# MC aktiv

MC-BAUCHEMIE
MAGAZINE **2-2020**

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## Ladies and Gentlemen:

***It's been seven years since MC aktiv – the magazine dedicated to our employees and customers – underwent a face lift. And its basic layout and structure have actually existed for almost 15 years.***

*So an MC aktiv redesign and relaunch have long been on our agenda. We have increased the page count to 20, created new sections such as "Big Picture", "Inspiration" and "Sustainability", and have adopted a modern and more magazine-like layout to offer you an aesthetically attractive and – we hope – even more reader-friendly periodical.*

*Although we have created much that is new, we have remained true to ourselves. We have retained the title "MC aktiv". As a brand firmly established in the minds of our readers, it serves to convey the fact that we report on a broad range of MC activities. As before, we will be providing you with informative project reports and news items. But our aim was also to offer you a more colourful mix of topics, even more benefits and inspiration, and perhaps also a smattering of entertainment.*

*So it gives me great pleasure to present to you this, the first of our new-look issues of MC aktiv – and I am sure that, with it, we will be giving you an even better read - we hope you enjoy it!*

*Kind regards,*
*Dr.-Ing. Claus-M. Müller*

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# MC DONATES DISINFECTANT

**500 LITERS OF DISINFECTANT HANDED OVER TO BOTTROP CITY COUNCIL**

As the coronavirus pandemic really began to take hold, medical and charitable institutions experienced an acute need for disinfectant. There was a serious shortage, and procurement in some cases became very difficult. It was the MC employees who, in the end, put forward the donation plan to the management, with the latter immediately concurring.

**Donation idea from the staff**

The team led by plant manager Michael Schilf, head of R&D John van Diemen, head of in-process control Dr. Dörte Bartel and business development manager Björn Kracht took care of the production and filling of the batch. On 9 April 2020, the MC team handed over the 100 five-litre containers of disinfectant to the Mayor of Bottrop, Bernd Tischler, who had visited the company's Am Kruppwald site especially for this purpose.

"We hope that this donation will provide at least some assistance in the current crisis," said Nicolaus Müller, Managing Director of MC-Bauchemie GmbH & Co. KG. "Both our employees, who proposed this action, and we as a company feel closely connected with the city and the region and want to do what we can to support them in battling this pandemic."

For further information, please go to our webpage:
https://bit.ly/3iXPl5T

## STRYKER DONATES DEFIBRILLATOR TO MC

June 2019 saw first-aiders from MC save the life of our long-time gate security guard Mieczyslaw Pacanowski as he suffered a heart attack. As part of its "Forward Hearts" campaign, the Stryker company rewards such successful resuscitation outcomes with a free defibrillator.

Hans-Peter Marten (left), Area Manager North Germany at Stryker GmbH & Co. KG, Duisburg, visited MC in Bottrop on 16 June 2020 and presented the new defibrillator to Mieczyslaw Pacanowski (right).

For the whole story, please go to our webpage:
https://bit.ly/2FwzCMz

## FoE CARPARK: NEW WEBSITE

Our "Carpark" Field of Expertise (FoE) has revamped its website on our homepage. It now offers even more technical information covering our system solutions for vehicle park applications. Car park coatings in particular have been given a thorough information make-over with extensive details provided on the applications covered and the system structures required. The offering is rounded off with a How-To section, reference projects, news and brochure downloads.

For further information, please go to our webpage:
https://bit.ly/327Yz8P


## SUPPLY CAPABILITY ASSURED

For some months now, the coronavirus pandemic has put the world on hold. We took precautions early on to protect the health of our employees, our customers and our business partners as well as to safeguard our production and supply capabilities. We are proud to say that our support for our customers, partners and subsuppliers was always assured, with our teams constantly available and ready to help. And we will be doing everything we can to keep it that way!

Photo: Anne Bartz

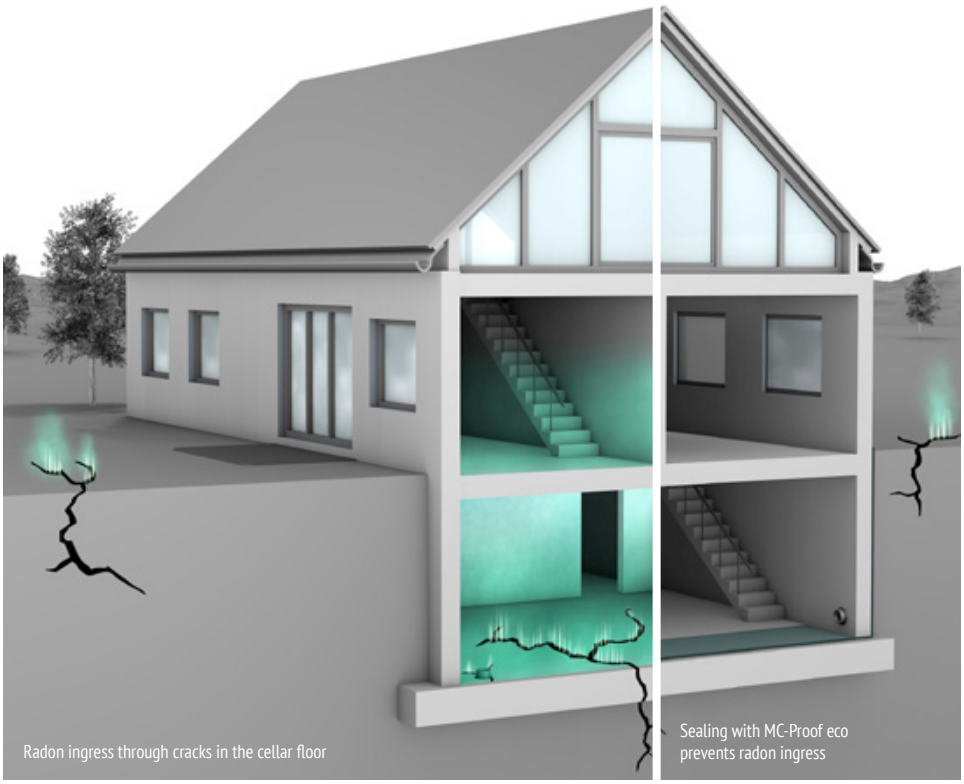
## Tropical Islands

# MC-DUR IN DURABILITY TEST

*The Tropical Islands holiday resort has remained one of the German province of Brandenburg's most popular attractions for over 15 years. The closure of the facility forced by the coronavirus crisis was utilised from March to June 2020 to rehabilitate some of the floors.*

