MasterEase
A New Admixture Technology for Reducing Concrete Viscosity
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 and 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, install 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

\[ \tau = \tau_0 + \eta \gamma \]

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.
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!
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

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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