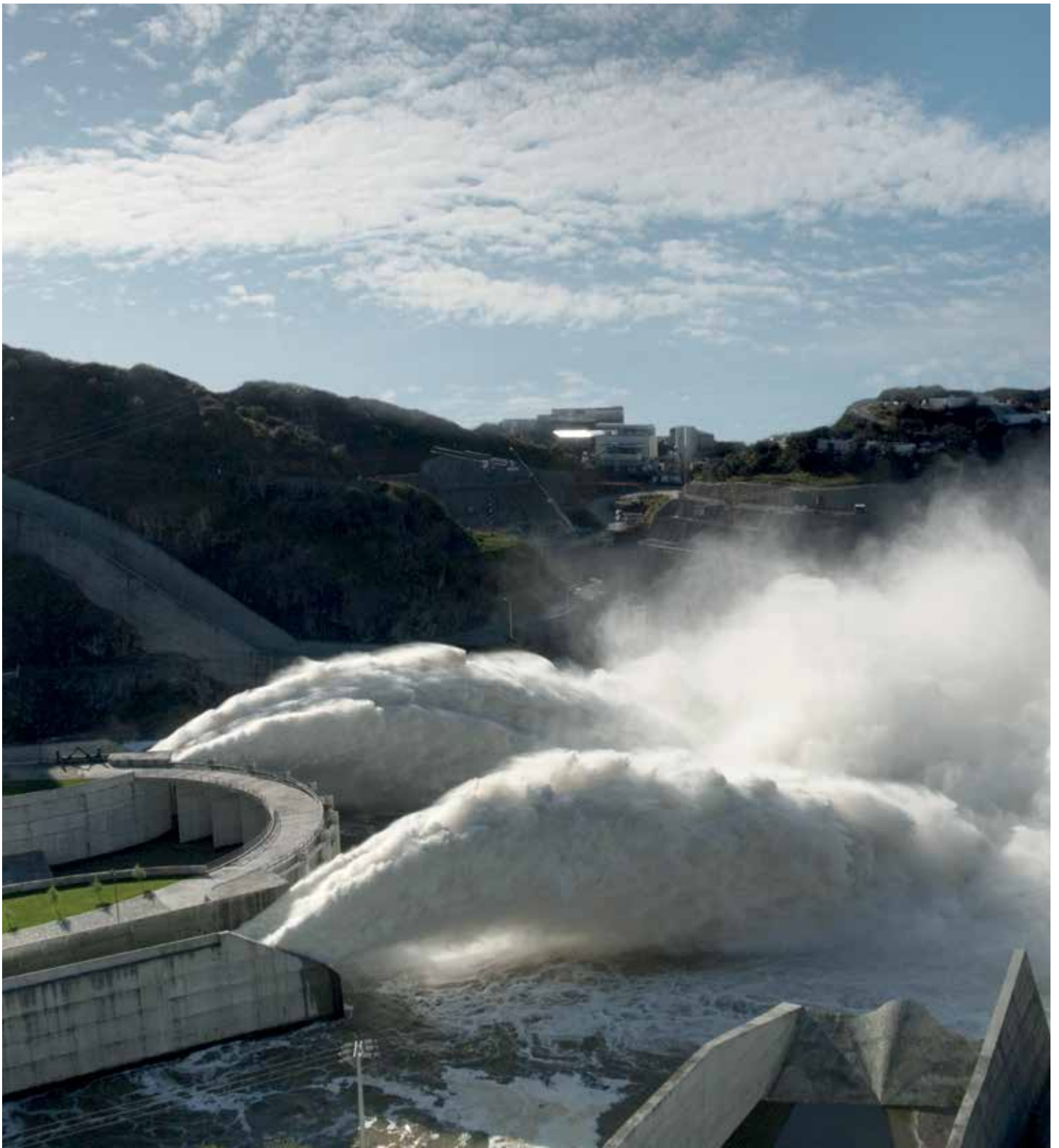




High-Efficiency in Cementitious Waterproofing

MasterSeal 6100 FX
MasterSeal 560





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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.