*In the "South Seas" adventure zone, the sunbathing areas, corridors and stairways were given a new surface coating from MC-Bauchemie over an area of approx. 3,000 m². With up to 6,000 visitors a day placing the floors under duress, owners Tropical Islands GmbH were keen to make the most of this refurb opportunity. In addition to the tropically humid atmosphere, the abrasion caused by the constant transfer on visitors' feet of sand from the South Seas beach area meant that the floor surfaces were literally ground down. The chosen contractor, specialist floor refurbers Maertin Bausanierung GmbH, approached MC in an effort to find a suitable solution offering permanent surface protection. Ultimately, the choice went to the resilient epoxy resin coatings of the MC-DUR system, with which the project was successfully completed within the time frame set by the client.*

For further information, please go to our webpage:
https://bit.ly/2EgKVbk



Radon ingress through cracks in the cellar floor

Sealing with MC-Proof eco prevents radon ingress

# MC-PROOF ECO IS RADON-TIGHT

Present in numerous regions around the world, radon gas occurs in varying concentrations in the soil and will enter into and accumulate within building interiors unless prevented from doing so by an impermeable barrier. Radon is dangerous as it can indirectly cause lung cancer, so it is essential to ensure that this radioactive gas is prevented from ingress into living spaces. Bitumen-free reactive waterproofing sealant MC-Proof eco (formerly Expert Proof eco) from MC has a high crack-bridging capacity and, in a coating thickness of 4 mm, is radon-tight, as was recently confirmed in a proving test. The test certificate was issued in January 2020.

For further information, please go to our webpage:
https://bit.ly/32eZ8hk

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## LONG-LASTING MOISTURE CONTROL

*MC's new Elegant MRP moisture regulating plaster and render is suitable for low-salt-laden and damp masonry up to a moisture penetration level of 95%.*

With its special pore geometry, it ensures permanent and effective dampness control, imparting an aesthetically pleasing appearance to the surface without any impairment to its primary function. Elegant MRP can be used indoors and out and is ideally suited for the ecological restoration of cellars and living spaces as well as for the rehabilitation of historical and listed buildings.

For further information, please go to our webpage:
https://bit.ly/2FFUQI6

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# THE UNIQUE BENEFITS OF EMCEFIX FLOOR

*In 2019, MC launched Emcefix floor, a new cement-bound fine filler for the cosmetic retouching and durable repair of screed and concrete floors.*

It is classified as an R3 mortar in accordance with EN 1504 Part 3. It is therefore also suitable for the repair of structurally relevant areas and exhibits high resistance to freeze-thaw cycling and de-icing salts – attributes that have recently been confirmed in a series of tests. Suitable for use both indoors and out, the fine filler thus offers a unique selling proposition in the marketplace.

For further information, please go to our webpage:
https://bit.ly/2EhNqdh

**Tim Hillringhaus**
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Surface finish for wide areas


Prewetting


Application of the coarse filler


Application of the fine filler


Final rubbing for a smooth finish

# FACE-LIFTING SOLUTIONS FOR CONCRETE SURFACES

*When visible blemishes occur in concrete, it is good to know how they can be corrected. With MC concrete cosmetics and retouching solutions, you can turn a flawed vision into a truly fair-faced surface.*

The visual appearance of a concrete surface is decisively influenced by technological and processing aspects. In addition, there are external factors such as the mix of outside temperature, air humidity, sun exposure etc. as well as the curing treatment applied and any additional measures taken to protect the finished surfaces.

But if things do not run smoothly – which is often the case in the presence of so many eventualities – don't despair. Because MC's fillers Emcefix and Nafuquick together with our Repacryl concrete retouch and glaze system will iron out even the most unsightly defects. Concrete surfaces with flaws such as spalling, chipped edges, gravel pockets, pores, blowholes, colour differences or soiling can be transformed into impressive fair-faced exteriors.

The Nafuquick range comprises fine to medium-fine universal fillers suitable for simple optical requirements. If the surface is to be absolutely immaculate, we recommend our Emcefix system. It consists of bonding agents, coarse and fine fillers and super-fine fillers for an extremely high-grade finish.

To maintain this high-quality exposed concrete appearance long-term, the use of a concrete glaze is essential. And here you can rely on Repacryl as a retouching and glazing system that produces the best results. This allows you to treat filled and non-filled surfaces in such a way that a homogeneous, clean and high-quality – yet still natural-looking – fair-faced concrete appearance is created for the onlooker. But be aware: Application requires not only craftsmanship but often also creativity.

For application tips, please go to:
https://bit.ly/2Q6DG8v

For further information on these products, please go to our webpage:
https://bit.ly/2FFV8ia

## DESIGNER FINISHES WITH EMCEFIX FLOOR

With Emcefix Floor we offer you a cement-bound fine filler enabling you to combine durable repairs with an attractive aesthetic appearance. You can use it not only to upgrade screed and concrete floors, steps and landings – both indoors and out – but also to create beautiful yet still resilient designer finishes. Take a look at our latest video to see what is possible!

You can access the application video here (in German only):
https://bit.ly/303INvO

View of the taxiways and hangar aprons of Brisbane West Wellcamp Airport in Australia.
They were built with geopolymer-based "Earth Friendly Concrete" from WAGNERS, modified with admixtures from MC.

