MC aktiv

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BE SURE. BUILD SURE.

Ladies and Gentlemen,

When things get shaky, it's good to have a stabilising and reliable base. This is true not only in life, but also in the world of construction. Which means that fast and reliable remedial action is essential wherever and whenever the stability of buildings is jeopardised.

Unstable foundation subsoil poses a major challenge for civil engineers: It causes subsidence and cracks in structures, factors that can severely impair its load-bearing capacity and usability. With MC-Montan Injekt, we offer highly specialised injection solutions for permanent and safe soil stabilisation and the raising of structure components that have suffered settlement. The products in this range serve as invisible but powerful helpers that can be applied quickly, precisely and with minimum invasiveness to return endangered factory halls or office buildings to their intended service.

Our products are based on our extensive knowledge and expertise, our high quality awareness and our more than 60 years of experience – attributes that are being recognised in ever more countries, including in Tanzania and Australia as of now, as well as other regions of the world.

I commend to you the fascinating mix in this issue of MC aktiv of news, innovations, inspiration and project reports.

Enjoy the read!
Kindest regards,

Nicolaus M. Müller

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Credits and legal

Publisher
MC-Bauchemie Müller GmbH & Co. KG
Am Kruppwald 1–8 | D-46238 Bottrop

Tel. +49 (0) 2041/101-0
Fax +49 (0) 2041/101-688

info@mc-bauchemie.com
www.mc-bauchemie.com

Managing editor / Conception
Saki M. Moysidis | MC-Bauchemie

Editing
Saki M. Moysidis | MC-Bauchemie
Thomas Haver | Leitpunkt Kommunikation

Layout & Design
iventos | Feldstrasse 9a, D-44867 Bochum

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MC-BAUCHEMIE ESTABLISHES COMPANY IN TANZANIA

As of December 2023, MC has established a company in Dar es Salaam, Tanzania, with the ambition of building up a broadly based construction chemicals business.

"After setting up operations in Guinea, Ghana and Ethiopia in the last decade, we now want to expand our African business to East Africa. Tanzania is a good choice because of the political situation and the positive economic climate," says Christoph Hemming, Regional Director Africa at MC-Bauchemie, who together with Shantanu Datta, Business Development Manager Africa, helped set up and develop the new company. "We want to build up a comprehensive construction chemicals business there and are initially starting with our admixtures for ready-mix concrete and concrete products, as well as grinding aids for the cement industry and waterproofing," continues Regional Director Hemming.

Other products from areas such as waterproofing, concrete repair and floor coatings will be introduced gradually. MC has appointed Henry Mulima as Managing Director (see p. 19).

MC-Bauchemie chose Dar es Salaam as the location for the new company because the former capital is the largest city and the most important economic centre in Tanzania, offering direct access to both the seaport and the airport.

Growth market East Africa
"Africa continues to be an exciting market for us, and Tanzania is the fifth largest country in Africa with a population of around 62 million inhabitants," says Nicolaus M. Müller, Managing Partner of MC-Bauchemie, emphasising: "The demand for materials for building construction and infrastructure projects is also immense in the growth market of East Africa and will continue to increase significantly in the coming decades. We therefore see great growth and development potential for MC-Bauchemie there."

For further information, please go to our webpage:
https://bit.ly/4a6Zloj


Handshake between Dr. Ekkehard zur Mühlen and Blair Edmonds.

MC STRENGTHENS PRESENCE IN AUSTRALIA

MC-Bauchemie Australia Pty Ltd, a subsidiary of MC-Bauchemie established in November 2023, has successfully acquired the assets of the construction chemical trading business of Building Chemical Supplies (Australia) Pty Ltd (BCS) as of 1 December 2023.

Dr Ekkehard zur Mühlen, Managing Director of MC-Bauchemie, and Blair Edmonds, Managing Director of BCS, sealed the transaction on 1 December 2023, which came into force with immediate effect. As part of this acquisition, seven employees and two sites, including warehouses in the Sydney and Melbourne area, transferred to MC-Bauchemie Australia, which will also temporarily utilise the BCS warehouse in Brisbane.

BCS has been a strong ambassador for MC products in Australia for over nineteen years. Following the sale of some of its assets to MC-Bauchemie Australia, BCS will now concentrate on its already successful application business. BCS is Australia's leading injection specialist, providing services to the infrastructure network across Australia.

