MC aktiv

MC-BAUCHEMIE
MAGAZINE **1-2021**

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BE SURE. BUILD SURE.

Ladies and Gentlemen:

Thank you for participating in our MC aktiv survey and especially for your highly positive feedback. It shows that our new concept is very much to your taste.

It appears that you not only appreciate the layout and design but also the content of our magazine. And you will find that we have once again put together a great package of topics for your delight – ranging from news close to home to innovation and inspiration, plus seven project reports to catch your eye.

Every project requires individual solutions, be it the provision of waste-water or potable water infrastructure, resilient floor coatings or waterproofing in building construction – technologies that can be implemented safely even in adverse conditions. Our main feature this time covers not one but two huge and unique projects and the speciality concrete formulations required for them.

So get ready to be inspired and, above all, enjoy the read!

Kind regards,

Dr.-Ing. Claus-M. Müller

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Cover photo: The Emscher sewer close to completion.
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Credits and legal

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

Tel. +49 (0) 20 41/1 01-0
Fax +49 (0) 20 41/1 01-688

info@mc-bauchemie.de
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 | Agentur für Marketing, Bochum (Germany)

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MC-BAUCHEMIE ONCE AGAIN AWARDED THE TOP JOB SEAL OF APPROVAL

From left to right: Christoph Hemming (Head of HR), Anna Kaja (HR Personnel Officer) and Nicolaus M. Müller (Managing Director) proudly show off the award.

Following recognition in 2018, MC-Bauchemie was awarded the Top Job seal of approval for a second consecutive time this year, identifying it as one of Germany's best employers.

The award presented by Zentrum für Arbeitgeberattraktivität (Centre for Employer Attractiveness – zeag GmbH) goes to companies that have been particularly effective in creating a healthy yet still high-performance workplace culture. The assessment is based on a scientifically grounded workforce and management questionnaire. Responding to last year's anonymous survey, MC-Bauchemie's employees consistently gave even better marks than in the first edition conducted in 2018, with participation also higher by almost ten per cent this time around.

MC one of the best employers of Germany's SME sector

"Germany needs more companies like MC-Bauchemie Müller GmbH & Co. KG. My heartfelt congratulations to everyone involved in garnering this Top Job Award 2021. It shows that your company counts among the best employers within Germany's SME sector. You can be proud of what you have achieved," said Sigmar Gabriel, former Vice-Chancellor of Germany and patron of the nationwide company comparison project, in his laudatory speech.

Nicolaus M. Müller, Managing Partner of MC-Bauchemie and, among other roles, Director of Human Resources, gladly accepted the award and expressed his appreciation of the commendation, saying: "The Top Job seal of approval and the good employee feedback we have earned make us especially proud in these current times. Both confirm our efforts and commitment as a value-led family business to continue along the successful route adopted in recent years with our group of companies."

It also shows that MC-Bauchemie is a very good place to work compared to other companies and that it has a high level of attractiveness as an employer.

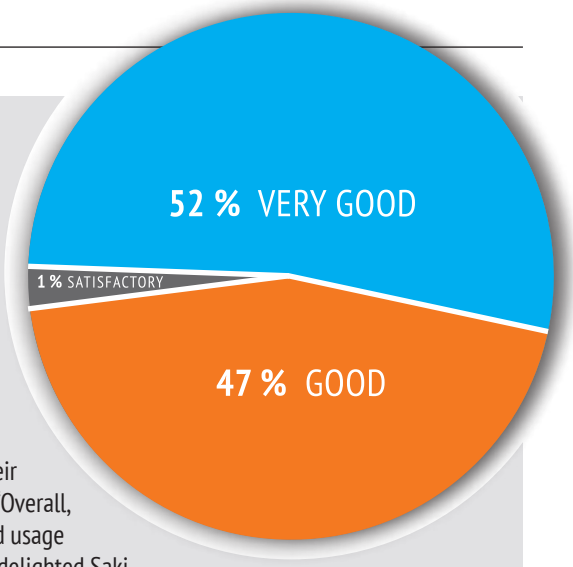
For further information, please go to:
https://bit.ly/39V2NW9

MC AKTIV SURVEY: FEEDBACK THOROUGHLY POSITIVE

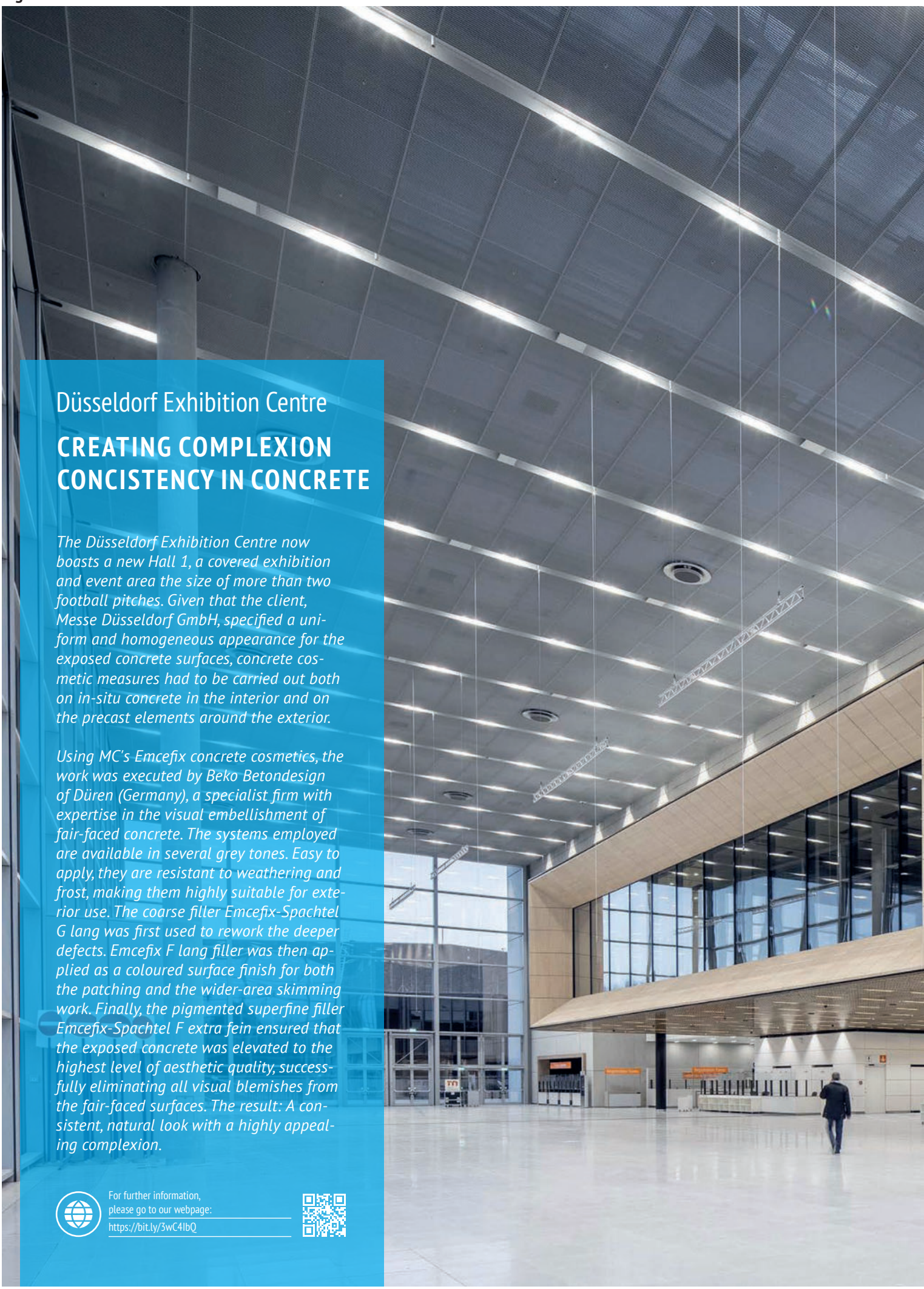
In our last issue of MC aktiv 2020, we appealed to you to participate in our online survey. Over 120 readers completed the questionnaire, giving our new MC aktiv a very good set of marks.