*Sustainably effective concepts are becoming increasingly in demand worldwide as a means to mitigate climate change. In the field of construction, too, there are important contributions that can be made to securing the future of mankind. The world's population is still growing inexorably, with living space already at a premium. Climate-kind concrete can go a long way to significantly improving the carbon footprint of the entire industry. And MC too is in the vanguard of related research.*

Climate change is a reality and the measures needed to arrest its progress are undisputed: First and foremost it is about cutting $CO_2$ emissions. In particular, there is a huge onus on industry to effectively reduce its output of this, the number one greenhouse gas. Much has happened in this regard within the construction sector in recent years under the heading of "sustainable building" – and there is still plenty of scope for exponential progress.

Construction today relies heavily on concrete. And one of its main constituents is cement. Depending on which data sources you read, global cement production accounts for between five and eight percent of the world's $CO_2$ emissions. Currently, around one tonne of the greenhouse gas is released per tonne of cement. This $CO_2$ balance results from the technically unavoidable deacidification of the limestone, the burning (calcination) of the cement clinker, and the power used by the grinding process.

**The world needs concrete**

Of course, our modern world is unthinkable without concrete, because the need for buildings and infrastructure is ongoing, and concrete structures are durable. As a material, concrete offers many advantages: It is malleable, structurally stable and inexpensive, so there is really no alternative to it as a general-use building material.

Photo: WAGNERS, Toowoomba, Australia

The taxiways and hangar aprons were built using the slipform construction method.

# CLIMATE-KIND CONCRETE
## A KEY BUILDING BLOCK FOR THE FUTURE


Photo: WAGNERS, Toowoomba, Australia

Intensive efforts are therefore being made worldwide to further reduce the carbon footprint of concrete. Using secondary fuels for the rotary kiln is one major improvement in this respect. And now another can be achieved by reducing the clinker content in the cement, for instance by using granulated blast furnace slag and limestone powder. However, new compositions such as this bring with them new challenges.

**Climate-neutral concrete**

The company Holcim is able to supply a concrete mix that can significantly reduce its carbon footprint as a construction material. At the end of April, Holcim Beton und Betonwaren GmbH delivered its first climate-neutral concrete in the form of Holcim EcoPact Zero, in which MC concrete admixtures are a key ingredient. Holcim EcoPact is suitable for all components in building construction, from foundations and exterior and interior walls to stairways, roofs and ceilings. For the construction of the new Rheinauen NABU nature conservation centre in Bingen (Rhineland-Palatinate), Holcim truck mixers delivered around 280 cubic meters of the construction material to the site adjacent to the river Rhine. Optimised composition means the $CO_2$ balance of Holcim EcoPact is significantly reduced. (See also the interview on page 12)

**Recycling in concrete production**

Holcim is not the only company for which environmental and climate protection is playing an ever-increasing role in its decision-making. In almost all ready-mixed concrete and precast concrete plants in Germany, residual concrete and residual water are recovered, processed and reused. Legislators are also demanding the use of recycled aggregates, helping to drive a trend that will undoubtedly gain further traction in the coming decades. Ultimately, the availability of primary raw materials such as gravel and sand is finite, and the amount of fly ash in Germany, for example, is also steadily declining with the abandonment of coal-based electricity generation. The concrete industry is acutely aware of these changes in the economic and environmental landscape and is seeking out alternative raw materials for concrete production. Plasticisers that also function with

### RESEARCH PROJECT "KOINOR"

**Ruhr University Bochum, STUVA, PORR Bau GmbH and MC have together initiated the research project "KOINOR", in which they are developing concepts and procedures for upgrading and refurbishing underground transport structures. Over 50 % of German railway tunnels have been in service for more than 100 years now and no longer meet current safety standards such as modern fire protection regulations.**

**MC is therefore developing a range of protection and repair systems based on geopolymers, materials which – by their very nature – offer high fire and thermal resistance. They can be machine-applied using both the wet-flow and dry-flow techniques. Initial pilot trials in the Kuckuckslay Tunnel in Trier have already yielded good results pertaining to the bonding behaviour of the system with the substrate, namely the tunnel inner shell.**

**The KOINOR project is funded by the Federal Ministry of Education and Research (BMBF) under the auspices of its "Research for Civil Security" programme.**


View of Pinkenba Wharf in the port of Brisbane, Queensland, Australia. It was built with prefabricated components made of geopolymer concrete, which is fully sulphate-resistant and highly acid-resistant.

these new materials are thus destined to become increasingly important.

**MC-PowerFlow evo for technological challenges in concrete development**

MC-Bauchemie has launched MC-PowerFlow evo, a new generation of superplasticisers that enable the technological challenges associated with this kind of eco-friendly concrete to be overcome. These are synthetic flow enhancers manufactured in MC's own production facilities on the basis of a patented process derived from our proven PCE polymer technology. Categorised as high-performance superplasticisers, they are ideally suited to the production of ready-mixed concrete and precast elements, free-flowing and self-compacting concretes, and also to combination with clinker-optimised cements. They exert a liquefying effect that ensures fast and cost-efficient concrete production. And because they can also be combined with alternative starting materials such as clinker-optimised binders, recycled material and water, or lower-quality raw materials, they also contribute to environmental and climate protection. (See also report in MC aktiv 1/2020)

**Cement-free concrete based on geopolymers**

Geopolymers are a viable alternative to cement. They contain blast furnace slag, fly ash and other latent hydraulic and pozzolanic substances as binding agents. Like normal concrete, polymer concrete also contains aggregates. The binder is activated by certain additives. Previously it was not possible to install such concretes in large quantities due to the short reaction time involved in this process. Together with WAGNERS, Australia, MC-Bauchemie has developed concrete admixtures which ensure that the required processing properties are maintained – representing a true milestone in concrete technology!