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

Big Picture

Mumbai Trans Harbour Link

TOP PROTECTION FOR INDIA'S LONGEST SEA BRIDGE

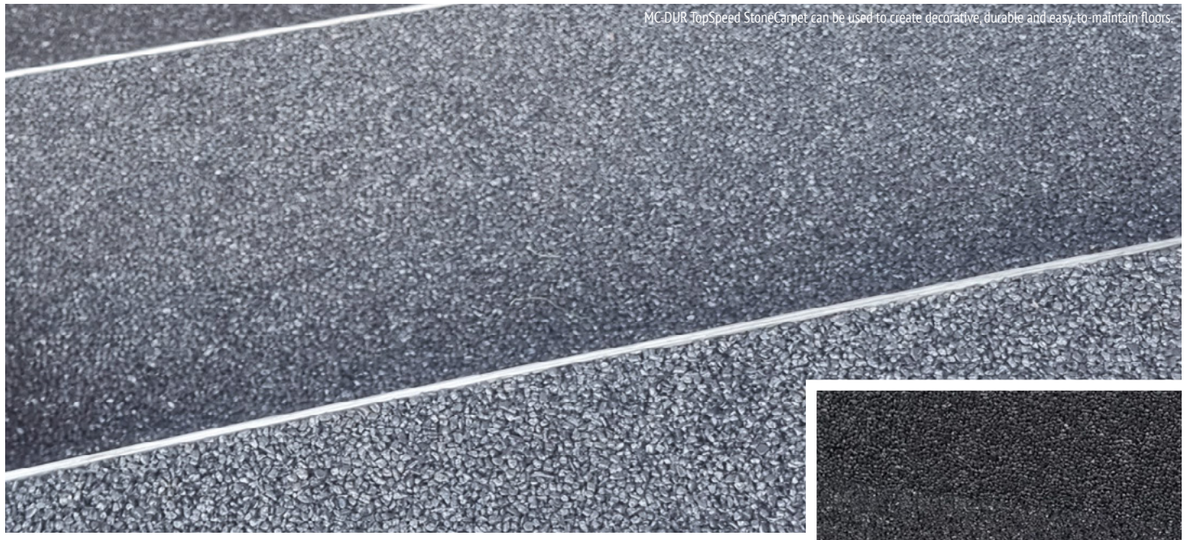
The Mumbai Trans Harbor Link, India's longest sea bridge, is a 21.8 km, six-lane structure connecting the municipal districts of Sewri and Navi Mumbai and reducing the drive time from two hours to 20 minutes. The construction of this bridge, representing a cost of 2.2 billion US dollars, began in 2016 and the structure was formally inaugurated on 12 January 2024.

With a stretch of 16.5 km over the sea, it is exposed to various environmental influences. EmceColor-Flex, the flagship concrete protection coating from MC-Bauchemie India, has been used as a protective coating for the entire bridge. EmceColor-Flex is a flexible, water-vapour diffusionable, carbonation-inhibiting, crack-bridging, UV- and weather-resistant, protective coating which offers high resistance against salts and other chlorides. The protective system is offered in combination with a primer, Primex 250, and a fine filler, Nafuquick. This system has been successfully used for years on bridges, public infrastructure and buildings, and has become the standard for anti-carbonation coating in India.

In addition to the outstanding protection properties of the EmceColor-Flex system, MC-Bauchemie India's intensive client support during testing, as well as the construction stage ensured complete customer satisfaction.

For a detailed project report, please go to our webpage:
https://bit.ly/3IOpR9S

DECORATIVE AND DRAINABLE STONE CARPET



MC-DUR TopSpeed StoneCarpet can be used to create decorative, durable and easy-to-maintain floors.

New MC-DUR TopSpeed StoneCarpet from MC-Bauchemie utilises all the advantages of MC's fast-acting and weather-tolerant KineticBoost-Technology®, as well as offering many individual design options.

MC-DUR TopSpeed StoneCarpet uses the special resin MC-DUR TopSpeed T as a binder, with marble gravel or coloured quartz as the aggregate. The reactive resin is mixed with the aggregate, applied to the substrate, spread and then levelled smooth. The result is a decorative, drainagecapable, robust and low-maintenance wear layer. Because MC-DUR TopSpeed T is based on KineticBoost-Technology®, therefore the stone carpet can be applied at temperatures of 2 to 35 °C, almost regardless of the weather.

The floor covering is rainproof after 30 minutes and can be walked on after just two hours. It is therefore particularly suitable for coating balconies, loggias and arcades.

Benedikt Niewald
Benedikt.Niewald@mc-bauchemie.de

NEW EXTRA-FINE SMOOTHING FILLER: NAFUFILL EF

With Nafufill EF, MC has developed a new mineral, polymer-modified filler capable of impressing with its wide range of application options, leading to the attainment of a particularly high-quality surface finish.

The primary area of application for Nafufill EF is levelling roughness and closing pores and blowholes on non-trafficked concrete surfaces. However, its composition allows it to be used for a wide range of applications in new and existing buildings, indoors and outdoors, on concrete or plasterboard. It can also be used in combination with the MC-Estribond bond coat to coat over old tile coverings.

Rafael Sass
Rafael.Sass@mc-bauchemie.de

NEW FLOOR LEVELLING COMPOUND: MC-FLOOR EASYPLAN ULTRA

The new MC-Floor Easyplan ultra levelling compound complements MC's existing screed portfolio. It combines excellent levelling properties with an aesthetically attractive surface finish.

Whether commercial, industrial or garage: MC-Floor Easyplan ultra is applied to create wear-resistant, mineral coatings for levelling uneven concrete and screed floors. The levelling compound can also be used for cosmetic repairs to directly trafficked surfaces or as a direct wear layer, and is ready for service within just a few hours.

Tim Hillringhaus
Tim.Hillringhaus@mc-bauchemie.de

View of the installation 'Die Sau unserer Tage mit ihren 88 Ferkeln' (approx.: The sow of current times with 88 piglets) at the exhibition 'TIER / ICH / TIER' (ANIMAL / ME / ANIMAL) by Brele Scholz in the Aula Carolina arts centre in Aachen in summer 2023.

ART INSTALLATION OF CAST CONCRETE – ARTIST CREATES 88 PIGLET SCULPTURES

Aachen-based artist Brele Scholz proves time and again that art and construction chemicals can indeed be bed-mates. While she has experimented with resins in the past, she recently used MC's Emcekrete casting concrete for a new art project, an installation comprised of 88 piglets.