Some 99 % of respondents assessed the new magazine design as either good or very good. Similarly high satisfaction levels were also found in the detailed appraisals, with "layout and design" scoring best at 53 % "very good" and 40 % "good". Almost all participants (99 %) read MC aktiv regularly (74 %) or occasionally (25 %), 73 % of them for more than 10 minutes. In addition, around 60 % of respondents stated that they pass on their MC aktiv to at least one other person. The survey also revealed that project reports, general news and product news are the features that readers most look forward to.

Over 95 % of the participants stated that they derive a specific benefit from their MC aktiv in their everyday professional activities. "Overall, these are very good approval and usage ratings for our magazine," said a delighted Saki M. Moysidis, MC aktiv's editor-in-chief, adding: "We are particularly pleased that our new design and concept have been so well received – and intend to do everything we can to keep it that way."



The new MC aktiv has been very well received. The pie chart shows the split of responses to the question: How do you like our new magazine design and concept in general?



Düsseldorf Exhibition Centre

CREATING COMPLEXION CONCISTENCY IN CONCRETE

The Düsseldorf Exhibition Centre now boasts a new Hall 1, a covered exhibition and event area the size of more than two football pitches. Given that the client, Messe Düsseldorf GmbH, specified a uniform and homogeneous appearance for the exposed concrete surfaces, concrete cosmetic measures had to be carried out both on in-situ concrete in the interior and on the precast elements around the exterior.

Using MC's Emcefix concrete cosmetics, the work was executed by Beko Betondesign of Düren (Germany), a specialist firm with expertise in the visual embellishment of fair-faced concrete. The systems employed are available in several grey tones. Easy to apply, they are resistant to weathering and frost, making them highly suitable for exterior use. The coarse filler Emcefix-Spachtel G lang was first used to rework the deeper defects. Emcefix F lang filler was then applied as a coloured surface finish for both the patching and the wider-area skimming work. Finally, the pigmented superfine filler Emcefix-Spachtel F extra fein ensured that the exposed concrete was elevated to the highest level of aesthetic quality, successfully eliminating all visual blemishes from the fair-faced surfaces. The result: A consistent, natural look with a highly appealing complexion.

For further information, please go to our webpage:
https://bit.ly/3wC4lbQ


Cloakroom

Top marks for protection against discoloration and soiling: MC Color LE (right) compared to a conventional acrylic dispersion coating after the washing of a fresh graffiti tag with water.

COLOURED COATINGS FOR INTERIORS

MC-Bauchemie's pigmented high-performance coating MC-Color LE rounds off the MC-Color range of modular surface protection systems.
These include state-of-the-art coatings for all requirements relating to the protection and colour design of external concrete surfaces. And now, with MC-Color LE, interior walls in heavily frequented buildings such as schools, offices, museums, hotels, medical practices and hospitals can be not only aesthetically enhanced, but also effectively protected from graffiti, dirt and everyday marks, with quick and easy cleaning assured whenever required.

For further information, please go to our webpage:
https://bit.ly/39UiigV

Rafael Sass
Rafael.Sass@mc-bauchemie.de

NEW 1C WATERPROOFING SLURRIES

MC-Proof 600 Xtra from MC is a new crack-bridging 1C waterproofing product for building components in contact with the ground.

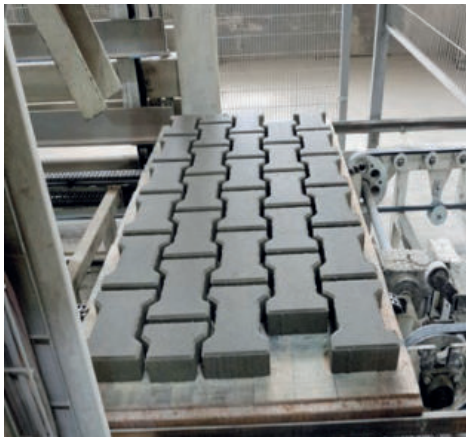
It can be sprayed as well as poured, squeegeed and trowelled, and serves a wide range of applications. It offers excellent crack-bridging properties, even at temperatures as low as -20 °C, plus high UV stability and good resistance to freeze-thaw cycling and de-icing salts. This allrounder is thus also suitable for waterproofing concrete components with cracks close to the surface, including and especially in exposed splash areas impacted by de-icing salt spray. It can also be used as a coating on non-accessible areas in multi-storey car parks.

For further information, please go to our webpage:
https://bit.ly/3uL2NjB

Patrick Kohley
Patrick.Kohley@mc-bauchemie.de

FOR RESILIENT CONCRETES

In Murasan Hydrotech 802, MC has developed a new rheology-regulating agent for the production of goods made from semi-dry concrete. The admixture increases the robustness of the concrete when exposed to fluctuations in water content, and ensures excellent green strength, even with elevated water contents.



For further information, please go to our webpage:
https://bit.ly/390lyt2

Martin Labaj
Martin.Labaj@mc-bauchemie.de

NEW 1C CONCRETE PROTECTION COATING

Zentrifix F21 is a new, high-performance single-component coating that can be used to quickly repair and durably protect crack-prone concrete substrates and concrete support structures in transport infrastructure, industrial buildings, agricultural structures and high-rise and residential construction. Zentrifix F21 is easy to apply by hand or by wet spraying, can be smoothed and rubbed, and exhibits excellent adhesive properties.