**Earth Friendly Concrete a proven success**

The resultant "Earth Friendly Concrete" (EFC) was successfully used in the construction of Brisbane West Wellenkamp Australia (BWWA) Airport. Development of this geopolymer concrete to mature applicability took 10 years to complete. During the last four years of this phase, WAGNERS worked closely with MC-Bauchemie on the development of superplasticisers to create the application properties required for efficient EFC installation. Conventional concrete admixtures are completely ineffective in such binder systems, so that a completely new admixture technology had to be developed. The geopolymer concrete offers a number of significant technical advantages: It is fully resistant to sulphates and highly resistant to acids, has minimal shrinkage and low thermal expansion. Any sulphate exposure actually has an additional strengthening effect on this geopolymer concrete, serving to further increase its resistance and resilience. It is therefore ideal for use in structures subject to aggressive chemical attack, such as sewage treatment plants or chemical production facilities, plus – of course – infrastructure projects. After extensive testing to verify suitability and durability, EFC was used to construct BWWA's taxiways, turning nodes and hangar aprons over an area of more than 50,000 $m^2$. The concrete was produced near the construction site in a mobile mixing plant and installed using a conventional slipform paving machine. The pavement structure is impressive both technically and due to the fact that using EFC meant the avoidance of 6,600 tonnes of $CO_2$ emissions. MC's expertise and concrete admixture technology was a major driver in the development of this innovative material.

**World's first cement-free backfill grout for tunnel construction**

A unique geopolymer-based technology, jointly patented by MC and PORR GmbH in Germany, has already been used in the Stuttgart 21 megaproject. The consortium ATCOST21 responsible for constructing the railway tunnel for this project approached MC and together we developed a special geopolymer for use in anhydrite-containing rock formations: the new backfill grout MC-Montan Grout AA 03. Its unique selling proposition is that it combines the advantages of a single-component (1C) grout with those of a two-component (2C) grout through the flexible use of an activator. The grout also contains complex phosphates which influence the solution equilibrium of the anhydrite in such a way that swelling is inhibited. It thus ensures optimum tunnel tube bedding properties together with exceptional sulphate resistance.

**Bright future for geopolymers**

Geopolymers offer many advantages and are already in use in various applications. They are more thermostable than conventional concrete due to the fact that the water bound in the latter gives rise to steam pressure in the event of a fire, with cracking and spalling an inevitable result. Geopolymers are more resistant to chemicals because they do not contain lime, which dissolves on contact with acids and other aggressive substances. After just one day, geopolymers develop similar compressive strengths to high-strength concrete. They can be quickly stripped from their form setup and are suitable for the mass production of prefabricated parts. They are particularly ideal for (steel-reinforced) concrete components likely to be exposed to aggressive acid or sulphate attack, such as sewage treatment plants, sewerage pipes or components in sulphate-containing (ground) water. By making use of secondary raw materials such as granulated blast furnace slag or fly ash, they also significantly reduce the burden on the environment.

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# OUR $CO_2$-NEUTRAL CONCRETE IS CALLED ECOPACT ZERO.

## "Construction is becoming increasingly digital and sustainable."

*Thorsten Hahn*


**Against the background of climate change, there are high expectations of industry to reduce $CO_2$ emissions. And the construction sector is no exception. Holcim (Deutschland) GmbH is aware of this responsibility and has placed sustainable development at the heart of its business activities. At the beginning of the year, the building materials manufacturer launched Germany's first climate-neutral concrete under the Holcim EcoPact Zero brand. We spoke to Thorsten Hahn, Chairman of the Executive Board of Holcim (Deutschland) GmbH, about this development.**

> **For many years now, the sustainability imperative has determined the way in which we at Holcim operate in Germany.**

**At the beginning of the year, you launched two new products onto the market: Holcim EcoPact and Holcim EcoPact Zero. What is special about these construction materials?**
Under Holcim EcoPact, we market a range of concrete types of optimised composition with particular emphasis on reducing $CO_2$ emissions. The use of cements with reduced clinker content and the optimisation of the binder fraction play a key role in this regard.

Our $CO_2$-neutral concrete is called EcoPact Zero. The carbon footprint that is still unavoidable today is fully offset in the case of EcoPact Zero through our support for various certified environmental projects.

**What advantages do these new concretes offer the construction industry and where can they be used?**
Low-$CO_2$ construction is one of the great challenges of our time, with many processes today adapted to and reliant on concrete. Classic concrete construction methods therefore also need to evolve with a view to exploring all potential avenues to $CO_2$ reduction. With EcoPact and EcoPact Zero, we supply the construction industry with $CO_2$-reduced or climate-neutral building materials that are suitable for all structural components in building construction – from foundations to exterior and interior walls, stairways, roofs and ceilings.

**What do you mean when you talk about sustainable development as a core element of your business?**
For many years now, the sustainability imperative has determined the way in which we at Holcim operate in Germany. Climate protection, the circular economy, water and nature play a key role in our approach, especially when it comes to cement production.

For many years now, we have been committed to ensuring environmental compatibility in the manufacture of our products. In order also to promote sustainability in construction and appreciably reduce our carbon footprint, we need to implement changes not only in production but also in the product portfolio for precast concrete components, concrete and cement itself. Hence we strive to make our customers more aware of their responsibility to consider $CO_2$-reduced products wherever they can.

**A glance into the future: How will construction look in 15 years' time?**
Construction is becoming increasingly digital and sustainable. In the future, the emphasis will be on model-based, cooperative and efficient working methods in all project phases, from planning, construction, operation and maintenance to dismantling and recycling. Networked data systems enable us to take a holistic view of the entire life cycle of a building and increase its economic efficiency over its lifespan. We will also see the first major construction sites using robot technology enabling automated construction progress. Here, too, BIM will be a major factor driving the process. Added to this, we expect to see our customers moving over to $CO_2$-reduced products – because the overriding goal will always be to significantly improve the carbon efficiency of buildings and infrastructure constructions over their entire life cycle.

** BIM stands for Building Information Modelling*

For further information on Holcim please go to:
https://www.holcim.de/de


Photo: DGNB

Courtyard of the DGNB head office complex


Photo: swencarlin.com

Offices within DGNB HQ

DGNB certification visual (central image): Illustrative example of how a building is assessed on the basis of up to 40 sustainability criteria.