A Major Challenge: Waterproofing along the Water Cycle

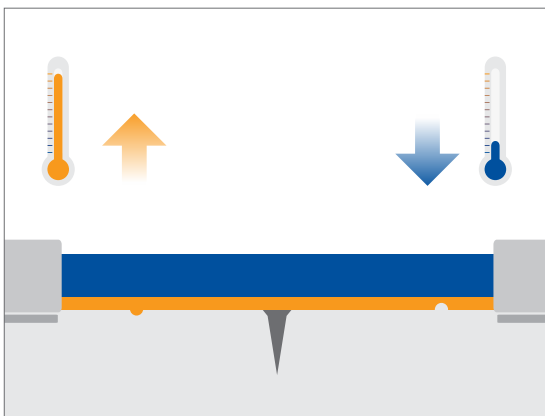
Concrete structures along the water cycle are in permanent contact with water and need to remain operational without interruptions.

Waterproofing is a major challenge

Water can penetrate building materials by various means, such as capillary absorption, ponding, hygroscopic uptake or condensation. The effective waterproofing of dams, channels, aqueducts, water tanks, water towers, waste water plants or other building structures, to prevent water ingress or loss, is a major challenge requiring easy application, a quick return to service and long-term durability.

Concrete structures are not static

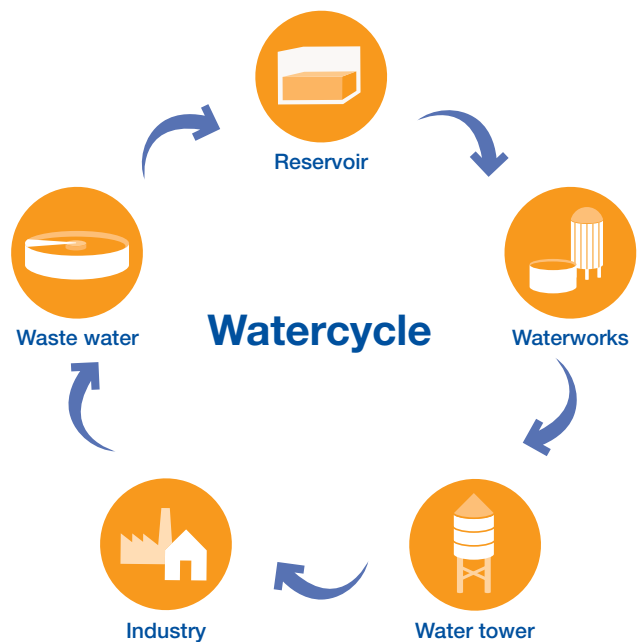
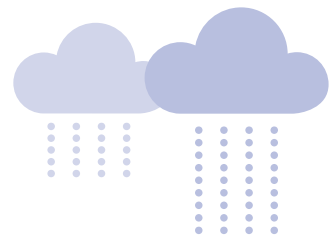
Changes in load conditions, temperature, humidity and other internal factors make concrete structures move and crack. Preventing water losses caused by these unavoidable movements is an additional challenge.



Evaporation



Rainfall





The Evolution of Cementitious Membranes by Master Builders Solutions

The evolution

Cement-based waterproofing membranes have been successfully used throughout the last century to prevent the negative influences of water on concrete and other building materials. Master Builders Solutions has been providing cementitious waterproofing solutions for more than 100 years and has used expertise and know-how to set various milestones in the evolution and performance of this technology.

Cementitious membranes

Cementitious membranes are naturally compatible with concrete and mortars and use moisture from the substrate as an adhesion promoter. The latest advances provide durable and sustainable high-performance solutions even when sprayed or manually applied to a thickness of only 2 mm, with improved workability for an aesthetic finish.

The ongoing development of our waterproofing products based on long term experience, is giving rise to a new generation of cementitious membranes, which combines the advantages of this technology with a unique set of features: lightweight, elastic, fast and sustainable.

EVOLUTION

1912

MasterSeal rigid

- » One component
- » Cement matrix
- » Admixtures to improve waterproofing properties

1980

MasterSeal flexible

- » Two components: addition of liquid polymer to a rigid system
- » Flexibility and elasticity depending on the polymer/cement ratio and type of polymer
- » Polymer dosage strongly influences formulation cost

2012

MasterSeal 6100 FX



- » One component, elastic, fast and lightweight
- » High dosage of exclusive polymers and new complex binder system
- » Cost control by consumption reduction through the use of lightweight formulation

2015

MasterSeal 560



- » Two components, high performance and lightweight
- » New complex binder system and selected polymer dispersions
- » Faster, higher elasticity down to -20 °C

**NEW
PRODUCT
GENERATION**

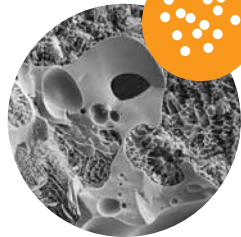


The Innovation in Technology

The unique combination of properties which prolongs the service life of cementitious waterproofing membranes brings the existing technology into a new era.

