



MasterSeal 7000 CR

360° Protection for
Extreme Conditions



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MasterSeal 7000 CR is the waterproofing and concrete protection system with a unique combination of application and performance properties that meet the challenges of aggressive wastewater environments. The performance-proven MasterSeal 7000 CR system significantly extends the life cycle of concrete structures.

Product benefits at a glance:

Specific chemical resistance, including high concentrations of biogenic sulfuric acid*



Excellent curing properties, which reduce downtime



Crack-bridging for gaps of up to 0.7 mm



Proven durability



Fast and easy application by rolling or spray at temperatures from 5°C to 35°C



Maximum moisture tolerance, including application on humid substrates

Fields of application:

Urban and industrial wastewater treatment in both in- and outflow areas

Secondary containment in industrial plants

Biogas plants

Sewage effluent pipes

*"Specific chemical resistance" refers here to the chemical resistance to BSA and also organic acids



Challenges in Wastewater Treatment: Dealing with Aggressive Environments

The concrete infrastructure of wastewater treatment systems is subject to complex physical and chemical corrosion processes. MasterSeal 7000 CR is specially designed to address these challenges.

The complex nature of wastewater treatment and its degradation process creates challenging problems for the surrounding infrastructure. The rate of chemical attack depends on various factors related to the conditions in both the wastewater and the environment and can decrease the pH level below 1 in some cases.

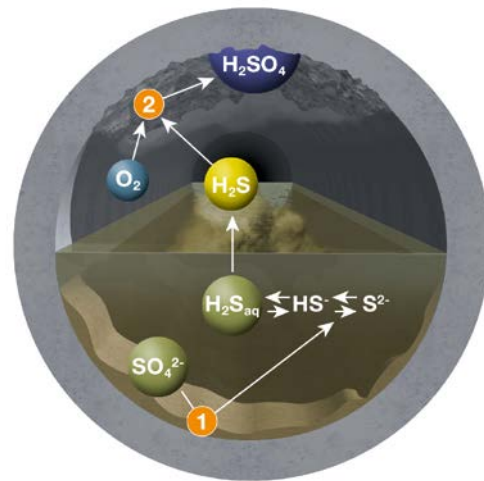
Biogenic sulfuric acid corrosion can lead to structural concrete damage

Uncoated concrete is particularly susceptible to so called biogenic sulfuric acid corrosion (BSA) leading to structural, rather than just cosmetic concrete damages.

BSA corrosion is caused by bacteria from the genus *Thiobacillus*, which metabolizes hydrogen sulfide (H_2S) and liberates sulfuric acid. H_2S is generated in wastewater systems where sulfur compounds are broken down as part of the general microbiological degradation process. This degradation to H_2S requires anaerobic (oxygen-free) conditions for the bacteria to thrive **1**. These conditions can be found where there is minimal airflow, turbulence, or water flow.

BSA corrosion is a result of the second process, in which H_2S is released into the headspace. This release from the water also depends on sewer conditions, such as turbulence. Accumulation of H_2S in the headspace varies with airflow, but even low concentrations are sufficient to promote *Thiobacillus* colonization **2**. Metabolization of H_2S by *Thiobacillus* deposits sulfuric acid directly onto the concrete or iron surface being colonized. Chemical attack then takes place very quickly. On concrete, the expansive generation of salt causes surface erosion, while the decrease in pH of the normally alkaline concrete creates the ideal environment for

successive colonization of *Thiobacilli*. In addition to BSA corrosion in the headspace, chemical attack is also caused by the wastewater itself, either from the organic acids generated as oil and fat are broken down or from other contaminants.



The illustration above represents the different reactions involved in the process of biogenic sulfuric acid corrosion.



Durable for a minimum
of five years – proven
under real conditions

MasterSeal 7000 CR has been tested at the Fraunhofer Institute under conditions that simulate those of a real sewer during 5 years. The results of the test show no significant changes on the properties of MasterSeal 7000 CR.



Xolutec® – Durability by Design

MasterSeal 7000 CR is powered by Xolutec® – Our unique technology developed for improved durability, to solve the problems of demanding environments.

Xolutec® is the result of our development work on advancing PU and PUA materials. The goal was to solve the problems of concrete and steel in demanding environments.

Xolutec® – developed by Master Builders Solutions experts – uniquely combines complementary chemistries. Optimization of the inter phase interactions between the highly crosslinked resin blocks and the separately cured inorganic elements, creates a high-density organic-inorganic material with outstanding characteristics. This network allows the enhancement of various characteristics.

Xolutec® is very low in volatile organic components (VOC) and is quick and easy to apply with both spray and hand application equipment, depending on the requirements. It cures rapidly, even at low temperatures thus reducing application time and enabling fast return to service with minimal downtime.

The technology is insensitive to moisture and tolerates a wide variety of site conditions, greatly expanding the application window while reducing the potential for delays and failures.

Long maintenance cycles and lower life cycle costs significantly reduce the total cost of ownership.

Xolutec® enables a wide variety of solutions with enhanced durability.



MasterSeal 7000 The Solution for

MasterSeal 7000 CR fully bonds to:



Steel



Concrete (with primer
MasterSeal P 770)

MasterSeal 7000 CR is suitable for:



Horizontal,
vertical and
overhead
application



In- and outdoor
application



The two MasterSeal 7000 CR colors – red and grey – allow safe application even in environments with poor visibility.

