



MasterEase

A New Admixture Technology
for Reducing Concrete Viscosity



Master Builders Solutions

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 its 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 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 world-wide. We leverage global Master Builders Solutions 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.

Our comprehensive portfolio

- Concrete admixtures
- Cement additives
- Chemical solutions for underground construction
- Waterproofing solutions
- Sealants
- Concrete repair and protection solutions
- Performance grouts
- Performance flooring solutions

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, place and finish
- Concrete that is difficult to vibrate, float, and smooth
- Surface deficiencies of hardened concrete

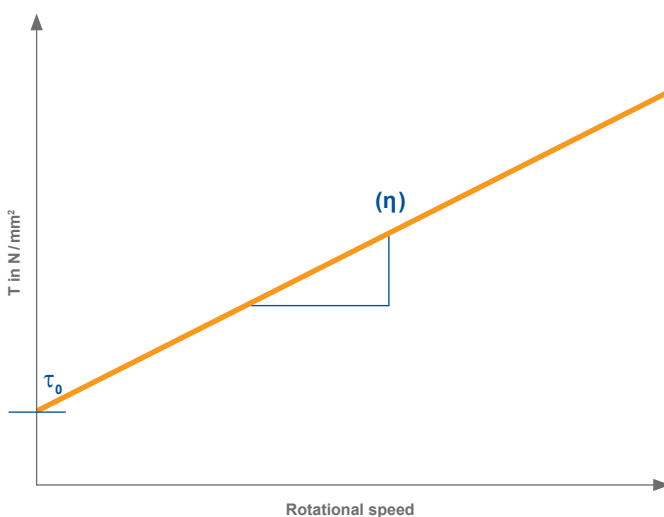
From a rheological perspective

- 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

$$\tau = \tau_0 + \eta\dot{\gamma}$$



Intrinsic characteristics

τ_0 : yield value: minimum stress required to initiate flow

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



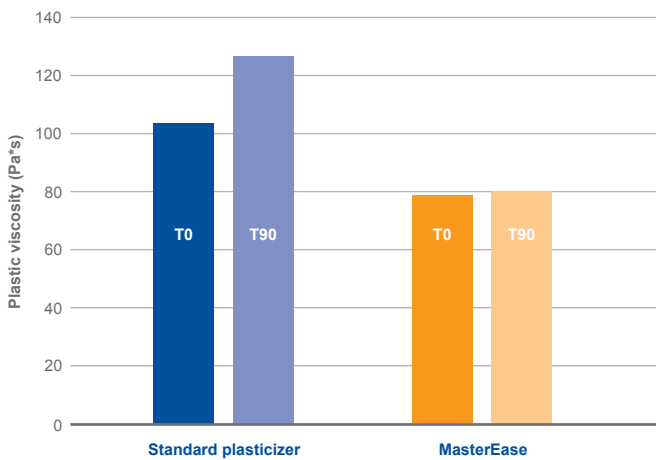
MasterEase Improves Concrete Rheology

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 viscosity yet stable concrete mixes. With their new patent protected chemical basis they enable concrete to be easy to pump, place and finish even with very demanding mix designs.

MasterEase maintains reduced viscosity over entire processing time



T0: Viscosity immediately after mixing
T90: Viscosity 90 minutes after mixing



Advantages for the concrete industry:

- Mixing and placing: Improved rheology for day-to-day naturally viscous concretes
- Lower viscosity and improved ease of pumping and placing of concretes with low water/cement ratio, self-consolidating concrete, high-performance concrete, ultrahigh-performance concrete, pumped concrete, raft foundation concrete, fiber-reinforced concrete, etc.
- Reduced viscosity of concrete enables the use of very low water/cement ratios and high dosages of mineral additives and supplementary cementitious materials, thus resulting in low environmental impact and high durability

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

- An improvement in quality and durability performance
- New scope for technical and economic optimization of the concrete mix design in terms of quantity and type of cementitious materials, the choice of aggregates, etc.



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 chain 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 at the concrete plant and at its point of application at the construction sites

Let's tackle your challenges together!

The product range:

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.

MasterEase makes rheology easy!

MasterSure – extreme workability retention

Admixture providing exceptionally long workability time, without reducing early strength. For flexible and reliable adjustment of workability retention under demanding conditions MasterSure makes workability retention a safe play.

MasterSure makes retention safe!



Mont Saint-Michel (France): look on the Couesnon
© Photo: Daniel Fondimare (SM Baie)



Master Builders Solutions 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

MasterSeal

Solutions for waterproofing and sealing

MasterSet

Solutions for set control

MasterSure

Solutions for extraordinary workability retention

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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