapid reutilization of the form possible, therefore shortening the production cycle.

The building process is quicker, and equipment and personnel can be employed more efficiently.

The Total Performance Control concept guarantees the placement of the same concrete as specified and ordered from the ready-mix plant. With MasterGlenium SKY, you will be able to meet the requirements of easy placing and finishing as well as early strength development. If a site-mix operation is in use, the same benefits as for ready-mix may be additionally utilized.

**Engineer**

The engineer is aiming for extended service life and less maintenance work for applications with heavy reinforcement and thin sections. Service life expectations of over 100 years are no longer uncommon and will increasingly become the norm. To optimize service life, tendering may also include the maintenance work for several decades as well as the building of the construction. An accelerated building process reducing overall costs is becoming part of the engineering remit, especially in road and tunnel constructions.

To optimize costs during the whole service life, it is necessary to process a high-quality concrete with better durability and to have the insurance that concrete meets the original specification. The two distinct features essential for high-quality concrete and thus higher durability are a low water/cement ratio and long workability. The Total Performance Control concept with MasterGlenium SKY provides both performances simultaneously. As a result, longer service lives with less maintenance work and, therefore, optimized economy are obtained.

Our reference in Dohna (Germany):
Seidewitztal Bridge A 17
Our reference in Modena (Italy):
Viaduct Campogalliano
Conclusion

Solutions for High Performance Concrete

Total Performance Control and MasterGlenium SKY meet all the requirements of the ready-mix industry, while simultaneously saving time and money.

Total Performance Control and MasterGlenium SKY technology introduce a new generation of superplasticizers, solving the needs of the entire ready-mix industry:

- Ensuring a constant high-quality concrete at a low water/cement ratio.
- Providing a concrete with extended workability at high temperatures, without delayed strength development.
- Guaranteeing a concrete that meets the original specification from the fresh to the hardened stage.
- Offering a single, versatile admixture for many types of applications and conditions.
Our reference in Mont Saint-Michel (France):
Dam over the Couesnon
© Photo by Daniel Fondimare (SM Baie)
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

MasterEase
Low viscosity for high performance concrete

MasterEmaco
Solutions for concrete repair

MasterFinish
Solutions for formwork treatment and surface improvement

MasterFlow
Solutions for precision grouting

MasterFiber
Comprehensive solutions for fiber reinforced concrete

MasterGlenium
Solutions for high performance concrete

MasterInject
Solutions for concrete injection

MasterKure
Solutions for concrete curing

MasterLife
Solutions for enhanced durability

MasterMatrix
Advanced rheology control for 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

MasterSecure
Solutions for extraordinary workability retention

MasterSeal
Solutions for waterproofing and sealing

MasterSet
Solutions for set control

MasterSuna
Solutions for sand and gravel in concrete

MasterSure
Solutions for extraordinary workability retention

MasterTop
Solutions for industrial and commercial floors

MasterX-Seed
Advanced accelerator solutions for concrete

Ucrete
Flooring solutions for harsh environments

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