For further information, please go to our webpage:
https://bit.ly/3cZ5lyT

MC-INJEKT 2300 FLOW – A ONE-FOR-ALL SOLUTION

Until now, each injection application in construction waterproofing and repair has required its own tailored product. However, with MC-Injekt 2300 flow, our brand new injection resin, we offer a 2-in-1 system that you can adapt to almost any waterproofing injection task.

The new multifunctional, flexible elastomer resin sealant MC-Injekt 2300 flow has a particularly low viscosity of just 120 mPas while offering a long working time of 140 minutes. Yet thanks to our new Water-Boost Technology®, this injection resin will fully react within around 6 minutes at approx. 20 °C once it comes into contact with moisture – curing naturally and effectively without the need for chemical acceleration.

This greatly enhanced reactivity on contact with water and the associated expansive increase in volume drives the resin further into the component, thus additionally boosting the effectiveness of the injection procedure. With MC-Injekt 2300 flow, reactivity takes place at the ideal moment, i.e. when the resin meets water within the structure, ensuring even more reliable results with reduced process complexity.

Unique 2-in-1 system

Another advantage lies in the possibility of combining MC-KAT 22 with MC-Injekt 2300 flow. This activator mixed with component B of MC-Injekt 2300 flow produces a second injection product, namely a water-stopping foam. Using MC-KAT 22 as a chemical accelerator also increases the rate of reaction of the main resin. For this, the activator merely has to be added to one of the two individual components A or B of MC-Injekt 2300 flow before they are combined. The resin then undergoes a stronger reaction with – in a moist environment – a greater increase in volume.

Saving time and money

This 2-in-1 innovation with its multiple capabilities means that you can plug almost any leak in a construction or component with one and the same resin system. Compared with using different injection products, this saves on both time and cost – not just for the injection work itself, but also for storage and transport.

Versatile application suitability

With MC-Injekt 2300 flow, not only can cracks and cavities in concrete and masonry be permanently, flexibly sealed under dry, water-bearing and pressurised water-bearing conditions, but the 2-in-1 system is also ideally suited for sealing solid structures and for injecting via injection hoses or pipe and liner connections in the repair of sewage and wastewater infrastructure.

For further information, please go to our webpage:
https://bit.ly/31YxogW

Holger Graeve
Holger.Graeve@mc-bauchemie.de

Water is one of the most precious resources on our planet. So the demands placed on the related infrastructure are bound to be high. The role played by concrete as the material of choice is of critical importance, hence the global demand for the concrete technology know-how and the highly specialised admixtures of MC-Bauchemie, without which many major projects would simply be unfeasible – as highlighted by the following two unique undertakings, both of which are due for completion in 2021.

Supplying water to Jerusalem

Jerusalem is building a NIS 2.5 billion (approx. € 630 million euros) water supply system designed to meet the rapidly increasing needs of the growing population of the Israeli part of the metropolis over the next 100 years. The once-in-a-lifetime "Fifth Water Supply System for Jerusalem" is Israel's largest water project since the 1950s; it will connect a series of seawater desalination plants along the coast with the higher-lying areas of Jerusalem, and the concrete technology and expertise of MC is destined to play a major role in delivering the network.

Last line section as a headed tunnel

While a major part of the Fifth Water Line will be constructed using the cut-and-cover method, a 13 km long tunnel is also to be built under the Judean Hills. With the first cut taking place in 2016, the water supply tunnel has now been driven by a double-gripper open-shield boring machine from the village of Moshav Kisalon to the Ein Karem district in Jerusalem. The structure has a diameter of 3.9 metres and boasts one particularly fascinating feature: Whereas in most water tunnels worldwide the water flows downhill, here the desalinated seawater is to be transported uphill over a gradient of between 1% and 3% through steel pipes attached

Concreting work in the water supply tunnel in Israel

© JV Züblin-Jäger

SPECIALITY CONCRETES
TAILORED SOLUTIONS FOR UNIQUE CONSTRUCTION PROJECTS

View of the tunnel entrance which forms part of the "Fifth Water Supply System for Jerusalem". From here, steel pipes and concrete are transported by train over distances of up to 6 km inside the tunnel.

© Aviv Mozez_Eliut, Mekorot – Water company Israel.

to the tunnel, each 12.5 metres long and 2.6 metres in diameter. Since the entire system will later have to withstand the high pressure generated by the pumping operation, the annular clearance between the pipe and the inner tunnel lining is to be completely grouted with concrete once the steel pipes have been laid and fitted. The state-owned company Mekorot Water Co. Ltd. commissioned the joint venture Züblin-Jäger, a subcontractor of the consortium "Mayem Le Yerushalem Group", with the construction of this section. The project is being managed in cooperation with the two group companies STRABAG AG Austria and Ed. Züblin AG.

Long distances to the point of use

The unique methodology meant the concrete used had to meet an exceptionally exacting set of requirements, not least because of the long distances over which it had to be conveyed before placement. It is transported in its semi-dry state by means of truck mixers to a railway at the tunnel entrance. The trains then travel up to 6 km in the tunnel before the concrete is remixed in a separate mixing plant located at the front of the train. It is then pumped about 65 metres via small pipes attached on the outside of the large tunnel pipes and flows back from there to backfill those same 65 metres of annular gap between the pipe and the tunnel. The concrete is self-compacting and self-levelling and can thus be relied upon to fill the annular gap with minimal voidage.

Concrete of exceptional flowability

The composition of the backfill grout became quite a technological challenge – with admixtures from MC eventually resolving the situation. The specification required that the concrete be remixed in the tunnel with the addition of water and then pumped into the annular gap at least six hours after the initial mixing. And for unexpected delays during transport and concreting, a site-side safety reserve amounting to an additional three hours was required. The concrete therefore had to be rendered free-flowing after a period of up to nine hours, with curing delayed by up to 12 hours. In addition, the concrete also had to maintain a very

MAKING CONCRETE BETTER

Our experts from the Concrete Industry division provide customers with a holistic range of support services extending from concrete technology advice to preliminary tests in building material laboratories, and from assistance with suitability tests or metering systems to the environmentally compatible delivery of concrete admixtures to site. Each and every desired performance characteristic of concrete – whether early strength, final strength, impermeability, resilience, surface quality or ease of application – is rendered specifically achievable with admixtures and additives from MC. With optimised concrete formulations and sound advice also part of the MC service mix, economical production to the highest quality standards can likewise be reliably assured. Manufacturers of ready-mixed concrete, precast concrete components and concrete goods are thus able to offer architects and planners worldwide cost-efficient construction and manufacture in line with even the most exacting of specifications.

For further information, please go to our webpage:
https://bit.ly/39RsKpB

View into the installed Emscher sewer

high level of flowability in order to travel those up to 65 metres while still filling all cavities and voids.