The history shared between Brele Scholz and MC-Bauchemie goes back more than a decade. She exhibited her European Heads, larger-than-life wooden sculptures, for the first time at a major international concrete symposium organised by MC in October 2012, which focused on the theme of Europe. She then remodelled these in 2014 using a casting resin from the MC-DUR product family.

She was looking for a new, modern and artificial material that could be used with wood but contrasted with that natural material. Thus she discovered MC casting resin and utilised the material's complexity with her innate and accomplished creativity.

Artist casts 88 piglet sculptures with Emcekrete 60 A

She utilised the advantages of MC's Emcekrete 60 A casting concrete for one of her new sculptural installations, entitled 'The sow of current times with 88 piglets'. The ready-to-use casting concrete is a particularly versatile construction product and is used for chocking precision machinery, machine foundations, bridge supports, crane rails, turbines, etc. It simply needs to be mixed with water and is characterised by very good flow properties, as well as high early and final strengths – making it also ideal for the artistic use of Brele Scholz, who experimented with it and ultimately cast 88 piglets. "The grouting concrete from MC was easy to work with and left beautiful, low-porosity surfaces. It also helped me to produce this many piglets quickly," says the artist happily. She then combined them with a wooden sow to draw attention to the plight of livestock in factory farming.

The project as outlined shows once again that art and construction chemistry are not a contradiction in terms. Due to its versatile properties and adaptability, complex and detailed shapes can be realised with cast concrete – including piglets – that would be difficult to achieve with other materials.

Brele Scholz (65) pursuing her art in her Aachen studio.

For further information, please go to (available in German only):
https://bitly.ws/3f8J3

Main Feature

MC-MONTAN INJEKT – STABILISING, CONSOLIDATING, LIFTING

Sustainable solutions for unstable soils and settling structures

Unstable foundation subsoil continues to pose major challenges to designers and engineers in the construction industry. It gives rise to unstable and cracked structures exceeding ultimate and serviceability limit states. In order to provide effective and long-lasting solutions in these cases, MC-Bauchemie has developed the MC-Montan Injekt product family, a range of special geotechnical injections for soil and ground stabilisation, as well as for lifting concrete slabs and structures.

In June 2022, 39 concrete slabs on a taxiway serving the two runways at Kuala Lumpur International Airport 2 (KLIA2) were consolidated and four raised and stabilised in record time using MC's injection technology.

Soil stabilisation methods aim to improve the load-bearing capacity and resistance to deformation of a substrate in order to make it permanently resistant to mechanical loads. At the same time, the susceptibility to the effects of water and frost can be reduced. However, the focus is on preventing potential subsidence of structures, which is often caused by shear failure and soil compaction, but may also be due to water washout and associated soil erosion and suffusion (displacement and removal of fine soil particles in the soil) caused by leaching and the presence of water.

These processes can lead to cavities or depressions in soft soil layers or loose rock and ultimately to settlement or deformation of the structures above them. Soil stabilisation and the raising of the structure provide a remedy here.

Innovative resin-based subsoil injections
In order to specifically stabilise and consolidate soft layers, special grouts are injected into the subsoil; these injection compounds are generally based on polyurethane and organo-mineral resins and are characterised by very good penetration, optimal expansion force, high strength and fast curing. The injection resins in the MC-Montan Injekt product family help to compen-sate for difficult ground conditions and reinforce the subsoil so that it can bear more load and also enable structures to be lifted.

Another advantage of MC's innovative injection solutions lies in their rapid effectiveness. Ideally, a repair or reinforcement of the substrate can even be carried out within just one hour and, under certain circumstances, during ongoing operations. This is of crucial importance because factory or even residential and office buildings that have settled due to effective vertical stress would have to be closed for a longer period of time if they were to be repaired with conventional methods.

Compaction through displacement injection
There are different technical application methods for grouting soils. Displacement injection involves the targeted displacement and compaction of soil particles. It is suitable for almost all types of soil, regardless of whether clay, silt or sand. With displacement injection, special resins are injected into the foundation subsoil at the exact location and depth required, using injection lances and pumps. The resin expands primarily in a lateral direction and displaces the soil, causing it to compact. This leads to improved shear strength, a higher modulus of elasticity, increased cohesion and higher shear angles. The soil's load-bearing capacity is thus increased, while its deformability is reduced.

Penetration grouting of loose rock particulate
In the case of penetration without displacement, high-performance grout is injected at low pressure into the space between the soil particles. There it forms a solid rock-resin matrix with high strength, low deformation properties and improved elasticity. This process is ideal for fine-grained loose rock such as sand.

With the MC-Montan Injekt product family, MC offers for these applications innovative injection solutions that are precisely aligned to the respective technical requirements and have proven their efficiency and effectiveness in numerous projects worldwide.

MC-Montan Injekt L series – the standard-setter
The four products in the MC-Montan Injekt L series belong to the displacement injection category. They are: MC-Montan Injekt LE, LE-S, LE-S 60 and LE-S 100. The 'LE' stands for 'Lifting Expansion'. These products cover a wide range of technical properties and set new standards in soil compaction. MC has developed design criteria for optimising consumption and the required injection depth, all of which meet the requirements specified in the relevant Eurocodes.

While MC-Montan Injekt LE-S 100 meets the requirements for high load-bearing capacity, MC-Montan Injekt LE-S covers the requirements for grouting in deeper layers with high expansion force. MC-Montan Injekt LE-S 60 offers a perfect average value with sufficient strength and expansion properties, making it suitable for most common applications. In addition to stabilisation and consolidation, application of these resins has positive effects on both erosion control and water permeability control. In particular, the controlled expansion force applied during deep injection of the resins enables minimally invasive, controlled lifting of components and structures. Such an application can be carried out quickly and precisely using portable, lightweight equipment. Products from the MC-Montan Injekt L range are used for work on foundations, carriageways, floor slabs, runways, railways, for cavity filling and for shoring of wall and rock crevices.