CR

Extreme Challenges

1 Primer
MasterSeal P 770

Thickness (approx.)
0.25 mm

Consumption (approx.)
0.3 kg/m²

2 Membrane
MasterSeal M 790

Thickness (approx.)
0.7–0.8 mm

Consumption (approx.)
0.8–1 kg/m²

With its unique combination of application and performance properties, MasterSeal 7000 CR is the right solution for waterproofing and protecting wastewater treatment concrete structures and sewers.

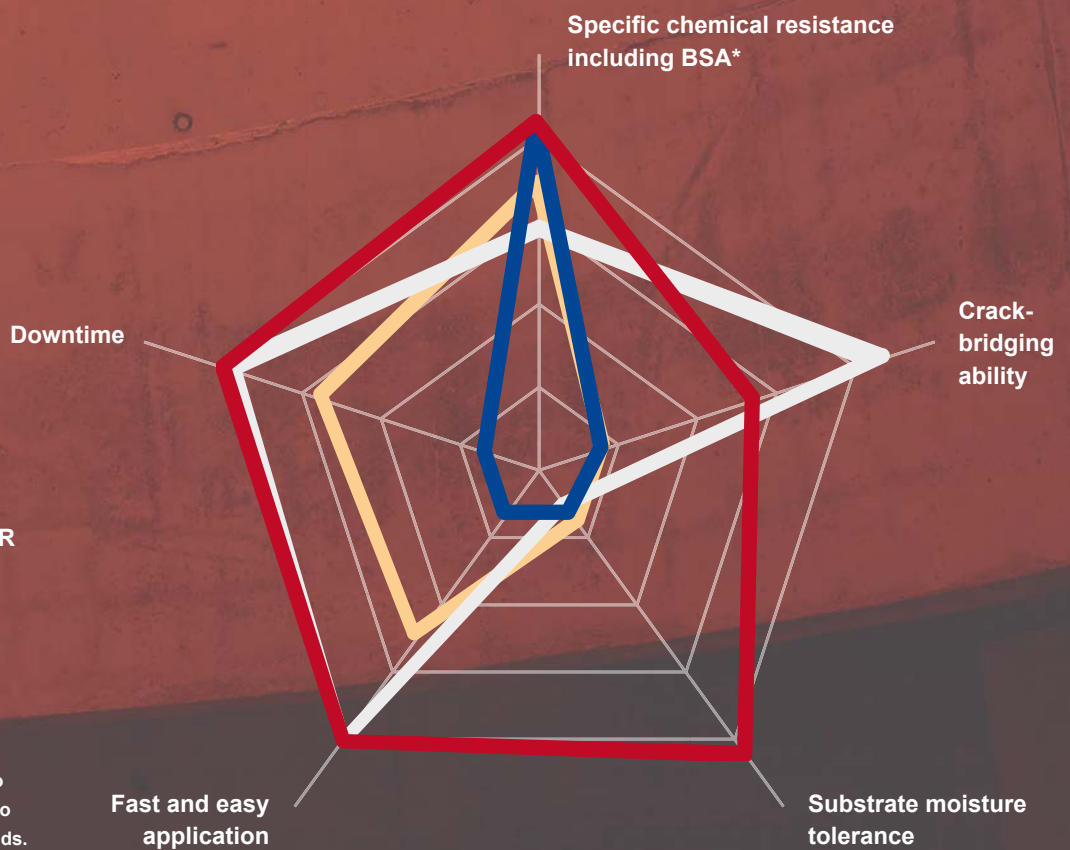
Performance

MasterSeal 7000 CR's high resistance to abrasion and biogenic sulfuric acid corrosion are ideal to withstand the severe conditions that occur in pretreatment and aeration tanks, digesters, or sewers. Its dynamic and static crack-bridging abilities protect concrete from cracks thus prolonging the structure's life cycle.

Application

The easy application of MasterSeal 7000 CR by spray or roller, as well as its compatibility with damp substrates, suit the conditions of wastewater facilities particularly well. Downtime – which is always critical when stopping a wastewater process – is also reduced because of its fast-curing properties that allow contact with water only 24 hours after application at 20 °C.





* "Specific chemical resistance" refers here to the chemical resistance to BSA and also organic acids.



Your Access to More Support and Relevant Information



Discover more about MasterSeal 7000 CR

<https://masterseal-7000cr.master-builders-solutions.com>



Plan your wastewater treatment project in an easy, fast and smart way

It takes only three steps to create a customized specification report of your project with our Online Planning Tool. Plan and organize your construction challenge, define your working area, and get a detailed project report – whether from your PC in the office or your tablet on site.

online-planning.master-builders-solutions.com



Technical support and services

Our Master Builders Solutions experts collaborate across multiple areas of expertise and regions to draw on the experience gained from countless construction projects worldwide. Our knowledge and skill are available to you from the conception through to the completion of your construction project.



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 hydrophobization, anti-efflorescence and surface protection

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

MasterSphere

Solutions for guaranteed freeze-thaw resistance

MasterSuna

Solutions for sand and gravel in concrete

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



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.

sustainability.master-builders-solutions.com



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