Exemplary collaboration – exemplary result

The admixtures for the special concrete were selected on the basis of numerous laboratory tests performed in close cooperation between MC-Bauchemie's application engineer Carsten Hess and the concrete technologists of TPA GmbH, which is the quality assurance and innovation arm of STRABAG SE's International Concrete Technology division. Ultimately, four products were selected with which the required properties of the concrete could be achieved in full. A proven superplasticiser was chosen in the form of MC-Montan Shotcrete SP, an admixture characterised by very good liquefaction and long-lasting consistency retention. And with MC-Montan Shotcrete SP 10, a new superplasticiser was actually developed specifically for this project. In addition, Centrament Retard 350 was used as a curing retarder to prolong workability time and delay the development of hydration heat, while Centrament Stabi 520 was used to stabilise the highly flowable grouting concrete and improve homogeneity. MC-Montan Shotcrete SP and Centrament Retard 350 admixtures were also used in the shotcreting of the steel pipes. Formulated exclusively with local raw materials and MC products, the final concrete recipe is being extensively used in Israel. MC has been successfully delivering the admixtures to Israel for more than two years now, without any difficulties or delays – proof of the excellent logistics that have been put in place!

Emscher Renaturation Project – a blue vision

MC's expertise was also in demand for a further unique, once-in-a-lifetime project in Germany: the Emscher Renaturation Project along the middle of the Ruhr region, the largest infrastructure project in the state of North Rhine-Westphalia (NRW). In 1991, a decision was jointly taken by the Emscher Association, which was founded in Bochum in 1899 and has been responsible for wastewater and storm water management ever since, together with the NRW state authorities and the municipalities connected to the Emscher sewer system, to convert the river and all its tributaries back into a natural and nature-friendly watercourse. In future, wastewater was to be channelled through a separate, underground sewer system running from Dortmund to Dinslaken. The project began in 1992 and is scheduled for completion by the end of 2021, by which time the investment outlay will have reached some € 5.38 billion. The sewer system consists of reinforced concrete pipes and box section profiles, with tubbings for the last section, and has largely been constructed by means of underground tunnelling. Built in sections as a two-pipe ducting system with a total length of 73 kilometres, the Emscher sewer will collect the wastewater of around 1.76 million people from a catchment area of 789 square kilometres.

Pumping station challenges

Pumping stations had to be built in the cities of Gelsenkirchen, Bottrop and Oberhausen to raise the wastewater to the required level. Without them, the sewer starting in Dortmund would – with a constant gradient of 1.5 metres per kilometre – have had to go down to a depth of 75 metres at its terminus in Dinslaken. The Emscher Association specified particularly high quality standards for construction of these pumping facilities. It was never going to be possible to supply the highly specialised building materials required "off the shelf", so ready-mixed concrete company Elskes Transportbeton GmbH & Co. KG, with the support of an MC team led by Frank Stengel (key account manager, Concrete Industry division), developed a range of concrete formulations offering elevated acid resistance; these were then tested and certified by German agency MPA Berlin-Brandenburg GmbH.

Speciality concrete for high-spec applications

In addition to PCE-based superplasticisers, the concrete admixture Centrilit NC, a pozzolanic aluminosilicate based on a specially developed nanocrystalliser, was also used. This is a real standard-setter in terms of chemical resistance, acid resistance and strength in high-performance concretes, and is particularly suitable for use in builds needing to meet special durability and resilience requirements. As well as exhibiting very good workability, very good cohesion and good pumpability, the acid-resistant concretes formulated with the admixtures and additives of MC-Bauchemie also – according to technical and production manager at Elskes, Guido Hübener – produced excellent characteristic values in the acid tests performed. Hence optimum durability and a very long service lifetime are reliably assured. For years now, Elskes has also been supplying these high-performance concretes to the production facility of Epping Rohrwerk GmbH + Co KG in Hünxe (Germany). There, they are employed in the manufacture of the sewage pipes being used in the mammoth project. It was in awareness of this track record for outstanding quality that the Emscher Association decided that these acid-resistant concretes should indeed be extensively used in the construction of these essential line pipes.

Once-in-a-lifetime project close to completion

Due for completion in 2021, the Emscher Renaturation Project is destined to serve as a model for other regions around the world and, indeed, has attracted huge international attention. Who would have believed in 1992, when the ground was first broken, that one day vineyards would be found on the banks of the Emscher and that the once shunned paths around the little river would become popular cycling and hiking routes revealing an idyllic scene of greenery and water courses? These two unique projects serve to confirm once again: Concrete will continue to be indispensable as an elementary material going forward – and that manufacturers of ready-mixed concrete, precast concrete components and concrete goods can rely on both MC's technological know-how and its reliable, high-quality product systems.

Carsten Hess
Carsten.Hess@mc-bauchemie.de

Frank Stengel
Frank.Stengel@mc-bauchemie.de

CSC CERTIFICATION A CAUSE FOR CELEBRATION

"We are doing this [...] because we really are committed to sustainable development"

Ralf Linden

The ELSKES Group is a leading concrete company and, in addition to ready-mixed concrete, precast concrete components and structural steel, also offers its customers construction material surveillance. Last summer, ELSKES announced it had been awarded Gold certification by the Concrete Sustainability Council (CSC) for all 20 of its ready-mixed concrete and its three precast concrete plants. We spoke to Ralf Linden, managing director of the ELSKES Group, about the motives for certification and the importance of sustainability for ELSKES.

> "Our aim is constantly to be the best we can be. For our customers, partners, employees and the environment."

Mr Linden, what prompted you to have your ready-mixed concrete plants certified?
ELSKES is a producer and supplier of high-quality concretes which are subject to constant quality controls as part of our in-house monitoring and external surveillance regime. Ever more exacting demands voiced by our customers in relation to product sustainability mean that we constantly have to prove our environmental compatibility and climate-awareness credentials as well as maintaining our normal quality standards. The certification we have now received from the Concrete Sustainability Council shows that we have been successful in this endeavour.

How important is CSC certification for an SME like yours?
The award for our 20 ready-mixed concrete production facilities and our three precast concrete plants gives us double cause for celebration as well as making us generally extremely proud. It serves as a standout recognition of our commitment to sustainability, and it confirms us as among the pioneers taking the ready-mixed concrete market forward. Our customers in the form of developers, project promoters and the public sector are all placing more and more value on sustainability. And I very much expect that concerns in this regard will continue to grow in the future, which means that offering visible commitment to the cause, too, will become increasingly important. We have made good progress in that respect.

