# MC aktiv

THE MAGAZINE OF
MC-BAUCHEMIE **3-2024**

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BE SURE. BUILD SURE.

## Dear Readers,

***Bridges are indispensable for transport infrastructure and the economy. They connect people and places, enable the exchange of goods and ensure our mobility. Their maintenance is therefore of great importance.***

*Rising traffic volumes and increasing environmental influences are putting a strain on bridges. This can lead to damage, closures or even collapse – a serious safety risk. Regular inspections and maintenance measures are therefore essential to ensure the safety and longevity of bridges. For over 60 years, we have been contributing to the maintenance of bridges worldwide with innovative solutions. Read more about this in this edition's Main Feature on page 8.*

*Despite the current economic situation, the demand for new constructions and refurbishments remains high, as demonstrated not least by the range of project reports in this MC aktiv. And our expertise remains in demand worldwide. We are therefore once again taking the opportunity to present our portfolio to a national and international audience at the BAU construction trade fair in Munich in January 2025. You are welcome to visit us at booth 137 in hall B6.*

*Enjoy the read, happy holidays and a happy and successful new year!*

*Yours,*
*Nicolaus M. Müller*

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**Credits and legal**

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# MC-BAUCHEMIE POLAND CELEBRATES ITS 30TH ANNIVERSARY

View of the facility operated by MC-Bauchemie Poland in Środa Wielkopolska

*The success story of MC-Bauchemie in Poland began over 30 years ago with the establishment of a branch in Środa Wielkopolska, near Poznań, in December 1993. This year, the company is celebrating its 30th anniversary, a chance to look back on its impressive development.*

MC-Poland started its operations in 1994 with just a few employees. Today, the company has 15,000 m² of production and storage space and 2,000 m² of office space at its main site and employs over 220 people at its headquarters and sales offices in Warsaw, Wrocław and Katowice. The company manufactures various construction chemical products on eight production lines in Środa Wielkopolska, including a wide range of repair mortars and concrete admixtures. The plant is also the exclusive manufacturer of building boards within the entire MC Group.

**The success story continues**

With an annual production of over 30 million tonnes, MC-Poland supplies markets throughout Europe with a large part of the product range of MC and its sister companies. And its role as a supplier of products for German DIY stores serves as proof of the high level of expertise of the Polish site.

MC-Poland is planning further ambitious developments for the future to drive the company's growth. They include the further automation of production processes and expansion of the associated QA systems, as well as the recruitment of new employees. In addition, the construction of a new production building will increase capacity for the flagship product of building boards. The company is also focusing on sustainability: Photovoltaic systems are being installed on the site to generate electricity from solar energy. The warehouses are being modernised to optimise logistics and MC-Poland is also planning to start resin production in the near future.

Thanks to high-quality product systems and high service standards, MC-Poland has developed into one of the leading construction chemicals companies in Poland over the past three decades. And we want to keep things that way going forward. Congratulations on the company's anniversary and continued success! Gratulacje z okazji rocznicy firmy i dalszych sukcesów!

Group photo of the newly established MC-Bauchemie Peru team

# MC ESTABLISHES NEW COMPANY IN PERU

MC-Bauchemie commenced its business activities in Peru on 1 June 2024. One of the reasons for the expansion is the huge potential that lies in the country's mining and infrastructure sector. Christian Vera (43) has been appointed Managing Director of MC-Bauchemie Peru SRL. The company initially started with the sale of products for concrete repair, injection technology and structural waterproofing, which it sources from Brazil, Chile and Germany. Local production is planned in the medium term. With the new branch, MC-Bauchemie is strengthening its presence in South America where it is already active in Brazil, Chile and Bolivia.