MC-Montan Injekt F series for strong hold
The low-viscosity MC-Montan Injekt F series of resins, where F stands for 'force'. and injection takes place without soil displacement, are used to seal and consolidate structures and rock. There are also four products in this range: MC-Montan Injekt FR, FN, FS and FF. These high-strength resins are categorised according to their reactivity and foaming potential.

While MC-Montan Injekt FR reacts within a few seconds, FS reacts after 30 minutes. MC-Montan Injekt FN comes with a reactivity of 1 minute, the most frequently adopted reaction time. MC-Montan Injekt FF generates a controlled, load-bearing rigid foam that is used for cavity filling where optimised strength is required.

With the MC-Montan Injekt F series, you can perform underpinning without excavation, while also controlling water permeability. The range of applications for MC-Montan Injekt products for penetration grouting extends from foundations and floor slabs to roadways and runways, and on to anchoring and shoring walls for the temporary stabilisation of excavations. MC-Montan Injekt F series products can also be used for micro and mini pile applications by tube-a-manchette grouting and conventional perforated lance injection methods.

Successful application in Dubai
A project in Dubai shows just how reliable and efficient the solutions provided by MC-Montan Injekt products are. About five years after its construction, a water treatment plant there began to show signs of subsidence. The reason: The penetration of water into the soil caused the dissolution of lime deposits, leading to void creation. In addition, five columns had tilted by up to 3° under their own weight of 135 tonnes. These have been uprighted again with a tolerance of 1 degree.

The clients and planners played through various scenarios. Compared to the solution of fracture-grouting the substructure by directional drilling from outside, followed by micropiling and cement-grouting, the option proposed by MC involving displacement grouting under the affected foundations, slabs and tension members with MC-Montan Injekt LE-S proved to be clearly superior. As the affected area contained high-tech equipment, removal and reinstallation of those assets would not only have been costly, but the downtime required for the retrofit would have caused significant disruption to the client.

With the use of MC-Montan Injekt LE-S, on the other hand, a precise and customised approach could be guaranteed. To this end, MC also trained the applicators and enabled them to carry out the demanding work precisely as required, so that the client was able to continue operating its facility with only minimal restrictions during the repair. This helped the client retain its market position and also saved considerable direct costs.

MC-Montan Injekt for new and existing buildings
Foundation subsoil compaction is always necessary on construction sites; in new construction, for example, to protect excavation pits from water ingress and subsidence, to ensure the load-bearing capacity of the subsoil for structures or to allow access for heavy equipment. However, existing structures can also settle due to construction defects, flooding, landslides, loss of stability, burst pipes or normal erosive phenomena, making it necessary to compact the subsoil and raise the structure.

In these cases, the special resins of the MC-Montan Injekt product family, which meet the high-spec of the relevant Eurocodes, can be used for a wide range of geotechnical injections for a precise, versatile, cost-effective and time-saving solution.


Sumesh Sreedhar
Sumesh.Sreedhar@mc-bauchemie.com


Holger Graeve
Holger.Graeve@mc-bauchemie.de

BENCHMARK FOR SOIL INJECTION

When it comes to remedying subsidence or building new structures on unstable ground, high-quality injection solutions are a must. And the high-performance injection resins of the MC-Montan Injekt product family meet every requirement: They not only stabilise and lift structures in difficult ground conditions, they also protect foundations, floor slabs and roadways from erosion and loss of load-bearing capacity. Plus: They offer the ideal solution when a structure needs to be raised or its load-bearing capacity needs to be increased.

Based on more than 50 years of accumulated expertise, MC-Bauchemie's injection technology is world-leading. It comprises a wide range of high-quality solutions that fulfil the technical requirements encountered on the construction site. MC-Montan Injekt injection resins offer different strengths and reaction properties and meet the high requirements of Eurocode standards.

With MC-Montan Injekt, structures can be stabilised for the long term with their maintenance and repair costs minimised.

For further information, please go to:
https://bit.ly/4aijfwe

© Miguel Ferraz

Construction with 100% recycled concrete

SCHOOL BUILDING CONSTRUCTED WITH 'HAMBURG MIX'

View of the 'model build'

OTTO WULFF Bauunternehmung GmbH has erected on its company premises in Hamburg its first 'model build' largely made of recycled concrete. The concrete technology expertise of MC-Bauchemie was also called upon for this project. Following this successful test, a school building in the city of Hamburg has now been constructed using 100% recycled concrete for the first time – a showcase project for sustainable construction.

Celebrated on 12 February 2024, the topping-out ceremony for a new three-storey school building in Hamburg-Eilbek also marked the public premiere of the 'Hamburger Mische' or 'Hamburg Mix', a concrete with 100% recycled aggregate.

The 'model build' of the OTTO WULFF construction company in Hamburg-Billstedt is made of R-concrete. Various types were used, including the innovative 'Hamburg Mix', which contains 100% recycled aggregate.

Further information on the 'model build' on (available in German only):
https://bitly.ws/3f8kY

This is the result of several years of research and development work by OTTO WULFF with a team of partners from Hamburg University of Science and Technology, the Hamburg Senate Chancellery and the Construction Competence Centre, OTTO DÖRNER Kies und Deponien, EGGERS Tiefbau, and e-hoch-3 eco impact experts. The aim is to promote the use of recycled concrete (hereafter: R-concrete) in resource-efficient construction. The project is part of the EU programme 'Circular Construction in Regenerative Cities' (CIRCuIT), which is examining circular economy approaches for the construction industry.