How difficult was it for you to obtain certification compared to large internationally structured companies?
The first certification is certainly more difficult for mid-scale companies because they usually do not have staff departments that can devote themselves exclusively to the extensive range of tasks involved. Our employees managed the certification procedure while also taking care of their everyday duties. But it is not just for the certificate that we do this sort of thing – we really do want to be more sustainable, more environmentally compatible and more socially responsible in our activities. These ambitions will thus continue to inform our business management approach going forward.

What advantages do you see coming from this CSC certification?
Certification strengthens our competitiveness, especially with regard to corporate groups. Needless to say, we are keen to promote this achievement, and particularly the fact that we were awarded Gold for all our ready-mixed concrete and precast concrete plants. This award also enables us to demonstrate to our customers and partners our commitment and responsibility towards society and the environment.

For example, we want to make it clear that we view economy and ecology as compatible parts of the same solution rather than opposing forces. Our goal is always to achieve the best possible outcomes – for our customers, our partners, our employees and, last but definitely not least, for the environment.

For further information please go to (German only):
https://bit.ly/382l7vq

HOT TOPIC: THE ECO-BALANCE OF BUILDING MATERIALS

What is the environmental impact of a building material? What sort of resource input is required in the manufacture of a construction product? Does the life cycle of a building component or a structure mean that pollutants are bound to be released into the environment?

These and many other questions about the life cycle assessment – or "eco-balance" – of building products are becoming increasingly important not only in the public eye, but also in the construction sector. And answers to such questions can be found in MC-Bauchemie's Declarations of Conformity with a Model Environmental Product Declaration (EPD).

The model EPDs are examined by independent bodies and made available to members of trade associations such as Deutsche Bauchemie e.V. (German Industry Association for Construction Chemicals), of which MC is also a member. The model EPDs contain all relevant environmental data and cover the entire life cycle of a product.

MC committed to sustainability

MC-Bauchemie is a dedicated proponent of development aligned to protecting the environment and conserving resources. This also includes sustainable product systems that not only meet ecological and resource-efficiency criteria, but also extend the useful life of a building or part thereof.

With its environmental management system and extensive range of sustainability programmes, MC is also pursuing the goal of improving its material and energy efficiency at its production sites – while also reducing water usage, emissions and waste. Packaging made from recycled material has been in successful use for many years at the company, and MC supports the return of empty packaging and recyclable material to the production loop.

Many of these aspects are included in the calculation of the eco-balance of a product class and can also be found in the model EPDs, which are checked by an independent body and certified by the IBU – Institut Bauen und Umwelt e. V. (see adjacent box) in Germany.

Environmental product declarations

Model EPDs contain all environmentally relevant data pertaining to a building material category. They provide comparable information on environmental impacts and include all information relevant to the entire life cycle of a product, from initial extraction of the requisite raw materials, followed by production, transport and installation in the building, to the end-of-life (or end-of-use) phase with disposal or recycling options.

The environmental impact of the manufacture and use of the product is likewise disclosed, as are possible health risks. The declarations of conformity with model EPDs from MC-Bauchemie can be found on our website in the download section or on the respective product pages.

Institut Bauen und Umwelt e.V.

ABOUT THE GERMAN INSTITUTE FOR BUILDING AND THE ENVIRONMENT

Representing more than 200 companies and associations, the IBU – Germany's Institute for Building and the Environment – is the largest association of building material manufacturers engaged in the promotion of sustainable construction. The IBU operates a cross-industry and independent information system for construction products and building components aimed at ensuring that appropriate ecological aspects are duly included in the sustainability assessment of structures.

For further information, please go to:
https://ibu-epd.com/en/ibu/

To find our model EPDs, please go to our webpage:
www.mc-bauchemie.com/downloads/

ENVIRONMENTALLY AND USER-FRIENDLY BUILDING MATERIALS

MC-Bauchemie manufactures environmentally compatible and resource-efficient construction products aligned to improving the eco-balance of each and every build in which they are used – from special admixtures for producing cement-free concretes, to sealants, concrete release agents, plasters, renders, mortars and surface protection coatings. They contribute significantly to improving the sustainability of a building through a reduction in environmentally harmful emissions, better durability, lower inspection and maintenance costs and a reduced cleaning requirement. By way of illustration, here below are three new, "green" products from our development effort.

THE ENVIRONMENTALLY COMPATIBLE CLEANER

*The new tool and equipment cleaning fluid **MC-Cleaner eco** gets items spotless, yet also offers the ecological benefit of being extensively manufactured from renewable raw materials. Harmful vapours are reduced to an extent that allows permanent inhalation as a harmless REACH-assessed exposure scenario.*

For further information, please go to our webpage:
https://bit.ly/3uxk4wh

THE SOLVENT-FREE SEALANT

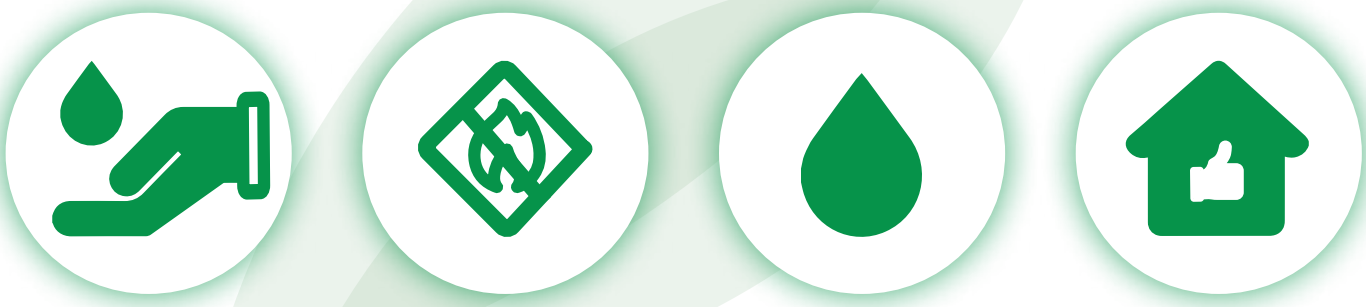
The single-component, flexible MS polymer sealant **Mycoflex 488 MS** is isocyanate-, silicone- and tin-free as well as being free of hydrocarbon solvents, so it is practically odourless. It can be used without primer for sealing movement/expansion and construction joints as well as edge, fillet and floor joints.

For further information, please go to our webpage:
https://bit.ly/31WILpO

AN EPOXY RESIN SUITABLE FOR ALLERGY SUFFERERS

The water-dispersed epoxy resin sealer **MC-DUR 111 eco** is suitable for mineral substrates exposed to mechanical and chemical stress, and industrial surfaces subject to light to medium mechanical loads. It meets the criteria of Germany's AgBB 2018 health evaluation scheme for indoor spaces and is classified under the GISCODE: RE05. In contrast to standard epoxy resins, which can cause allergic skin irritations, MC-DUR 111 eco has no skin-sensitising effect. And that is pretty unique!