# SUSTAINABILITY IN CONSTRUCTION

**Modern building is very much focused on sustainability. Over the past 20 years, this topic has become increasingly important in construction planning and execution. The aim is to minimise the consumption of energy and resources – from raw material extraction to construction and, ultimately, dismantling and recycling.**

A further general aim is to increase the useful life of a building, and indeed more and more clients are realising the importance of sustainable construction and having their buildings certified accordingly. As a manufacturer of construction chemical products, MC-Bauchemie also makes a contribution to ensuring sustainability in building construction. MC aims to use and supply sustainable product systems that will extend the useful life of a building or part of a building while also improving protection for the environment – be it through special concrete admixtures with which concretes can be produced from recycled materials, through truly cement-free concretes, through sealants, concrete release agents, plasters, renders and mortars or through special surface protection coatings. These products have no environmentally harmful emissions and contribute significantly to the sustainability balance of a building through higher durability, lower inspection and maintenance costs and also a reduced cleaning requirement where applicable. Some products are also listed in the DGNB Navigator of the German Sustainable Building Council (DGNB e.V.), thus underlining their eco-friendly credentials.

**DGNB – solutions for sustainable planning**

The DGNB was founded in 2007 and is today Europe's largest network for sustainable construction with around 1,200 member organisations, including MC-Bauchemie. The aim of the association is to promote sustainability in the construction and real estate sectors and to increase awareness of its imperatives in the minds of the general public. With the DGNB certification system, the independent non-profit organisation has developed a planning and optimisation tool for evaluating sustainability in buildings, in interiors and in entire neighbourhoods, thus helping to increase genuine sustainability in construction projects.

What all members of the DGNB have in common is their interest in and willingness to actively work for more sustainability in the construction and real estate industries. And there are many hundreds of experts from the member organisations who are involved in the various DGNB committees on a voluntary basis. Together, they continuously develop the DGNB certification system and provide impetus to maintain the focus on sustainable building. The association cooperates with numerous national and international partners and supports a wide range of initiatives that work towards greater sustainability in the built environment.

For further information on the DGNB, please go to:
https://www.dgnb.de/en/

BIO-DEGRADABLE

## BIO SEAL FROM MC

SUSTAINABLE RELEASE AGENTS

With Ortolan concrete release agents from MC, formwork can be stripped from the concrete smoothly and without residue for the achievement of flawless concrete surfaces. Both the release agents of Ortolan Bio and some of the Ortolan Basic, Classic and Extra lines also meet the highest environmental standards and related DGNB criteria. They are quickly biodegradable and therefore carry the MC "Bio" seal.

# MC'S ENVIRONMENTAL STATEMENT


**MC-Bauchemie submits to eco-audit system according to European standard.**

Each year for more than two decades, MC has voluntarily participated in an EMAS eco-audit by an EMAS-accredited environmental verifier, with the results then being published in an environmental statement. This provides information on site-specific environmental indicators, environmental goals and measures instituted to achieve them. Within this framework, MC has set up environmental programmes aimed at continuously reducing energy consumption and effectively decreasing perceived impact and the burden on the environment. In addition, the employees of MC undergo regular training to enhance their environmental awareness.

EMAS

## EMAS-CERTIFIED

ECO-AUDIT SYSTEM OF THE EU

Known variously as the EU Eco-Audit or simply the Eco-Audit, the Eco-Management and Audit Scheme (EMAS) was developed and introduced by the European Union as a Community-led vehicle for organisations that want to improve their environmental performance. The EMAS Regulation (Eco-Management and Audit Scheme) assigns a key role to the individual responsibility of industry in managing its direct and indirect environmental impacts. Certification extends not only to companies but also to other kinds of organisations.

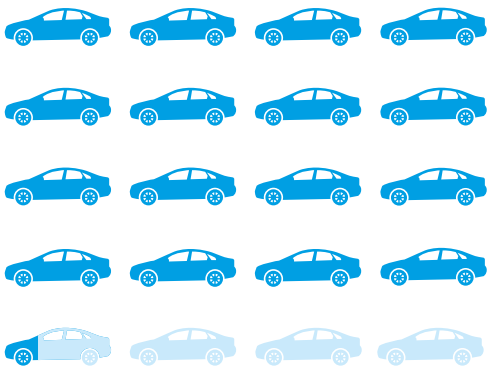
# ENVIRONMENTAL AND CLIMATE PROTECTION THROUGH RECYCLING

**The recycling of used materials is playing an increasingly important role in environmental and climate protection. And it is an area in which the onus is very much on business and industry in particular to make a meaningful contribution. MC-Bauchemie is committed to the cause: For many years we have insisted on using packaging materials that are as environmentally compatible and climate-friendly as possible. By using kraft paper bags, which are recycled via the REPASACK take-back system, MC last year produced savings in Germany of 344 tonnes of primary raw materials such as fresh wood fibres for paper production, and more than 32 tonnes of greenhouse gases*.**

** Source: Certificate resources SAVED 2019 / Calculation methodology: Fraunhofer UMSICHT*

*1 HGV (18-tonne truck) = 10 tonnes payload*

*Annual savings of 344 tonnes of primary raw materials in Germany*



*1 passenger vehicle = 2 tonnes of emissions*

*Annual savings of more than 32 tonnes of greenhouse gases in Germany*

*$CO_2$ emissions per passenger vehicle, calculation based on 10,000 km/year, with an (assumed) consumption of 7.2 litres of fuel/100 km*
*Source: https://bit.ly/2X3Tehe*

## FLOOR REFURBISHMENT AT CHARITÉ BERLIN HOSPITAL

View from Augustenburger Platz of the Virchow Hospital Campus of Charité Berlin

# HIGH-SPEC SCREED FOR SUPPLY TUNNELS

**The floors of some of the supply tunnels serving the Virchow Hospital Campus of Charité Berlin were in need of rehabilitation. Thanks to optimally matched MC products, a load-bearing screed with high surface hardness was installed within just two weeks.**

The buildings on the campus are connected via underground supply tunnels through which medical equipment, food, etc. are conveyed by industrial truck. The wear and tear caused on the tunnel floors through usage over a good 20 years was such that portions of them had to be completely refurbished. The Charité administration commissioned the Berlin-based company Bahnsch GmbH as general contractor to carry out the work. Bahnsch worked in close cooperation with MC area manager Steffen Sünboldt and master screed layer Mike Köhnke in determining the structure of the screed system. The screed-laying firm selected to perform the installation work was SOKO Fussboden GmbH of Elmenhorst/Lichtenhagen in the province of Mecklenburg-Vorpommern.