Further information can be found at:
https://bit.ly/3CHWB4V

Big Picture

ALBA ARENA in Hungary

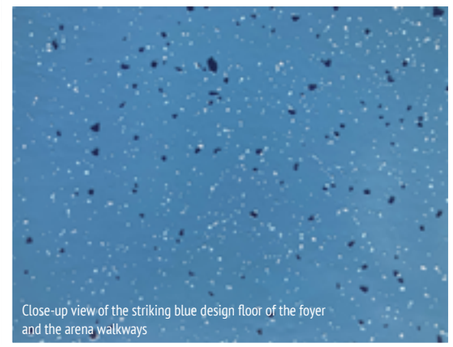
## A NEW VENUE FOR SPORTS AND EVENTS

*In April 2024, the Alba Arena in Székesfehérvár, Hungary, celebrated its opening as a modern sports and events venue. With a total area of 23,730 m², the multi-functional hall not only offers space for up to 8,000 spectators, but also has offices, a service area, a restaurant and another event hall on four floors. The contractor, Market Építő Zrt, used a range of MC products in the construction of the Alba Arena, particularly in the design of the floors.*

*The striking design of the blue floor with scattered white and blue chips was developed in close cooperation with MCXVI Architects Studio and Gábor Szokolyai and realised with an MC-DUR system buildup in the entrance hall and the arena walkways. This seamless floor, made with the special resin MC-DUR TopSpeed flex, combines aesthetics and functionality. Thanks to the fast drying of the resin, the construction time was optimised despite the difficult winter weather conditions. When it came to coating high-traffic areas such as the spectator area, the contractors opted for the single-component floor sealer MC-Estrifan Color Protect, which offers high wear resistance as well as good protection against stains and abrasion.*

*Thanks to the close cooperation between the city, the architects, the contractor and MC-Bauchemie, this ambitious project was successfully completed to the satisfaction of all participants.*

You can find the detailed project report on our website:
https://bit.ly/3ClNaly



Close-up view of the striking blue design floor of the foyer and the arena walkways

# MORE EFFICIENT & FASTER: MC TO LAUNCH BIG BAGS ACROSS THE DACH REGION IN 2025

*Labour shortages and fluctuating staff quality are currently the biggest challenges on construction sites. To meet these challenges effectively, MC-Bauchemie is set to launch an innovative combination of continuous mixing technology and 800 kg Big Bags for a range of concrete repair mortars in the Central European DACH* region at the beginning of 2025. This solution not only optimises the use of personnel, but also ensures consistent quality and efficiency in the work processes, as well as less dust and waste on the construction site.*

MC-Bauchemie will initially offer the proven concrete repair mortars Nafufill KM 250, MC-RIM PROTECT, Nafufill KM 180, Nafufill KM 130 and MC-RIM PROTECT H in Big Bags and has installed a special Big Bag filling system at its headquarters in Bottrop. Combining these sacks with the latest continuous mixing technology has led to a new level of efficiency. The new technology ensures consistently high material quality and enhances operational output. And for optimum integration, MC-Bauchemie has developed a Big Bag transfer station specially adapted to the needs of the construction site.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* DACH = Germany, Austria and Switzerland

## MC-PROOF 530 – NEW WATERPROOFING AND PROTECTIVE COATING

MC-Bauchemie has launched MC-Proof 530, a new multifunctional waterproofing and protective coating. The 3-in-1 solution is suitable for all types of waterproofing and surface protection applications: from the sealing of structures permanently exposed to water, to surface protection in accordance with EN 1504-2, as well as classic structural waterproofing. MC-Proof 530 has been developed primarily for the waterproofing and protection of concrete structures exposed to heavy water loads, such as reservoirs, industrial water tanks, seawater structures and critical infrastructure such as bridges and power stations, but can also be used for the interior and exterior waterproofing of buildings and homes.

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For more product information, visit our website:
https://bit.ly/4f1TUc9

## MC-ECOFLOW – HIGH-PERFORMANCE SUPERPLASTICISER FOR $CO_2$-OPTIMISED CONCRETES

With the new MC-EcoFlow product line, MC-Bauchemie has launched a high-performance superplasticiser that facilitates the production of $CO_2$-optimised concretes and contributes to sustainability in the construction industry. MC-EcoFlow supports the use of clinker-reduced cements, recycled aggregates and fine-grained sands, thus reducing resource consumption and carbon footprint.