Keeping the benefits, exceeding the limits

The new generation of cementitious waterproofing solutions by Master Builders Solutions combines the benefits of the cement-based products with the latest advances in polymer technology. The results: stability, rapid hardening, fast internal drying, low shrinkage, flexibility, elasticity and UV-stability – all rolled into ONE component.



Lightweight formulation
Consumption reduction

New complex binder system

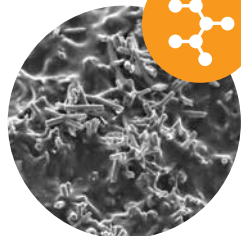
The new binder system is responsible for stability, rapid hardening and fast internal drying. Reaction times have been significantly reduced with binder hydration completed within 24 – 72 h, and no late hydration embrittlement. This new binder system supports high layer thickness without cracking and shows excellent sulphate resistance throughout its service life.



New complex binder system
Quick hardening and long-term stability

High dosage of exclusive polymers

The exclusive polymers are responsible for flexibility, elasticity and UV stability. Polymer particles coat cement grains and aggregates, forming a continuous matrix throughout the structure. This enhances adhesion and cohesion, restrains microcrack propagation and improves the watertightness of the membrane.






Polymer modification
Exclusive polymers at high dosage

NEW GENERATION
Highly-efficient, unique cementitious waterproofing membranes



The New Generation of Cementitious Waterproofing

Benefits translated into savings: MasterSeal 6100 FX and MasterSeal 560 are highly flexible and elastic cementitious membranes, with low consumption and rapid curing.

Features		MasterSeal 6100 FX	MasterSeal 560
LIGHTWEIGHT		85 % Increased yield*	40 % Increased yield*
ELASTIC		-10 °C Elasticity kept even at low temperatures	-20 °C Elasticity kept even at low temperatures
FAST		3 Days Return to service of the structure**	1 Day Return to service of the structure**

* Compared to average performance of traditional cementitious membranes

** Times measured at 23 °C and 65% relative humidity





MasterSeal 6100 FX

The innovation for multi-purpose waterproofing and concrete protection.

Examples of application

The challenge

Special features



Process water reservoir,
Montejo (Salamanca - Spain)

Strong reduction
in material and
in packaging waste

One component
product

1



Cordee Montblanc tunnel
(Italy)

Easy application,
reduced consumption
and elasticity

Reduced consumption
and increased yield
up to +85%



Presa Albagés
(Lleida - Spain)

High watertightness
under pressure

Resistance to 5 bar
pressure with only 2 mm
thickness





MasterSeal 560

The innovation for highly challenging applications in waterproofing and concrete protection.

Examples of application

The challenge

Special features



Cooling tower

Low temperature elasticity and UV stability finish to support dynamic in exterior applications in cold climates

Maintained aspect, watertightness and protection down to -20 °C



Tank for potable water

Application in drinking water tanks

Meets potable water guidelines*



Tank for industrial process water

Quick return to service

Back in service after only 1 day



* Please check local regulations



Sustainable Waterproofing Solutions

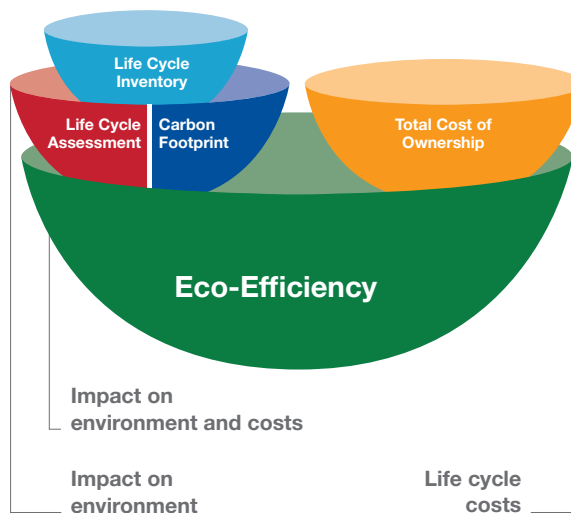
The **Eco-Efficiency Analysis by BASF** is a quantitative tool to measure sustainability. Based on a holistic method, used both internally by BASF since 1996 and by many other companies, it helps you to decide which products are ecologically and economically the best choices for your needs.