For further information, please go to our webpage:
https://bit.ly/3fOx3Wp



View of the southern shore of "Phoenix-See" in Dortmund, site of the exclusive "Seewinkel" residential complex

RESIDENTIAL COMPLEX WATERPROOFED

The exclusive "Seewinkel" residential complex was built on the southern shore of "Phoenix-See", a lake in Dortmund, over the period between the end of 2018 and spring 2020. In this construction project, MC spray sealants were able to once again demonstrate their strengths in terms of quality and speed of application.

Phoenix-See in Dortmund is an artificial body of water on the 96-hectare site of the former Hermannshütte smelting works in the municipal district of Hörde. An upmarket residential environment has been created as a lighthouse project around its southern shore as a further example of the structural transformation occurring in the city.

Inspired by a project report in MC aktiv

The ambitious "Seewinkel" build on the south side of Lake Phoenix was completed in April 2020. Its 26 apartments each have a terrace or a balcony plus a parking space in the underground car park. The homes were built by Freundlieb Bauunternehmung GmbH & Co. KG of Dortmund under the project management of construction engineer Christoph Weischenberg. "I was interested to read the report in MC aktiv about the waterproofing of a hospital in Duisburg (Germany) using spray-on sealants. That resonated as an ideal solution, so we applied the same technology in our Seewinkel project," Weischenberg explains. Having thus decided against using welded sheeting and in favour of this spray-on barrier solution from MC, he commissioned the specialist firm M + M Pistohl GbR of Senden (Germany) with the application work. The waterproofing had to be executed within a strict time frame, yet with the assurance that the surfaces involved would be sealed with maximum efficiency.

The sealant selected was Nafuflex Profi Tech 1, a compound especially developed by MC for airless spray application. This fast-drying, single-component, sprayable polymer-modified bitumen thick coating (PMBC) is approved in accordance with DIN 18533 for waterproofing buildings for water exposure classes W1-E, W2.1-E, W3-E and W4-E. In this case, the walls were sealed with Nafuflex Profi Tech 1 in a dry layer thickness of 4 mm. In critical areas such as construction joints, the system sealing tapes of the MC-FastTape series were also used as part of the integrated solution.

Reactive sealant for efficient waterproofing

The specification both for the base area of the external façade and the underground car park foundations was for a sealant offering particularly good resistance to freeze-thaw cycling and de-icing salts,


Nafuflex Profi Tech 1 was applied using the airless spraying technique.

as well as excellent waterproofing performance. So, the decision was made to use MC-Proof eco, MC's fast-setting, highly flexible and bitumen-free reactive sealant. It can be plastered-over and is UV-resistant, making it ideal for outdoor use. In the plinth area, there were also many floor-to-ceiling windows that had to be fitted and sealed. The primary challenge in such cases usually derives from the frequent material changes involved, with welded membranes and liquid resins alternating. However, the MC proposal involving MC-Proof eco meant that this mix was avoided, making the work much faster and the end result visually more attractive.

Positive balance

Following on-schedule completion of the work, project manager Weischenberg noted with satisfaction: "It was important for us that MC, as the product supplier, provided its own application engineers to support the waterproofing work, thus making sure that the task was carried out with expert precision to the specified quality standard. As a result, everyone involved enjoyed the experience of a job well done."

Patrick Kohley
Patrick.Kohley@mc-bauchemie.de

HRIČOV HYDROELECTRIC POWER STATION, SLOVAKIA

TAILRACE REHABILITATION

At the Hričov hydropower station in north-eastern Slovakia, the requirement arose for parts of an open tailrace (discharge channel) to be rehabilitated. Concrete repairs carried out with Nafufill products and waterproofing with MC-Proof 601 HT and MC-Proof eco – all from MC – served to reinstate the tailrace's resistance to chemical and mechanical degradation.

The Hričov hydropower station is located some 200 km northeast of the Slovakian capital Bratislava on the Váh, the longest river in Slovakia. The complex, which was commissioned in 1962, is integrated within the Mikšová and Považská Bystrica grid and produces an average of 59.1 GWh of electricity per year. The rehabilitation of the tailrace was carried out in the period from September to October 2019. The main contractor for the project was Revels s. r. o., with the site work being performed by NSM s. r. o., a long-standing customer of MC.

Requirement for resilient waterproofing

Due to the damage suffered by the concrete substrate, it had become necessary to seal the open tailrace against water leaks at various locations. The aim was to create a full-surface contact layer that would perfectly match the original concrete. The client further specified a coating offering long-term resistance to the mechanical and chemical degradation caused by the fast-flowing water, and also full resistance to UV exposure.

Selective repair work was likewise to be possible in the event of subsequent localised damage occurring. The solution proposed by MC, a combination of the two spray sealants MC-Proof 601 HT and MC-Proof eco, proved to be ideal in meeting the job specifications.

Flexible solution with spray sealants from MC

The concrete substrate of the tailrace was first blasted with high-pressure water. Holes and deeper damage revealed in the process were then repaired with products from MC's Nafufill series. With the substrate thus smoothed, the waterproofing layer was applied using either the bitumen-free, two-component waterproofing product MC-Proof eco or the single-component, flexible waterproofing slurry MC-Proof 601 HT, depending on the situation and the requirements of the tailrace section concerned. The special features of MC-Proof eco include very fast through-drying – largely independent of temperature – plus the twin benefits of high-strength adhesion to the substrate and good recoatability.

This reactive resin compound is also certified harmless to water hygiene in accordance with the strict criteria laid down by Germany's AgBB (Committee for Health-related Evaluation of Building Products). Tested compliant with EN 1504-2, MC-Proof 601 HT is flexible, offers excellent crack-bridging and exhibits high UV stability. As well as being alkali-resistant, frost-resistant and open to diffusion, it is suitable for hot surfaces up to 70 °C and remains waterproof up to 1 bar.

In total, MC-Proof eco and MC-Proof 601 HT were used to rehabilitate an area of around 22,000 m^2. Despite the logistical challenges presented by the remote location, the project team was able to ensure that there was always enough material on site throughout the entire application phase, thus maximising cycle rates and minimising tailrace downtime – as well as providing a new, durable coating solution.

Tomas Petro
Tomas.Petro@mc-bauchemie.sk

PREDIGTSTUHL CABLEWAY RESTORED TO FORMER GLORY

Major concrete rehabilitation works were carried out between summer 2018 and autumn 2020 on the top station and the supporting pillars of the Predigtstuhl cable car system in Bad Reichenhall, originally built in 1928. The project also involved refurbishing the visible sides in line with their original board formwork look. The project was an all-round success, as evidenced by the award of the 2020 Bavarian Heritage Preservation Prize in the Private Buildings category. The numerous cracks in the cableway supports were first grouted with the low-viscosity duromer resins MC-Injekt 1264 compact and MC-Injekt 1264 TF.