'Hamburg Mix' – the optimised formulation for recycled concrete

When producing R-concrete, the main challenge is to achieve good workability and long-lasting consistency (slump retention) in the concrete for transport. Due to the fine grain content, it requires significantly more water than normal concrete. OTTO WULFF therefore brought Hamburg-based ready-mix concrete manufacturer Lebbin Beton, technical inspectorate ABN Gesellschaft für Baustoffüberwachung Nord mbH and MC-Bauchemie on board to solve this problem. Initially, various formulations with recycled aggregates were tested. A recipe with the concrete plasticiser Centrament N9 and MC-PowerFlow evo 530, a flow promoter from MC's latest generation of superplasticisers, proved to be the best solution. The 'Hamburg Mix' was successfully used for the first time in the 'model build' on the OTTO WULFF company premises, and has now been successfully applied in the construction of a new school building in Hamburg. The R-concrete is used for floor slabs and walls and can be applied and compacted on the construction site just as easily as conventional concrete. As the 'Hamburg Mix' consists of 100% recycled material and is not standardised, approval was required from the Hamburg building inspectorate on a one-off basis – an effort that was well worthwhile, given that both the construction outcome and the ecological balance cannot fail to impress.

Benefits of recycled concrete

The use of recycled aggregates in concrete production has many advantages. The consumption of primary resources such as natural stone and gravel can be reduced, as can the amount of waste material that has to be disposed of in landfill sites. Gravel and sand are also becoming increasingly scarce. Against this backdrop, transporting these bulk materials from other countries makes little sense, especially when Germany already has sufficient quantities of used materials that are simply dumped. The projects implemented by OTTO WULFF impressively demonstrate the possibilities and advantages of building with 100% R-concrete. Thanks to close cooperation between the project partners and MC-Bauchemie, a pioneering example for circular economy in the construction industry and for sustainable construction has been successfully achieved.

Tobias Harzer
Tobias.Harzer@mc-bauchemie.de

R2 infrastructure project Slovakia

MC'S CONCRETE EXPERTISE IN DEMAND FOR CONSTRUCTION OF LONGEST BRIDGE


Technically demanding bridge construction at dizzying heights

In the Slovak Republic, the R2 motorway is currently being built as part of the European route E 58, creating a highway link from the capital Bratislava in the west to Lučenec in southern Slovakia. The expertise of MC-Bauchemie's concrete technologists in the production of the precast concrete components proved essential in the construction of what – at five kilometres – is the country's longest bridge.


Construction progress even under wintry conditions

Longest bridge in Slovakia

A technically particularly demanding section of the R2 at a point 200 km east of Bratislava has been in place since March 2020. The 9 km long stretch also includes the longest bridge in Slovakia (5 km). It is being built using solid concrete and precast concrete elements for the support brackets, which are being produced by long-standing MC customers Strabag and Doprastav. To ensure optimum quality of the precast concrete elements, MC's concrete technologists were called in to develop the mix design and provide concrete admixtures and concrete release agents. They recommended a combination of the high-performance superplasticiser MC-PowerFlow 3131, the hardening accelerator MC-FastKick 105 and the release agent Ortolan Premium 702.

MC's concrete expertise for monolithic precast elements

MC-PowerFlow 3131 is based on the latest polycarboxylate ether technology from MC and promotes the early strength development of the concrete, which is particularly important in the production of precast elements. It can be economically metered and produces concretes with low tackiness. This also simplifies and accelerates installation. The hardening accelerator MC-FastKick 105 was also used, exerting a positive effect on the crystal growth of the calcium silicate hydrate phases in the concrete for significantly increased early strengths without any negative influence on the other concrete properties. With MC-FastKick 105, precast plants can achieve the strength required for demoulding much faster and thus increase their turnaround for more economical and efficient production. Last but not least, the concrete release agent Ortolan Premium 702 resulted in the achievement of first-class stripped concrete surfaces thanks to its refined high-performance process oils. In addition, large quantities of Emcekrete 60 A and F grouting concrete were likewise used for this project.

With the combination of these MC speciality products, it was possible to manufacture the precast elements required for the bridge on schedule and in the desired quality. Completion of the challenging section between Kriváň and Mýtna is planned for summer 2025. By then, the R2 will be the longest motorway in Slovakia with a total length of 337 km.

Martin Struk
Martin.Struk@mc-bauchemie.sk

Michal Lehky
Michal.Lehky@mc-bauchemie.sk

MC-DUR TopSpeed unifies function, elegance and culture

NEW FLOOR FOR THE 'THEATRON' ON CHEMNITZ'S THEATERPLATZ

On the Theaterplatz in Chemnitz, the semi-circular amphitheatre, the so-called Theatron, still used for various events and performances, was in need of renovation. However, the strict visual requirements in the project specifications presented a real challenge. Choosing the MC-DUR TopSpeed coating system made it possible to combine function and aesthetic elegance, as well as preserve the city's cultural hub in line with its listed status.