Screed-laying in a supply tunnel of the Virchow Hospital Campus run by Charité Berlin

### Tunnel floors completely rehabilitated

Initially, a section of about 500 m² of the underground supply tunnels was to be replaced. The client required a bonded screed between six and 12 centimetres thick with a strength of > 40 N/mm², which was to be released ready for full-load transport operations as quickly as possible.

First, the old screed was removed down to the load-bearing concrete. The remaining substrate was then prepared for the new floor system by shot-blasting. Because the substrate was not particularly absorbent and needed a good bond, MC-Estripox pro – a product characterised by particularly good adhesion to mineral substrates – was chosen as primer and bond coat in one.

### The ideal solution: MC's rapid-set cement

The screed was then laid on top using the fresh-in-fresh technique. Due to its low shrinkage behaviour, MC-Floor TurboCem was used to achieve the required layer thickness and strength. This fast-setting cement combines long working times with very rapid strength development. Graded CT-C50-F7 according to EN 13813, MC-Floor TurboCem has higher compressive and flexural strength values than standard screeds. It is installed earth-moist, can be walked over after only four to six hours, and after just 24 hours exhibits a compressive strength of > 20 N/mm² and a residual moisture content of < 3 %. Just one week later the carbon-fibre-reinforced, mechanically highly resistant MC-Floor Connect ST joint profiles were installed.

### Exceptional appearance and protection with MC-Estrifan Color Protect pro

The entire screed was then primed with MC-DUR 1177 WV-A. The two-component, water-dispersed epoxy resin is the ideal bond coat between screed and sealant and can also be used on matt-damp mineral substrates. The top seal was applied in two layers using MC-Estrifan Color Protect pro.

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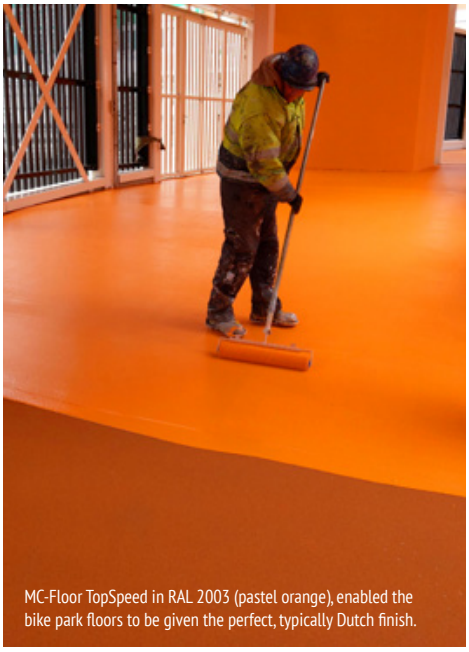
## BIKE PARK ZAANDAM

# MULTI-STOREY PARKING JUST FOR BIKES

**The Dutch town of Zaandam has had a new multi-storey with around 1,400 parking spaces built at its railway station. It's a project of some uniqueness in that the facility has been built not for motor vehicles but exclusively for bicycles. With installation of the floors and the entry platform to the adjacent railway station having been planned for the winter months, the coating systems of MC were able to successfully showcase their strengths.**



MC-Floor TopSpeed in RAL 2003 (pastel orange), enabled the bike park floors to be given the perfect, typically Dutch finish.

*The town of Zaandam with its approximately 70,000 inhabitants is located in the province of Noord-Holland, not far from Amsterdam on the river Zaan. As everywhere in the Netherlands, the infrastructure for cyclists is well developed here. And construction of a new multi-storey bicycle parking facility directly at the railway station is indicative of the municipality's commitment to the promotion of alternative modes of mobility.*

**Floor coating in winter**

Local planners nunc architecten scheduled the coating work on the floors of the newly built multi-storey bike park for December 2019 and January 2020, i.e. right in the middle of winter. It was less likely to be very cold at that time, but conditions were certainly going to be extremely wet. The coating system for the facility floors therefore had to offer easy application regardless of the expected weather conditions. Even more challenging was the fact that most areas had to be finished ready for access within 2 hours. In addition to high slip resistance and good cleanability, the specifications included an orange colour scheme.

**MC-Floor TopSpeed: The coating for all seasons**

Together with the general contractor, Hegeman Bouwgroep from Almelo, and the application company, Coaton BV based in Assendelft, the planners decided to coat the bike park floors with an MC-Floor TopSpeed system featuring KineticBoost Technology®. Thanks to the effectiveness of this groundbreaking technology, the products of the MC-Floor TopSpeed system significantly expand the range of applications for floor coatings, as they can be used even at low temperatures down to 2 °C and under conditions of high air humidity and significant moisture in the substrate. This allows the coating work to be executed under adverse weather conditions and ensures fast and reliable curing regardless of the presence of moisture – always a major factor influencing cost effectiveness.

**Reliable, fast system build-up**

The reactive resin MC-Floor TopSpeed SC, which also meets the requirements for OS 8 and OS 10 surface protection systems for car parks according to German code DAfStb Rili SIB 2001 and EN 1504-2, served as the primer. In areas of the entry platform to the railway station where rapid full-load accessibility was not required, the contractor used MC's proven MC-DUR Rapid primer F. A sprinkling of grey quartz sand for the entry platform and orange quartz sand for the bike lockup areas was applied to the primers. The top seal chosen for the entry platform floor areas was MC-Floor TopSpeed M, which provided a high-quality matt-transparent finish. MC-Floor TopSpeed in RAL 2003 (pastel orange) enabled the bike park floors to be given a perfect, typically Dutch finish.

