MASTER® BUILDERS SOLUTIONS

MB-Ease

A New Admixture Technology for Reducing Concrete Viscosity

Master Builders Solutions

As Master Builders Solutions, we are a leading global producer of responsible solutions for the construction industry, focussed on delivering our vision: **Inspiring people to build better.**

We provide value-added technology and market-leading R&D capabilities to improve the performance of construction materials and to enable the reduction of CO_2 emissions in the production of concrete. The comprehensive portfolio under the Master Builders Solutions brand encompasses concrete admixtures, cement additives, and solutions for underground construction.

We collaborate across areas of expertise and regions and draw on the experience gained from countless construction projects worldwide, leveraging global 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.

Founded in 1909, Master Builders Solutions operates 35 production sites globally, supporting you in mastering your building challenges of today and tomorrow – for a decarbonised future.

Low-Viscosity Concrete: Products and Services

Low-viscosity concrete is an overall concept focusing on the optimization of concrete viscosity and rheology over the entire time of concrete production, delivery, pumping, placing and finishing. It is based on the use of innovative admixtures as well as the provision of technically advanced services performed in the laboratory and on site.

The services:

The technical experts from Master Builders Solutions are available to support you in carrying out your projects:

- Our R&D centers, local technical centers, and laboratories are equipped with specific tools and equipment dedicated to the study and optimization of concrete rheology (instrumented mixers, rheometers, tribometer, V funnel, etc.)
- We assist you on site with the implementation of the proposed low-viscosity concrete solutions, both during the manufacturing of the concrete at the concrete plant and at its point of application on the construction sites

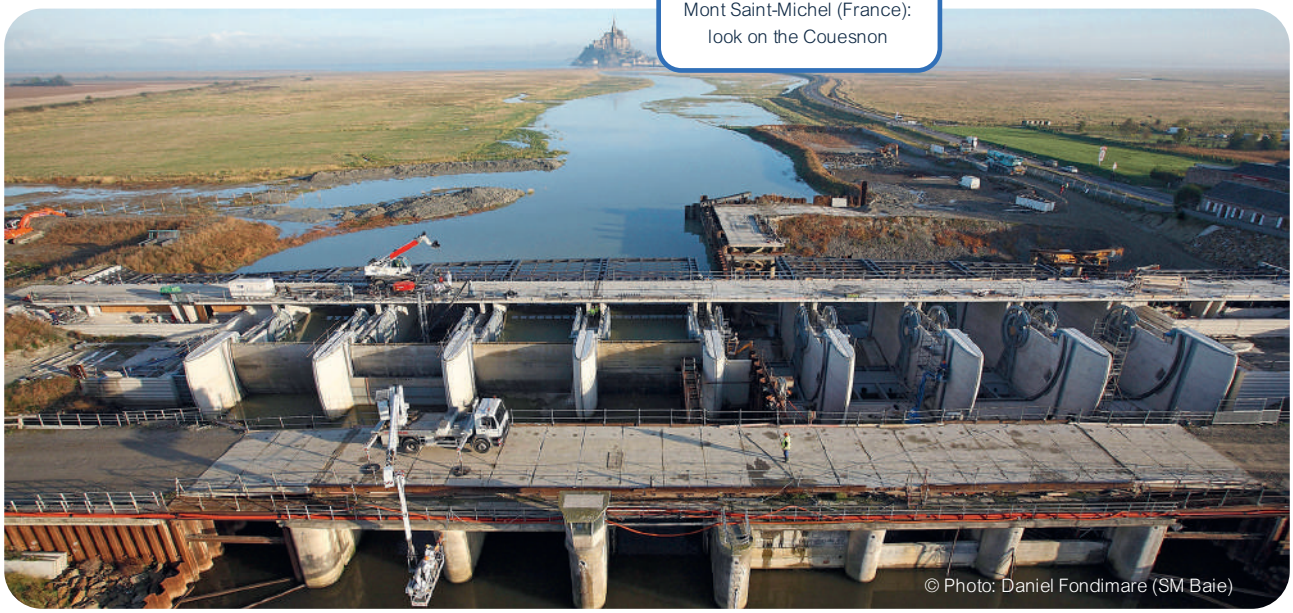
Let's tackle your challenges together!

MB-Ease – best rheology for concrete

High-range water-reducing superplasticizer using a new patented polymer technology providing advanced rheological properties to concrete. MB-Ease brings a significant reduction in the concrete viscosity.

Under demanding temperatures and where an exceptionally long workability time is also required, the admixture MB-Sur can be added without affecting the early strength.

MB-Ease makes rheology easy!