MC's innovative polymer technology also ensures a stable concrete consistency – ideal for long transport distances and complex projects. MC-EcoFlow likewise helps to reduce construction time and increase efficiency through optimised flow properties and rapid strength development. The new high-performance superplasticisers are perfect for high flow and self-compacting concretes.

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Not marble, but a unique design with industrial flooring resin


# MARBLE-LIKE INDUSTRIAL RESIN FLOORS – ART MEETS INDUSTRY

*The application possibilities of the epoxy resin MC-DUR 1200 go far beyond the traditional industrial sector. MC-Bauchemie Bosnia and Herzegovina has discovered new potential for this resin and is now using it to produce unique, marble-like floors that are visually impressive and extremely durable.*

While MC-DUR 1200 is normally used for industrial floors in factories and production halls and has enjoyed great popularity for many years, Nermin Zečić, sales representative of MC-Bauchemie in Bosnia and Herzegovina, has started to make use of the epoxy resin for artistic applications and decorative floors. The results are aesthetically pleasing, marble-like floors for residential buildings.

**Buildup and implementation**
These floors are produced in a clearly structured process. First, the substrate has to be prepared and cleaned using diamond grinders. A primer is then applied. Once the surface has dried for 12 to 24 hours, you can apply a scratch coat. This is a mixture of epoxy resin and quartz sand in a 1:1 ratio. After a further 12 to 24 hours, the final coat can be applied using the self-levelling version of the resilient MC-DUR 1200 epoxy resin coating. Unlike the usual process, you can create decorative effects by using two or more colours.

**The technology behind the unique marble effect**
Each floor is unique. The different colour combinations ensure that no two floors are alike. You can achieve the marble effect by pouring one colour on top of the other or next to it and using a short-pile roller to smudge it in the desired direction. You can also draw lines on the fresh epoxy with an acrylic spray and then roll them out. This artistic work must be carried out within 30 to 40 minutes, as the material then hardens. One of the advantages of this innovative method is that it is relatively easy to implement, as the resin is usually applied to interior screed floors and the surfaces are normally in good condition, providing ideal conditions for application.

This innovative approach underlines the versatility of MC-DUR 1200 and shows how creatively the industrial resin can be used for flooring, even in residential buildings.

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Main feature

# PROTECTING AND PRESERVING BRIDGES – FOR A SAFE ROUTE INTO THE FUTURE

## Powerful and durable systems for the protection and maintenance of bridge structures

View of the major construction site of the Leverkusen Rhine Bridge, the deck of which has been sealed with MBC-VT 116.

*Bridge structures are a fundamental element of transport infrastructure. However, increasing traffic volumes and aggressive environmental influences are subjecting these structures to ever-greater stress. To ensure their safety and longevity, regular inspections and maintenance are essential. MC-Bauchemie possesses extensive experience and high-quality product systems that have been employed in numerous projects worldwide. Through its efforts, MC makes a significant contribution to preserving transport infrastructure across the globe, ensuring safety where it is needed.*

On 11 September 2024, dramatic images of the collapsed Carola Bridge in Dresden went around the world, causing surprise and horror, even among experts. The incident emphasised the urgency of regular inspections and maintenance: Bridges are essential connections that not only manage traffic flows, but also uphold economic and social infrastructure. Neglecting these structures leads to unpredictable risks and can have serious consequences. Several tens of thousands of the 130,000 or so bridges in Germany are now known to require urgent repairs.

Germany plans to allocate €9.3 billion to bridge renovations by 2030. Yet, as of 2021, only 12% of bridge surfaces on federal highways were in good or very good condition, according to the German Construction Industry Federation. Meanwhile, 47% were classified as "barely adequate" or worse. The Central Association of the German Construction Industry describes this as a "grim symbol of Germany's infrastructure". The weekly German newspaper DIE ZEIT headlined "In the Land of Crumbling Bridges", and national radio station Deutschlandfunk referred to the situation as "a monument to Germany's shortcomings". Germany is not alone in facing this issue: In the United Kingdom, 3,000 bridges are deemed "non-compliant with building standards" according to the British automotive services company RAC. In France, a 2019 survey revealed that 25,000 bridges were in a precarious condition. In Italy, many of the over 7,000 bridges exhibit critical defects, while in the United States, more than 60,000 bridges have structural deficiencies, with renovation costs currently estimated at $123 billion.