The Zaandam project saw round 2,000 m² of floor area coated with MC systems – to the full satisfaction of all involved. Fast, safe, reliable and of visibly high quality, MC-Floor TopSpeed truly delivers, even under wintery environmental conditions.

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# A STAND-OUT LANDMARK

## Rehabilitation of Caracău Bridge in Romania

*The Caracău is the largest concrete arch bridge in Romania. Completed in 1946, the railway viaduct underwent extensive renovation from 2018 to the end of 2019, with MC products not only used for the repair work but also for the protection and subsequent visual enhancement of the structure.*

The Caracău Bridge connects the Romanian provinces of Transylvania and Moldavia and forms part of a very important railway line in the country. The bridge has a total length of 264 meters and its arch has an opening of about 100 meters. The maximum height from bridge to ground is 61 metres. The upper section of the structure was refurbished in 2006. And now the time had come to completely rehabilitate the rest of it – an undertaking that involved an extensive mix of measures. The project was sent out to tender by the Romanian railway company Căile Ferate Române (C.F.R.) in 2016, with the project being awarded to the specialist railway contractor Constructii Feroviare Mures SA in 2017. Due to the problematic conditions in this mountainous region, the work only began in May 2018 and then continued with interruptions through to November 2019.

Working at heights of 60 metres

**Difficult environment**

The constantly changing weather conditions and the limited accessibility of the construction site in the mountains became a logistical challenge for everyone involved. The maximum weight of materials that could be transported to and stored in the impassable area was four tonnes. Yet, by the end of the project, the total weight used amounted to over 100 tonnes. And those were not the only obstacles. All participants were confronted with difficulties in selecting the right materials in order to achieve the highest degree of functionality, safety, protection and aesthetic attractiveness. Each step of the way, MC area manager Codrut Belei was on hand with all his know-how to advise the planners, trades and subcontractors.

Due to the location and construction of the bridge and the difficult weather conditions – which made the all-important curing of a mineral system virtually impossible – special MC mortars based on epoxy resin were used for the work.

**Repair and refurbishment with MC systems**

For the re-profiling of the concrete, the planners decided on a combination of the universal epoxy resin MC-DUR 1200 VK and special quartz sand, a mix that had already proved successful during the first partial refurbishment involving the upper bridge section. MC-Injekt 1264 TF, a special resin for rigid crack injection, was also used. The ECC fine filler Nafufill EC 6 was applied to the entire bridge – covering an area of around 15,000 m² – in a layer thickness of 3 mm. And the crowning finish was provided in the form of the surface protection coating MC-Color Flex pure in a light grey shade. The aim was to ensure that Caracău Bridge stood out as a bright landmark in the natural environment while also permanently protecting it from the weather. MC-Color Flex pure with its excellent technical properties and exceptional ease of application offered precisely the solution required.

In the end, MC products were applied to the entire bridge – including the railway line itself. MC Area Manager Codrut Belei commented with more than a little pride: "It was quite overwhelming – and for me it has been my biggest, most challenging and most rewarding project with MC so far."


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## HOFBRÄUHAUS BEER HALL REFURB, MUNICH

# A TOAST TO FAST FLOOR-LAYING!


Each day, Munich's Hofbräuhaus beer hall attracts thousands of visitors from all around the world.

Photos: Tobias Ranzinger

**The Hofbräuhaus in Munich counts among the best-known hostelries around the world. In April, the floor in the approximately 200 m² kitchen was completely renewed within five days using a fast-setting coating system from MC.**

The Hofbräuhaus with its rich tradition has been standing at its original location at Platzl 9 in the Bavarian capital since 1607. The inn and beer hall in its present form was ceremoniously inaugurated in 1897. To this day, the Hofbräuhaus remains an attraction for tourists from all over the world, welcoming several thousand visitors on a daily basis.

**Crisis brings opportunity for refurbishment**

The temporary forced closure of the Hofbräuhaus at the beginning of the coronavirus crisis was used by the management to have the ageing tiled floor in the kitchen of this famous gastronomic institution completely renovated. The contractor had to undertake to complete the project within less than a week, namely from 4 to 8 April 2020 – no easy task, as the existing tiling had to be removed as well as the new floor installed. While some bidders for the project had proposed completely replacing the screed and applying a costly PU concrete coating, BTH GmbH of Pittenhart (Germany) suggested upgrading the existing screed and rebuilding the floor with the MC-Floor TopSpeed flex system based on MC's unique KineticBoost Technology®. Those responsible at Hofbräuhaus Munich and the Furch engineering office of Haag in Upper Bavaria, which was commissioned with the project planning, decided unanimously in favour of this latter refurb concept.

**Upgrade instead of rebuild**

After thoroughly removing the old tiling, the damaged screed was thus repaired and levelled with MC-Floor Screed 10. This single-component, free-flowing, polymer-modified cement screed cures and hardens virtually shrinkage- and stress-free and can be overlaid after just 24 hours. The initial coating was a primer and scratch coat / blowhole filler in the form of MC-Floor TopSpeed SC, MC's low-viscosity, fillable and fast-curing reactive resin.

**Fast floor build-up with MC-Floor TopSpeed**

As a crack-bridging and fast top-coating solution was required, the build-up continued with the highly flexible roller coating MC-Floor TopSpeed flex, which is also suitable for application to a slightly damp substrate. In addition to its crack-bridging capability, it also offers good resistance to dilute acids, alkalis and salt solutions. MC-Floor TopSpeed flex was first used as a crack-bridging intermediate layer and then

View of the freshly refurbished Hofbräuhaus kitchen floor

as a bedding layer for the quartz sand applied to improve slip resistance. Finally, the surface was finished with the matt-transparent sealant MC-Floor TopSpeed M.