From the cradle to the grave

The Eco-Efficiency Analysis compares the life cycles of products or manufacturing processes from "cradle to grave", i.e. all the way from raw material sourcing, to product manufacture, use and disposal.

This involves conducting an overall study of alternative solutions, including a calculation of total costs and an examination of the ecological impact over the entire life cycle.

The Eco-Efficiency Analysis by BASF has been validated by the German Association for Technical Inspection (TÜV Rheinland) and by the American NSF (National Sanitation Foundation).

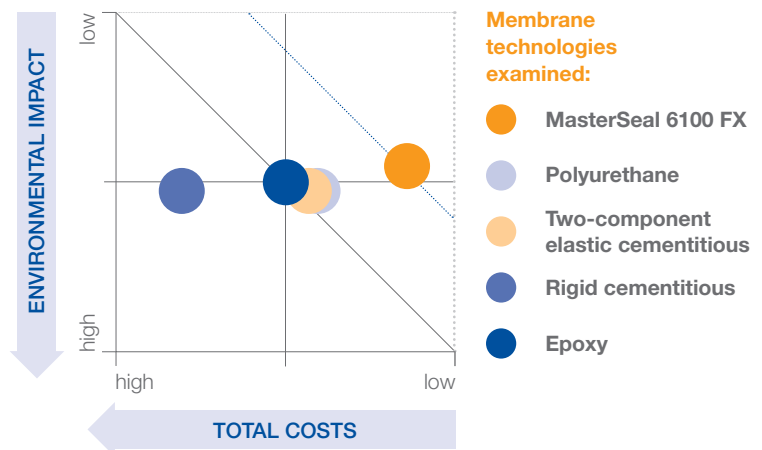


Master Builders Solutions stands for innovation and sustainability and provides waterproofing solutions to harmonise economy and ecology, including the new generation of cementitious waterproofing. The Eco-Efficiency Analysis compared MasterSeal 6100 FX with other waterproofing membrane technologies – the results:

Waterproofing with MasterSeal 6100 FX brings significant cost savings and a high degree of eco-efficiency as it

- Reduces greenhouse gas emissions by up to 70%
- Reduces acid rain emissions by up to 80%
- Reduces summer smog (NMVOC) by up to 90%
- Reduces ozone hole depletion by a minimum of 70%

The Eco-Efficiency Analysis examined a range of waterproofing membrane technologies for a typical reservoir in Europe. The comparison included the application of the membranes and the maintenance thereof over a period of 25 years.





Certified Performance

Complementary tests prove the performance of the new generation of cementitious waterproofing, MasterSeal 6100 FX and MasterSeal 560, applied at only 2 mm thickness.

CHELAB

Applus[®] Laboratories

BASF
We create chemistry

BASF
We create chemistry

TUV SUD

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Belaterra | 14th March 2014
Devisor number | 34/9349-479
Petitioner Reference | PCI Augsburg GmbH
Piccardstraße 11
86159 Augsburg (GERMANY)

TEST REPORT

RECEIVED MATERIAL:
On 28th November 2013, a specimen of coating for the protection and repair of concrete structures was received at Applus Laboratories, with the following references:
MASTERSEAL 6100 FX WHITE

PRODUCTS AND SYSTEMS FOR THE PROTECTION AND REPAIR OF CONCRETE STRUCTURES. Definitions, requirements, quality control and evaluation of conformity. UNE EN 2504-2:2009 Part 2: Surface protection systems for concrete.
1- Behaviour after artificial weathering. UNE-EN 1262-13:2003 4.2 (2000 h)

TEST DATE: From 18/11/2013 to 03/03/2014

RESULTS: See attached pages.

Responsible for Construction Materials
LSAI Technological Center S.A.
(The results included in this document refer exclusively to the indicated materials and are based on tests carried out according to the specifications given.)

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Page 1 - The present document consists of 2 pages long, whereof 2 are appendices.
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Performance: UV-stable white and light grey colors: externally tested after 2000 hours exposure to UV radiation in dry-wet cycles

Performance: Drinking water approvals**

Performance: Resistance to water pressure up to 5 bar (5 atm) and up to more than 2 bar negative pressure*

Performance: Resistant to salts and efflorescence appearance

* Value registered for MasterSeal 6100 FX

** Please check local regulations



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

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

BASF plc

Construction Chemicals

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