Mont Saint-Michel (France): look on the Couesnon

© Photo: Daniel Fondimare (SM Baie)

Concrete viscosity and rheology

Every day, the concrete industry encounters challenges with concrete viscosity, both at the concrete plant (manufacturing) and, in particular, at the point of placing on construction sites:

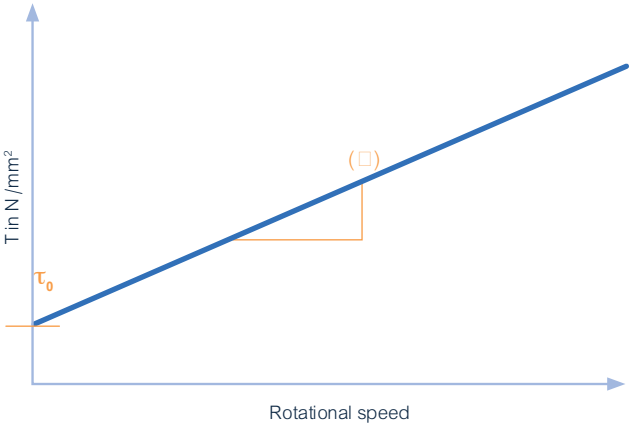
- Long mixing times, high power consumption
- Additional water required to overcome high viscosity
- Sticky concrete that is difficult to pump, install and finish
- Concrete that is difficult to vibrate, float, and smooth
- Surface deficiencies of hardened concrete
- Subpar compaction reduces the durability of the structure

From a technical perspective

- Rheology defines the flow and intrinsic behavior of fluids, which is analyzed using a rheometer
- Concrete can be defined as a “Bingham” fluid, whose two key parameters are the yield value and the plastic viscosity

Concrete behaves like a Bingham fluid

$\square = \tau_0 + \square\square$



Intrinsic characteristics

τ_0: yield value: minimum stress required to initiate flow

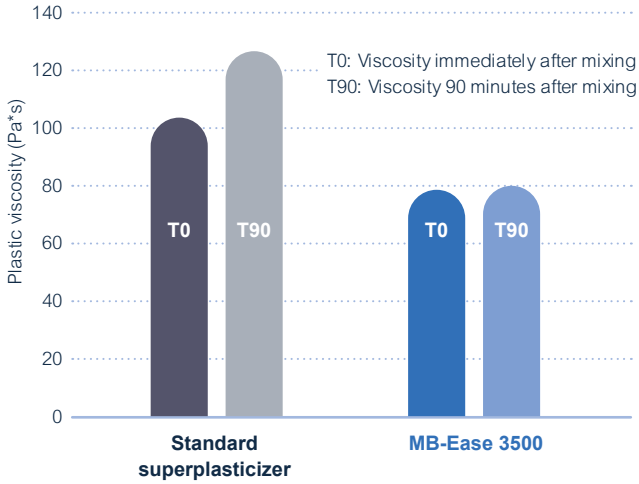
□ : plastic viscosity: slope of the curve plotting stress as a function of the speed gradient

MB-Ease Improves Concrete Rheology

A new concept focusing on concrete viscosity

Innovation is one of the cornerstones of our company. Our R&D teams have developed an entirely new generation of polymers. These new molecules give fresh concrete exceptional rheological properties, including a significant drop in viscosity.
MB-Ease admixtures are designed to deliver exceptional low viscous yet stable concrete mixes. With their new patent protected chemical basis they enable easy to pump, place and finish concrete even with very demanding mix designs.

MB-Ease maintains reduced viscosity over entire processing time



Advantages for the concrete industry:

- Mixing and installation: Improved rheology for day-to-day naturally viscous concretes
- Lower viscosity and improved ease of pumping and placing of concretes with a low water/cement ratio, self-consolidating concrete, high-performance concrete, ultrahigh-performance concrete, pumped concrete, foundation concrete, fiber-reinforced concrete, etc.
- Reduced viscosity of concretes optimized towards a low environmental impact and high durability that employs very low water/cement ratios and a high dosage of mineral additives and supplementary cementitious materials

The possibility of further reducing the water/cement ratio without affecting viscosity brings about:

- An improvement in performance quality and durability
- New scope for technical and economic optimization of the concrete formulas in terms of the dosage and nature of the bonding agent, the choice of aggregates, etc.

Master Builders Solutions for the Construction Industry

MB-Air
Complete solutions for air entrained concrete

MB-Cast
Solutions for the manufactured concrete product industry

MB-Ease
Low viscosity for high performance concrete

MB-Fin
Solutions for formwork treatment and surface improvement

MB-Fib
Comprehensive solutions for fiber reinforced concrete

MB-Glen
Solutions for high performance concrete

MB-Life
Solutions for enhanced durability

MB-Mat
Advanced rheology control for concrete

MB-Pel
Solutions for hydrophobization, anti-efflorescence and surface protection

MB-Poly
Solutions for mid-range concrete

MB-Pozz
Solutions for water-reduced concrete

MB-Build
Solutions for high strength concrete

MB-UGC
Solutions for underground construction and surface improvement

MB-Set
Solutions for set control

MB-Sur
Solutions for extraordinary workability retention

MB-Seed
Advanced accelerator solutions for concrete

Quantified sustainable benefits. Advanced chemistry by Master Builders Solutions®.

Let the numbers do the talking: We have portrayed some of our most eco-efficient product solutions for concrete and precast production, construction, civil engineering, and flooring.

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