With MC's fast flooring system, the refurbishment of the kitchen area in Munich's Hofbräuhaus successfully met all the requirements specified by the client and planners – including implementation in the shortest of times – while also delivering an excellent cost-benefit ratio.

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# PORTRAIT

## ILYAS DEMIRIZ

## THE MAN WHO GAVE UP EVERYTHING TO FOLLOW A DREAM

**Ilyas Demiriz (31), from the canton of Zug in Central Switzerland, enjoyed great success as a field sales representative of MC Switzerland from 2014 to March 2019. As the years passed, however, he found the allure of a long-cherished dream irresistible.**

**He quit MC, gave up his apartment and, in early April 2019, set off on an adventurous seven-month journey in his Land Rover Defender 110 TD5.**

**42,000 kilometres-plus**

The journey led Ilyas Demiriz through half of Europe to Turkey, Russia, Kazakhstan and finally Mongolia where he turned around to set off on the return leg home. After this more than 42,000 kilometre journey of self-discovery, he returned to MC Switzerland on 1 March 2020. "I embarked on this trip not because I didn't enjoy my time at MC – I just had to finally realise this dream that I always had inside me," Ilyas explains. "I've always wanted to visit my father in his home in Istanbul," continues the young Swiss. His mother and father separated when he was four. Since that time, contact with his dad had been rather sporadic. His Swiss grandfather Fredy, after whom he named his Land Rover, made a similar trip from Switzerland to Turkey almost 40 years ago to visit his daughter, who lived there for a while. "I was very close to my granddad and really wanted to make the same trip he had," says the intrepid adventurer.

You can view the highlights video of Ilyas Demiriz's trip at:
https://youtu.be/4tAywgMOfBo

## INTRODUCING: WERNER BAUMGART

### FROM LAB WORK TO PRODUCT MANAGEMENT ...AND SEMI-RETIREMENT

Werner Baumgart joined MC as a materials tester on 1 October 1982. For more than two decades he subsequently headed up the Concrete Repair & Surface Protection group as Global Product Manager. On 1 August 2018 he started his four-year semi-retirement plan. He has been working actively full-time for the last two years and has now entered the two-year "passive" phase of his partial retirement scheme as of 1 August 2020. He officially retires as of the end of July 2022 when he reaches 64 years of age. He will then have worked at MC for almost 40 years – missing his 40th anniversary by just two months. To him we say thanks and all the very best now and into the future!

*All the very best!*

## BOOK LOTTERY

### SIMPLY EMAIL TO WIN

**Sign up for a chance to win a free copy of "EXPLEURASIA19", a tale of 42,024 kilometres solo through Eurasia (available in German only) written by our Swiss sales colleague and adventurer Ilyas Demiriz, € 13.50.**


To enter, just put **"MC aktiv 2/20: Lottery" in the subject line of an email to saki.moysidis@mc-bauchemie.com and send it in by 15 November 2020.**

# PERSONNEL NEWS

**DR. KARSTEN KOPPE (45)** joined MC on 1 January 2020 as Laboratory Manager serving the Mineral Building Materials group. In addition to leading his team of currently four employees, he is responsible for the development of new mineral building materials, carrying out application-related tests and for scale-ups for duplicate and mass production. He reports to John van Diemen, Head of Research & Development.

**SVEN STEPPA (32 )** was appointed Deputy Head of the IT Department and Team Leader Application Development in March 2020. Since completing his apprenticeship as an IT business administrator from 2009 to 2012, he has been engaged for the past eight years in various projects within the IT department of MC. While still working full-time, he also successfully completed a master's degree in "IT Management" at FOM University of Applied Sciences in Essen.

**TOMASZ ŚMIERZCHAŁA (51 )** took over the position of Sales Manager covering all MC sales areas in Poland as of 1 June 2020, meaning he is responsible for all sales activities relating to Concrete Industry, Infrastructure & Industry, Buildings, Botament and Ultrament. He has been with MC for over 24 years serving in a variety of roles, most recently as Segment Manager Building Distribution and Regional Sales Manager West Poland.

## MC WELCOMES 13 APPRENTICES

On 3 August 2020, we officially inducted our 13 new apprentices to the MC Training Centre in Müllerstrasse in Bottrop for their first day with MC-Bauchemie. We are delighted to welcome them to the company and wish them every success!

Standing from left to right:
Bünyamin Damar (chemical production technician), Ferdinand Brinkert (industrial clerk), Lisa Marie Bevanda (industrial clerk), Robin Eckert (paint and coatings laboratory technician), Andre Schubert (industrial clerk), Daniel West (chemicals technician), Tobias Jopp (chemical laboratory technician), Lucas Michael Mertens (industrial clerk KST), Jannik Schulz (IT technician, system integration), Steven Kabat (chemical production technician), Luca-René Uhlendahl (warehouse logistics technician) and Oguzhan Hazoglu (building materials tester). There is one apprentice missing from the picture.

## CHILDREN'S HOLIDAY SCHEME AT MC

MC in Bottrop has, for the first time, offered holiday care for children of MC Group employees aged between 6 and 13 years – and the scheme has been very well received. It ran from 29 June to 3 July 2020 with a programme that included games, free play, handicrafts and numerous day trips to leisure parks, among other destinations in the local vicinity. The feedback from the children and their parents was entirely positive.

# Surprisingly flexible

Kinetic Boost Technology®

## Amazing crack-bridging capability

## MC-Floor TopSpeed flex – the high-performance coating

So you think a flexible floor coating needs to be thick-layered? Well, not any more! Roller-applied MC-Floor TopSpeed flex proves that this is not the case. It offers assured static crack bridging across widths up to 0.8 mm with a layer thickness of just 0.5 mm, yet still develops the high-performance attributes required to qualify as an OS 8 system! Ensuring quick and reliable application even at temperatures ranging from 2 °C to 35 °C and in the presence of moisture, MC-Floor TopSpeed flex delivers big benefits for clients, planners and applicators alike.

Further information: **mc-topspeed.com**

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