The concrete repair work was carried out with the corrosion inhibitor Nafufill KMH and the PCC concrete replacement Nafufill KM 250. The board structure of the outer surfaces was refurbished using a fine filler from MC. And final surface protection was provided with the deep-penetration hydrophobic agent Emcephob WM and a dirt- and blemish-repelling concrete finish of MC-Color Proof pro.

For further information please go to:
https://bit.ly/2POhMKt

INTERMEDIATE DECK COATED IN WINTER

Multi-storey car park in Leibstadt refurbished

View of the coated intermediate deck of car park ZZ6 at Leibstadt nuclear power plant

At car park ZZ6 serving the Leibstadt nuclear power plant in Switzerland, intermediate deck 2 was recently given a slip-resistant OS 8 coating. Using MC-Floor TopSpeed ensured that the work could be successfully carried out despite the wintery conditions prevailing.

The coating work was carried out in the depths of winter.

The town of Leibstadt is located on the Upper Rhine close to the border with Germany in the Swiss canton of Aargau. It boasts Switzerland's youngest and most powerful nuclear power plant, built in 1984. The complex includes a multi-storey car park, of which decks 2 and 3 were to be refurbished in two separate project phases. The first phase saw provision of an OS 8 coating on the deck of the middle car park level at the end of 2020.

Deck coating in winter

The scheduling of the job required working from mid-November to mid-December, including all installation repairs, substrate preparation and coating. Despite low temperatures of 5 to 6.5 °C, high humidity between 73 and 80 % and strong winds, the client Kernkraftwerk Leibstadt AG wanted all measures to be carried out without expensive enclosures or heating costs. It was therefore decided to refurbish the deck using a combination of MC-Floor TopSpeed SC and MC-Floor TopSpeed. Both products can be applied down to a temperature of 2 °C and are integral to both the OS 8 and OS 10 surface protection systems provided by MC.

Intermediate deck coated with OS 8 system from MC

The 2,700 m^2 area of intermediate deck was first shot-blasted and then primed with MC-Floor TopSpeed SC. The two-component, transparent reactive resin based on KineticBoost-Technology® cures quickly and is largely immune to humidity and temperature. As a primer for mineral substrates under EP and PU coatings, it can be filled with mineral aggregates. For the Leibstadt contract, MC-Floor TopSpeed SC was mixed with kiln-dried quartz sand, applied with a squeegee and then fully scattered with quartz sand in the grain size range 0.2 to 0.6 mm. For the following bedding layer, a fast-application, moisture-tolerant MC-Floor TopSpeed roller coating was applied without any sand fill, after which the surface was fully scattered with quartz sand in the grain size range 0.8 to 1.2 mm. The top seal of MC-Floor TopSpeed was then roller-applied and again allowed to cure naturally in the knowledge that any moisture or temperature influence would be negligible.

MC-Floor TopSpeed offers high abrasion resistance and strong anti-scratch resilience. It is resistant to diluted acids, alkalis and salt solutions as well as being UV-stable. And the decision to use it paid off in full as the refurbishment project in Leibstadt proceeded. With the low temperatures and high humidity encountered, standard systems would not have had any chance of success. The anti-slip and waterproofing OS 10 coating of the upper parking deck, which also measures 2,700 m^2, was subsequently completed in the period from March to April this year, again using the MC-Floor TopSpeed system.

Meinrad Suppiger
Meinrad.Suppiger@mc-bauchemie.ch

Daniel Weber
Daniel.Weber@mc-bauchemie.ch

LOADING RAMPS QUICKLY REPAIRED

HERMES LOGISTICS CENTRE LANGENHAGEN

The loading areas at the Hermes hub after installation of the MC-Floor TopSpeed system

The concrete surfaces of the loading ramps at the main northern transshipment hub of shipping services provider Hermes in Hannover-Langenhagen had greatly deteriorated. Installation of MC-Floor TopSpeed, the quick-to-apply and extremely resilient floor coating from MC-Bauchemie, remedied the situation, producing an excellent repair finish.

The distribution centre, which has been in operation since December 2010, consists of a 230-metre-long hall with 110 gates for loading and unloading. Due to the enormously high frequency of usage by trucks and delivery vehicles, the concrete surfaces of its ramps had become heavily degraded. Hermes decided, therefore, to have the affected area of approximately 2,500 m^2 completely rehabilitated.

Innovative KineticBoost Technology®

Project planning engineers BetonKontor of Bad Bramstedt (Germany) elaborated a concept with MC that provided for the coating of partial areas with an MC-Floor TopSpeed structure so as to allow operations to continue. This innovative resin system is based on KineticBoost-Technology®, a special new binder chemistry that enables coating work to be performed in an extended temperature range of 2 to 35 °C as well as in conditions of high air humidity and high moisture in the substrate. It also meets in full the requirements of surface protection grade OS 8 per EN 1504-2 and German standard DAfStb Rili SIB 2001. The Hamburg-based application contractor Bekor first primed the substrate with MC-Floor TopSpeed SC. The same product was then used as a bedding layer scattered with quartz sand in a grain size range of 0.7 - 1.2 mm. The final sealer was provided in the form of MC-Floor TopSpeed flex.

Resilient coating for heavy-duty logistics areas

Multilayer coating with the MC-Floor TopSpeed product family can be quickly executed, even under adverse environmental conditions. The inherent UV resistance of the system also means that it is ideally suited for areas exposed to the elements. Offering high levels of resistance and resilience, it provides excellent, durable protection for surfaces carrying high-frequency heavy goods vehicle traffic. In Langenhagen, the MC system once again proved that outdoor floor coating solutions can be quickly implemented with full trafficability returning after just a few hours. Giving rise to only short downtimes required for the rehabilitation work, once again the system ensured that operational disruption was kept to a minimum.

You can read the full report on our webpage at:
https://bit.ly/3cY4WC5

Thomas Rüdebusch
Thomas.Ruedebusch@mc-bauchemie.de

AUTHENTIC SAVANNA LANDSCAPE

Early 2020 saw completion of Zurich Zoo's African savanna-themed Lewa enclosure, with large artefacts such as rocks and even trees being recreated with Oxal RM products from MC. Outstanding features of the large open spaces of the complex include "Kopje" or koppie rock piles modelled on African inselbergs complemented by massive artificial baobab trees with heights of up to 19 metres. The planning and design work was entrusted to L3P Architekten AG of Regensberg (Switzerland), while the sculpting was carried out by sculptor and set designer Thilo Krause of Coswig (Germany).

