

**MASTER<sup>®</sup>**  
**» BUILDERS**  
SOLUTIONS

# MasterEase

**A new Admixture Technology  
for Reducing Concrete Viscosity**



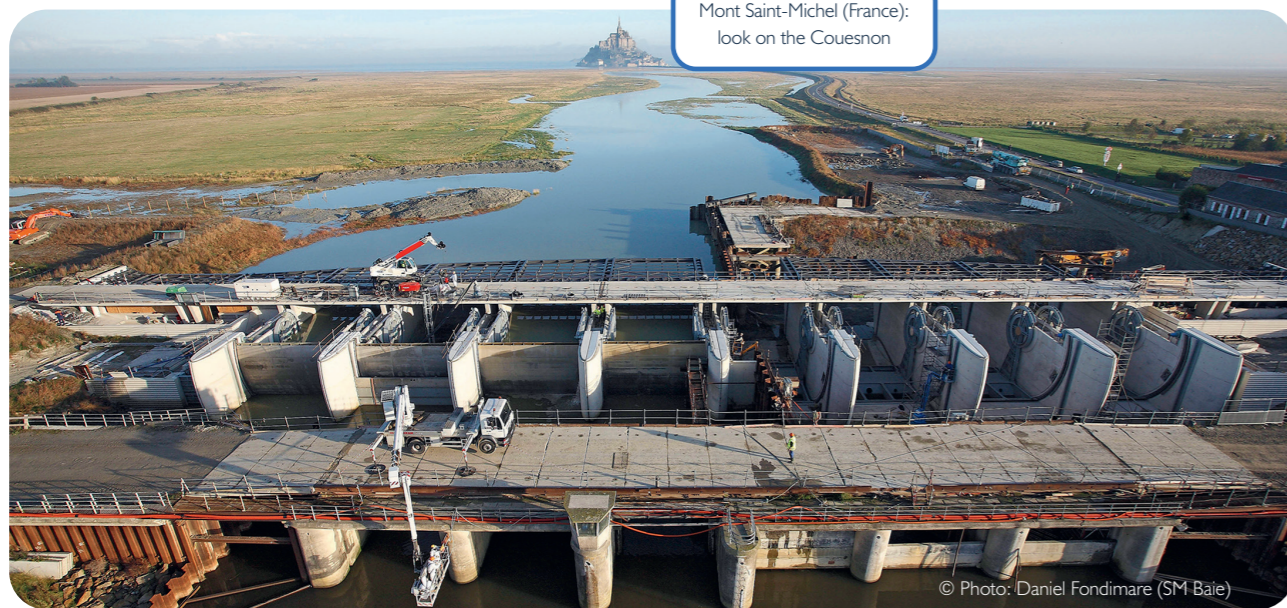
# Low-Viscosity Concrete: Products and Services

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!



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

© Photo: Daniel Fondimare (SM Baie)

**MasterEase® – best rheology for concrete**

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

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

MasterEase® makes rheology easy!

## 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



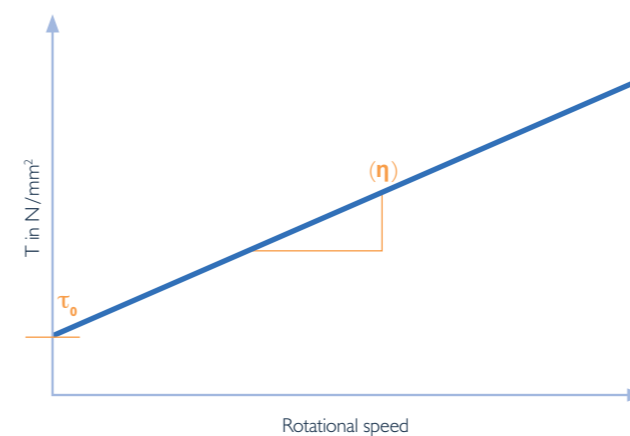
## From a technical perspective

- 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

$$\tau = \tau_0 + \eta\gamma$$



**Intrinsic characteristics**

$\tau_0$ : yield value: minimum stress required to initiate flow

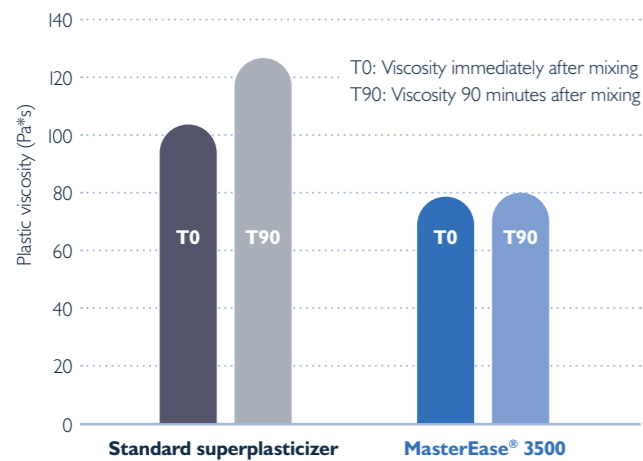
$\eta$ : plastic viscosity: slope of the curve plotting stress as a function of the speed gradient

# MasterEase® 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. MasterEase® 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.

## MasterEase® 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®

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<sub>2</sub> 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.



# Master Builders Solutions® for the Construction Industry

## MasterAir

Complete solutions for air entrained concrete

## MasterCast®

Solutions for the manufactured concrete product industry

## MasterCem®

Solutions for cement manufacture

## MasterCO<sub>2</sub>re™

Solutions for low-clinker concrete

## MasterEase®

Low viscosity for high performance concrete

## MasterFinish®

Solutions for formwork treatment and surface improvement

## MasterFiber®

Comprehensive solutions for fiber reinforced concrete

## MasterGlenium®

Solutions for high performance concrete

## MasterKure®

Solutions for concrete curing

## MasterLife®

Solutions for enhanced durability

## MasterMatrix®

Advanced rheology control for concrete

## MasterPel®

Solutions for hydrophobization, anti-efflorescence and surface protection

## MasterPolyheed®

Solutions for mid-range concrete

## MasterPozzolith®

Solutions for water-reduced concrete

## MasterRheobuild®

Solutions for high strength concrete

## MasterRoc®

Solutions for underground construction and surface improvement

## MasterSet®

Solutions for set control

## MasterSphere®

Solutions for guaranteed freeze-thaw resistance

## MasterSuna®

Solutions for sand and gravel in concrete

## MasterSure®

Solutions for extraordinary workability retention

## Master X-Seed®

Advanced accelerator solutions for concrete

## Unveil the Power of MasterCO<sub>2</sub>re™: Intelligent Cluster System for Low-clinker Concrete Production

[info.master-builders-solutions.com/en/masterco2re](http://info.master-builders-solutions.com/en/masterco2re)



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