Theaterplatz (Theatre Square) in Chemnitz is a focal location in the city that combines history, culture and community. It is located on the Strasse der Nationen thoroughfare near the main railway station and is surrounded by magnificent buildings: the Chemnitz Opera House, the Petrikirche Church, the Hotel Chemnitzer Hof and the König-Albert Museum. Over the years, Theaterplatz has developed into a central hub for public events, and the surrounding cafés, restaurants and stores invite you to take a stroll and linger often. The eye-catching landmark of Theaterplatz is the so-called Theatron, a semi-circular stone stairway structure that still serves as an amphitheatre.

Effective refurbishment solution

Over time, the steps of the Theatron had suffered from the effects of the weather and tourism. Cracks and signs of wear and tear were becoming ever more apparent. A quick and effective refurbishment solution was therefore needed to re-establish the safety credentials and aesthetics of the structure. The client, the civil engineering department of the city of Chemnitz, and the contractor Grötz Bauunternehmen GmbH from Niederdorf in Saxony found exactly what they were looking for in the form of the innovative MC-DUR TopSpeed coating system from MC-Bauchemie.

Based on KineticBoost-Technology®, the system components ensure accelerated curing of the floor coating while also offering particularly high abrasion resistance and impressive durability. MC-DUR TopSpeed also allows the implementation of a variety of designs and textures – a benefit of particular importance for the Chemnitz project.


The coarse grain of the floor was blown into the coating..

Aesthetic sophistication required

As indicated, the Theatron amphitheatre is a listed structure; its image is also protected by copyright. Hence, the final appearance of the protective coating was of particular importance. Various aggregates and grain sizes for the mineral bedding layer were therefore tested in advance. One major challenge was to incorporate a coarse grain size into the system by blowing it into both the horizontal and vertical surfaces. The renovation work began in May 2023.

After preparing the substrate, the MC-DUR TopSpeed SC reactive resin was applied as a primer and scratch coat. The coloured roller coating MC-DUR TopSpeed was then applied, embedded with the design-specific grain mixture and transparently sealed with MC-DUR TopSpeed T. Finally, MC-DUR TopSpeed M was used as a top sealer to create a matt finish. The result impressed everyone involved and demonstrates well how history, culture and modern restoration technology can be successfully interwoven.

Martin Seifert
Martin.Seifert@mc-bauchemie.de

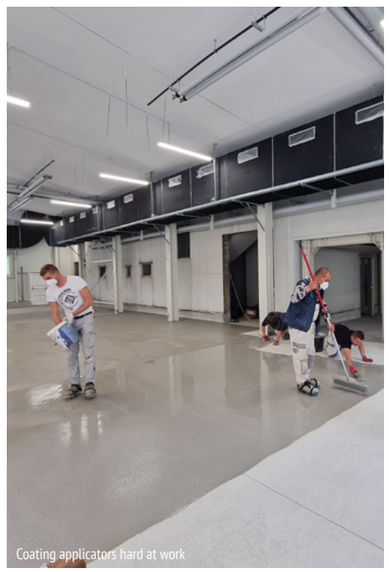
Industrial floor for edible oil plant in Croatia

HIGHLY RESILIENT FLOOR CREATED WITH MC-DUR POWERCOAT

An industrial floor with extremely high resistance to chemical attack, mechanical impact and high temperatures was to be installed in a new edible oil production hall in Čepin, Croatia. The client, the Žito Group, opted for MC-DUR PowerCoat 240 PU/mineral hybrid flooring from MC, which fully met the high requirements of the tender.


Work in progress: View of the new production building

The Žito Group is one of the leading food companies in Croatia, specialising in the production of high-quality commestibles. Founded in 1992, it now employs over 1,500 people and unites around thirty brands under one roof.


Coating applicators hard at work

New production hall for edible oil factory

Built in 1942 in the town of Čepin in eastern Croatia, the Žito Group's edible oil factory underwent extensive modernisation in 2017, including the construction of new silos, an extraction plant and a floor storage area for sunflower seeds. As the capacity of this production facility was no longer sufficient, a new production hall was due to be built in 2022, requiring installation of a flooring system with high chemical and mechanical resistance.

Robust floor construction for a demanding industrial environment

The contractor, Visio d.o.o. from Osijek, brought MC on board as a partner. Together, the two companies recommended to the Žito Group a floor structure using the heavy-duty, flowable PU/mineral hybrid flooring compound MC-DUR PowerCoat 240, a special product based on a PU-cement mixture and developed specifically for highly stressed surfaces in the food, metal and chemical industries, as well as in washing and tank interior cleaning facilities. It can withstand a wide range of the toughest stresses, whether mechanical from forklift trucks, impact from falling tools or chemical attack from oils or acids. It is also suitable for areas that are exposed to different forms of chemical attack occurring simultaneously. In addition, the hybrid system can withstand temperatures up to 80 °C and is also suitable for light steam cleaning.

Strong and durable with MC-DUR PowerCoat

The floor was built up with MC-DUR PowerCoat in October and November 2022 over an area of 1,250 m². After priming with MC-DUR PowerCoat 200, the self-levelling floor coating MC-DUR PowerCoat 240 was applied in a layer thickness of 4 to 6 mm and spread with a squeegee. To make the new floor more slip-resistant, the surface was then sprinkled with kiln-dried quartz sand and sealed with MC-DUR PowerCoat 200. The highly resistant industrial floor in the new production hall of the oil mill in Čepin has since withstood a variety of extreme loads and stresses, providing the Žito Group with a safe, durable and hygienic solution for this site.