You can read the full report on our webpage at:
https://bit.ly/2PQJ17l

PORTRAIT

MC'S PRINT SHOP
FROM INITIAL LAYOUT TO PRINTED PRODUCT

For decades now, MC-Bauchemie has had its own print shop at its Bottrop site. The team consists of Andreas Burow, Markus Placzek, Jörg Steinhauer, all of them trained printers, and Marc Stangenberg, who takes care of process management and job planning. Together they have been with MC for over 100 years – serving to ensure that, among other things, there are always enough packaging labels, brochures and flyers available to keep the show on the road.

In addition to an offset printing machine, MC also has a digital printing machine that can be used to professionally print even the shortest of runs. Other equipment in the pool includes machines for cutting, folding and stitching brochures, flyers etc. Each year, the shop handles some 1,800 printing orders – all kinds of brochures, pamphlets, leaflets, posters, stationery, business cards, writing pads etc. for all MC Group divisions based in Bottrop. And it is more or less a 24/7 operation. Marc Stangenberg (33, pictured above, 1st from left) completed his training at MC some 18 years ago. Today, as process manager responsible for job planning and organisation, it is he who ensures that everything runs smoothly.

The longest-serving employee in the print shop is Andreas Burow (54, 2nd from left). The trained printer and qualified industrial foreman has worked at MC for over 34 years and serves as supervisor of the print shop team. He is primarily concerned with digital printing and the further processing of printed products. Markus Placzek (59, 3rd from left) has also been with MC for 34 years. The trained offset printer started at MC shortly after Andreas Burow and has also, over the years, trained as a photosetter and reprographic designer. His main field of responsibility lies in pre-press, i.e. work preparation for printing.

The third trained printer in the group is Jörg Steinhauer (54, far right). He has been with MC for 20 years and is primarily responsible for the offset press, which is used in particular to print brochures, pamphlets, flyers, etc. in large runs. Together, the team offer a reliable in-house printing service that is very much appreciated by all who use it. 😉

INTRODUCING: THOMAS HERBST

A SALES REP WITH TWO REASONS TO CELEBRATE

Thomas Herbst, Infrastructure & Industry area manager responsible for greater Düsseldorf, Duisburg, Mülheim and Oberhausen, celebrated two anniversaries in January: his 60th birthday and his 30th year with MC.

He started in 1991 with a card index in a wooden box, around 15 to 20 contacts and hardly any customers. However, hard work and persistence paid off and, bit by bit, he built up a good client base – these days he counts planning engineers, industrial companies, application contractors and public authorities among his most important customers and partners. "MC has played a big part in my life. I am proud to be a small detail in the bigger MC picture – and to have stayed the course!" Thomas tells us. When not working, he spends as much time as possible together with his family, and enjoys skiing and playing golf.

Our heartiest congratulations and many happy returns to him on reaching both these significant milestones!

All the best & continued success!

PERSONNEL NEWS

DR. NINA MÜTHING (34) took up the position of Technical Manager Tunnel & Infrastructure at MC on 1 January 2021. Her role is to support the Tunnelling Business Unit from product development and project acquisition through to both product and site management. After completing her Doctorate at the Ruhr University in Bochum, the civil engineer most recently worked in international infrastructure construction for a large corporate group.

DR. MAX-FABIAN VOLHARD (33) joined MC's Research & Development department on 1 January 2021 as a chemist responsible for developing mineral building materials. After his Master's degree in chemical engineering at Münster University of Applied Sciences, in 2020 he completed his Doctorate – a cooperative PhD at Münster University of Applied Sciences and Westfälische Wilhelms-Universität (WWU) Münster – in marine biodegradable plastics.

DR. FLORIAN WITTKAMP (30) joined MC on 1 January 2021 as a chemist in the Research & Development department where he is responsible for the development of concrete admixtures and research into superplasticisers for cement-free concretes and mortars. After completing his Master of Science degree in chemistry at the Ruhr University in Bochum, he also took his Doctorate there, qualifying in 2020 with a thesis covering research into inorganic chemistry.

CHRISTIAN SCHAFFRIN (35) took over the position of Regional Sales Manager for Infrastructure, Industry & Buildings at Service Centre West B on 1 February 2021. After his commercial training, he worked for several years in product management for a construction tools company. While working he successfully completed a degree in International Management at the FOM University of Applied Sciences in Essen and most recently headed the product management department of a chemicals company.

NEW STRUCTURE: PRODUCT LINE MANAGEMENT

At the beginning of 2021, MC introduced a new international product line management structure to provide more targeted support to MC's regional management and international companies in the implementation of their market and product strategies.

Product Line Management is the link between Product Management, Business Development and Regional Management including the MC country organisations outside the DACH (Germany, Austria, Switzerland) region. Each product line manager (PLM) is responsible for a clearly defined product area with the specific task of driving forward the core international projects of MC and supporting implementation in the MC country organisations. The PLMs also provide support for national projects pursued by the country organisations under their own management. The PLMs are likewise required to help set up production operations, to further develop the product portfolio and to actively manage innovation in the segment for which they are responsible. They report to the segment managers Dr. Christoph Schüle (Concrete), Dr. Joachim Käppler (Refurbishment & Protection, Flooring) and Hamed Jadidzadeh (Flooring, Waterproofing, Building Finishing & Sealants). Allow us to introduce you to our new Product Line Managers and our Junior Segment Marketing Manager:

Markus Treinen
Injection & Adhesives

Reinhard Martin
Surface Protection Resin (+ project support in wind energy, cooling towers, dams)

Martin Labaj
Additives for Concrete Goods & Waterproofing Admixtures

Apurv Kesarkar
Concrete Repair, Hydrophobic Agents, Surface Protection Dispersion

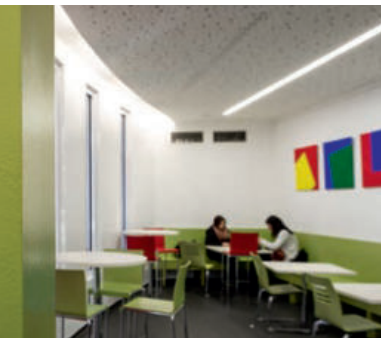
Rebeca Ferreira
Building Finishing

Peter Schmidt
Resin Flooring & Road Resins

Fanni Vikor
Junior Segment Marketing Manager

Kai Markiefka
Admixtures, Additions for Concrete, Cement-Free Mortar Systems

Many do colour.



MC-Color LE does more!

The high-performance coating system MC-Color LE offers the perfect solution for lasting colour on interior walls. Its closed, smooth surface is **EXTREMELY RESISTANT,** can be **QUICKLY CLEANED WITHOUT ENVIRONMENTAL HARM**, acts as a **GRAFFITI REPELLENT** and is **DISINFECTABLE.**

Maximum protection and value retention: MC-Color LE – more than just colour.

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SURFACE PROTECTION

IN@mc-bauchemie.de

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