The Alexandra Road Bridge in Dublin was protected and embellished with MC-Color Flex.

### Bridges facing increasing load demands

The causes of this widespread issue are clear: Growing societal mobility, economic growth and, in the case of Germany, its central role as a European transport hub have dramatically increased traffic in recent decades. Much of the existing infrastructure is no longer sufficient to meet 21st-century demands. Additional strain is placed on bridges by higher axle loads and harsher environmental impacts. Moreover, most of Germany's bridges were built in the 1960s, and wear and damage naturally increase as structures age.

For this reason, maintenance and protection are crucial – not only is refurbishment faster and more cost-effective than new construction, but it is also more environmentally friendly. MC-Bauchemie offers an extensive portfolio of proven product systems for concrete repair, surface protection, structural reinforcement, and waterproofing of bridge structures. These systems meet all technical and aesthetic requirements and adhere to stringent German and European standards such as ZTV-ING and EN 1504.

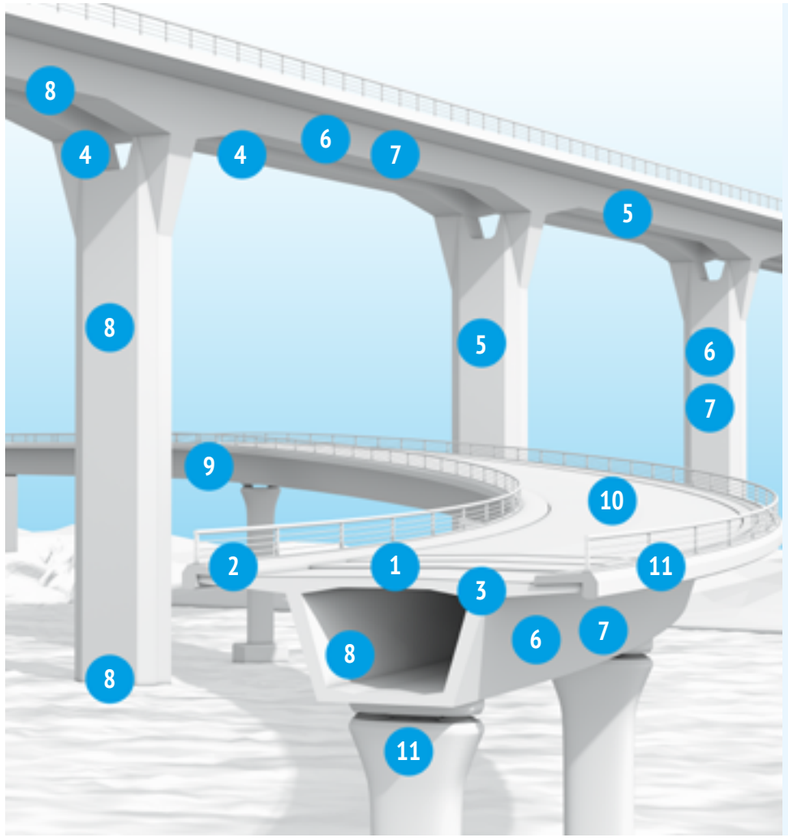
### Efficient and sustainable concrete repair with Nafufill

For the protection and repair of prestressed concrete and reinforced concrete structures in bridge undersides, supports and abutments, polymer-modified, cement-bound RM (PCC II) or SRM/SRC (SPCC) concrete replacement systems have been used for over 30 years. In addition to partial reprofiling, adding concrete cover has become increasingly important. Especially for bridge underside components, overhead surfaces, or supports, products that can be applied via spray techniques are clearly advantageous. These include products from the long-established Nafufill range