Saša Kerep
Sasa.Kerep@mc-bauchemie.com

Close neighbours: The production plant for the concrete tower elements is located in the immediate vicinity of the Gecama wind farm

Production of wind turbines in Spain

EXCEPTIONAL RESULTS THANKS TO HIGH-PERFORMANCE SUPERPLASTICISER FROM MC

In the Spanish region of Castilla-La Mancha, over 160 concrete towers, each 120 metres high, have been produced in a Nordex Group wind turbine plant since 2020. The concrete mix used for this is the result of intensive research. MC developed the high-performance superplasticiser MC-PowerFlow 3095 specifically for the materials and cements used on site and the environmental conditions in the region.

At the end of June 2020, the Nordex Group received a major order from the Israeli energy provider Enlight Renewable Energy to install wind turbines for the 312 MW Gecama wind farm in the Spanish Region of Castilla-La Mancha. This wind farm, Spain's largest to date, supplies 260,000 households with clean energy and avoids emissions of 150,000 tonnes of CO_2 per year. It is located near the municipality of Motilla del Palancar, around 200 kilometres south-east of the Spanish capital Madrid. A plant for the production of concrete towers for wind turbines was built there on a twelve-hectare site.

Complete production on site

This is a mobile production facility for Nordex Group concrete towers that can later be dismantled and reassembled elsewhere. The advantage: Production is always located in the immediate vicinity of the wind farm, which shortens transport routes and times and reduces logistics costs. The production facility in Motilla del Palancar has a capacity of 50 segments per week, which corresponds to two towers with a height of 120 metres. The concrete required for production, around 1,200 m^3 per tower, is produced and supplied by the local concrete plant of Hormigones Villaescusa.

Concrete technologists from MC involved right from the start

Due to the demanding technical specifications of the concrete, MC-Spain's concrete technology department was involved in all of the preparatory work, from classification and recipe development through to the installation of the concrete. MC's research department developed the high-performance superplasticiser MC-PowerFlow 3095 especially in order to meet the demanding specifications for the concrete, which was required to be self-compacting with a strength of ⩾ 65 MPa. The development is based on the latest MC polymer technology taking into account the materials and cements used on site, as well as the environmental conditions prevailing.

View of the mobile production facility

Self-compacting concrete with maximum strength

Concrete made up with MC-PowerFlow 3095 requires only a short mixing time and quickly impresses. With economical metering, the high-performance superplasticiser enables above-average water savings – an important environmental argument in the dry region of central Spain –, ensures that the concrete is less tacky, and produces high initial and final compressive strengths. The concrete required by the Nordex Group was achieved by using MC-PowerFlow 3095 and ensured efficient installation.

In total, more than 160 towers have been manufactured at the Nordex production plant in Motilla del Palancar for the Gecama wind farm and other projects in Spain.

Vicente Diago
Vicente.Diago@mc-bauchemie.es

Stylish fusion of winemaking and architecture at the Sauska Winery

MC WATERPROOFING MASTERS SPECIAL CHALLENGES

The two round, shell-like gardens on the roof of the new building look like a pair of eyes gazing into the valley.

The new Sauska Winery building on the Varga Padi hill near Tokaj in Hungary is not only an architectural masterpiece, but also a symbol of the harmonious fusion of winemaking, contemporary architecture and landscape. The striking design of the building, with its sculpture-like bowls that rise like curious eyes above the mountain, is virtually built into the mountain. The winery's unique architectural concept also placed high demands on the waterproofing, challenges that were mastered using MC products.

Inside the two shell-shaped building sections, each 36 metres in diameter, are the winery's public rooms and offices. Wine production, however, takes place in the cellar. Only the two bowl-shaped circular gardens on the roof of the new building rise up from the hill, meaning that the building is largely underground. Waterproofing the vertical and horizontal components against damp and moisture required a precise and thorough approach, as well as high-quality products.

Reliable protection through systematic waterproofing

The contractor, Csikizó Kft, used a carefully matched combination of products to seal the components in contact with the ground. The waterproofing was applied in several layers, with MC-Bauchemie's Nafuflex Profi Tech 2 two-component sprayable polymer-modified thick bitumen coating as the main component. This was reinforced with Nafuflex GRID 25 NF, a glass fabric insert, to ensure resilience. The special MC-FastTape waterproofing tape was also used for the construction joints. Once the first layer of the coating had cured, the second layer was applied, giving a total dry layer thickness of 3mm.

Clever solutions to special challenges

A number of challenges had to be overcome during the waterproofing process. Formwork oil residue on the concrete surfaces was a major problem, as it affected the adhesion of the waterproofing compound. In order to remove the oil and ensure adequate adhesion, the affected areas of concrete had to be carefully abraded. Another challenge was the weather, as the work was carried out in the autumn and the start of winter. The site had to be enclosed and heated. To be on the safe side, the winter version of Nafuflex Profi Tech 2 was used, which is frost-resistant down to -5 °C and can be applied at substrate and air temperatures down to +1 °C.

As the wall construction was up to 10 metres high in places, it also had to be waterproofed in stages. After sealing a strip to a height of around 3 metres, the finished area was backfilled and the next section was coated from the top of the backfill. The thick layer of bitumen was applied with a spray gun at a pressure of 150-200 bar, enabling the work to be carried out without the need for scaffolding.

The waterproofing of the up to 10 m high walls had to be performed in stages.

Overall, the waterproofing of the new Sauska Winery building was a challenging task. However, thanks to careful planning, high-quality waterproofing products and a creative approach, it was successfully completed despite the wintry weather conditions.

Attila Veres
Attila.Veres@mc-bauchemie.hu

László Bors
Laszlo.Bors@mc-bauchemie.hu

Fabio Foz (36) is Head of Marketing at MC-Bauchemie Brazil and also responsible for marketing in the Latin America region. The dynamic Brazilian has gained wide-ranging experience and has been with MC in Brazil for more than 13 years.

Born and raised in the vibrant city of São Paulo, Fabio studied communications in his home town, graduating in 2008 after a year abroad in Madrid. Later, in 2012, he completed his master's degree in marketing.

A brilliant career at MC

During his studies in Madrid, Fabio worked in an advertising agency where he gained his first practical experience in marketing. After graduating, he joined MC as a trainee in 2008. After a year and a half, he left MC to join a well-known advertising agency in São Paulo, but only for a short time. One year later, he returned to MC and has since put all his energy and expertise into the development of MC, building an impressive career: from a 'lone' trainee, he rose to become Head of Marketing Brazil, where he leads a team of seven. Today, as Head of Marketing LATAM, he is also responsible for the marketing of MC companies in Latin America. During this time, his work has helped to raise the profile of the 'MC' brand in South America, as well as making a significant contribution to sales promotion and market expansion.

Total commitment to the 'MC' brand

His experience and knowledge are often in demand, not only in Latin America, but also for international projects. Not only is he a key contributor to the MC rebranding project, which has resulted in a new positioning, slogan and design for MC, he is also working diligently on the conception of the new website and the redesign of the packaging.

Fabio's personal side

"I want to be the best version of myself," is how Fabio describes his life's motto. Integrity, a long-term vision and the pursuit of excellence are very important to the marketer, which means he also embodies key MC values. In his spare time, Fabio enjoys family life, spending time with his wife Elaine and five-year-old daughter Mia. He is also a fan of Palmeiras São Paulo football club and interested in food, fitness and pop culture, with a particular fondness for cult movies and series such as 'The Sopranos'.

INTRODUCING LORENA IMBERT

A passionate marketer in heart and mind

Lorena Imbert (41) serves as our Head of Marketing at MC-Bauchemie Chile. Born in Viña del Mar, Chile, Lorena's upbringing was shaped by her father's international career path, leading her to live in Caracas, Venezuela, and Bogotá, Colombia, during her youth. Her diverse experiences abroad have enriched her perspective. Lorena relocated to Santiago de Chile in 2001 to pursue higher education at Andrés Bello National University, graduating with a degree in industrial design in 2007. With six years of experience as Head of Marketing for a prominent retailer, Lorena joined MC in 2022 to helm our marketing endeavours, ensuring alignment with regional and corporate strategies while supporting all business units. Outside of work, she leads an active lifestyle, participating in sports and pursuing her passions for dancing and singing. The mother of a 19-year-old son has honed her skills through attendance at flamenco and singing schools, constantly seeking new knowledge and experiences.

Wishing you continued enjoyment and success!

PERSONNEL AT A GLANCE

New colleagues

HENRY MULIMA (45) has been appointed Managing Director of the newly formed MC-Bauchemie Tanzania Limited. A Kenyan national with a deep understanding of the East African market, Henry has a master's degree in chemistry and more than 20 years of experience in the construction chemicals industry and management. A chemist by training, he has had an impressive career in research and development, quality assurance, operations, sales and the management of construction chemicals companies in East African countries.

IRYNA CHEPELIUK (46) joined MC on 15 January as a consultant specialising in commercial law. The Ukrainian has 23 years of professional experience and has worked in various positions for renowned companies and law firms. Reporting to Managing Director Dr Ekkehard zur Mühlen, Iryna will be responsible for the handling and processing of legal issues on an international level, including M&A and the establishment of new subsidiaries abroad.

JAN-BENNET HÜBNER (30) joined MC as Product Manager Concrete Repair on 1 January 2024. After completing his bachelor's degree in construction project management and his master's degree in integral construction at Bielefeld University of Applied Sciences, he most recently worked as a site manager for a large German construction company. In his new role, he is responsible for flexible waterproofing systems, among various other functions.

Changes

IVAN VLAŠKOVIĆ (46) has taken over the position of National Sales Manager at MC-Serbia as of 1 January. A graduate in business administration, he has many years of experience in sales and has been with MC since June 2009. He previously worked in the retail and wholesale of technical equipment and in technical sales of construction chemicals. At MC, he first worked as a technical sales representative and most recently as Target Manager CI. As National Sales Manager, he is responsible for the further development of all MC divisions and the development of the trade sector. He reports to Aleksandar Ćirković, Managing Director of MC-Serbia.

JULIAN FLEIGE (33) moved from the laboratory to Application Technology on 1 January 2024. As a Concrete Application Engineer, he is primarily responsible for providing technical support for EFC (Earth Friendly Concrete), i.e. cement-free concretes and mortars. Julian completed his apprenticeship as a building materials tester at MC from 2008 to 2011, was subsequently taken on and has since worked in Research & Development for concrete and mortar admixtures. His direct superior is Kai Markiefka, Product Line Manager EFC, PCE & 3D.

KRSTE ILIEVSKI (27) has been Manager of MC-Bauchemie Netherlands since 1 January 2024. After training as an industrial clerk at MC from 2014 to 2017, he initially worked in Customer Service CI Export for three years before moving to Business Development Western Europe + Central Eastern Europe (WE + CEE), where until recently he was mainly responsible for the Netherlands. As a manager, he is now responsible for sales management, HR management, financial management and coordination with the head office in Bottrop together with Walter Devue, Regional Manager WE.

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Water-dispersed 2C epoxy resin

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