### ☛ NOW BAST-LISTED – MC-DUR LF 680 FOR FASTER BRIDGE DECK SEALING

*Reliable waterproofing of carriageway decks is essential to protect the reinforcement, e.g. from water containing de-icing salt. To ensure a permanent bond between the bitumen welding sheet and the concrete substrate, the concrete surface is treated with a reactive resin such as MC-DUR LF 680. This polyurethane resin can be used almost all year round as it can be applied at temperatures as low as 2 °C and even in high humidity. The use of MC-DUR LF 680 significantly reduces construction time, saving thousands of tonnes of $CO_2$, high costs and the time and patience of road users per project – thus offering great ecological and economic potential. MC-DUR LF 680 is also the first polyurethane resin on the German market to be listed by federal highways authority BASt in accordance with the new H V-PUR (2024) regulations.*

Further information can be found here (only in German):
https://bit.ly/3UOUNxj




## REPAIR TASKS AND PRODUCT SOLUTIONS

MC-Bauchemie's versatile product systems offer comprehensive solutions for all technical and design requirements in bridge construction, whether for concrete repair, surface protection, structural reinforcement or waterproofing.

1 Bridge deck waterproofing
2 Bridge parapet protection and repair
3 Bridge deck protection and repair
4 Protection and repair of bridge undersides, columns and abutments
5 Structural strengthening with CFRP lamellas and CF sheets
6 Preventive surface protection
7 Surface protection with increased impermeability
8 Injection for strength enhancement and waterproofing
9 Durable asphalt pavement transitions
10 Surface protection and improved pavement skid resistance
11 Grouting concrete and tamping mortar

Further information about our Bridges FoE can be found here:
https://bit.ly/3UOUNxj

from MC, such as Nafufill KM 250 (suitable for wet-spraying) or Nafufill GST-HS (suitable for dry-spraying). For large component surfaces that need to be restored, dry-sprayed concrete replacement Nafufill SC 08, as well as products from the Nafufill GTS series, are also available as silo products. This allows contractors to benefit from easy and safe handling while helping the client reduce costs.

**Innovative injection systems for sealing and long-term protection**

Innovative solutions for the protection, sealing and reinforcement of bridge structures made of prestressed concrete, reinforced concrete or masonry are provided by MC's injection systems. Effective sealing injection measures can be performed on tensioned and compression-stressed components of reinforced and prestressed concrete using the low-viscosity and penetration-active polymer resin MC-Injekt 1264 compact. This achieves the injection goal even under the influence of dynamic load cycles and increased moisture within the component. Larger voids can be permanently reinforced for the enhancement and strengthening of concrete and natural stone with the mineral slurry Centricrete UF.

**MC-Color sets standards in surface protection**

When it comes to surface protection for bridge structures, MC is a pioneer and has actively shaped the development of such systems. With MC-Color, MC has developed a modular surface protection programme that combines technical performance characteristics for protection, aesthetic design, graffiti protection, and crack bridging of concrete surfaces, with optimal application properties.

It consists of three product lines: MC-Color Proof, MC-Color Flair and MC-Color Flex. In each of these three product lines, the variants pure ("standard"), pro ("professional") and vision ("high-end") offer alternatives for varying requirements of concrete surfaces. Depending on the location, function and future exposure to environmental factors such as UV radiation, temperature fluctuations, moisture, exhaust gases, de-icing salts and biological growth, the MC-Color product line can be relied on to provide a suitable solution.

**MC-Color Flex combines optimal protection with aesthetics**

In combination with the fine mortars from the Nafufill product family, the MC-Color systems have been tested and approved according to European and national regulations. The surfaces treated with Nafufill can be overcoated within a few hours. The protective coating also acts as a curing agent, reducing work steps, drastically shortening processing time and helping to save costs. A current project where MC-Color Flex is used as concrete protection against harmful environmental influences such as salts, chlorides and carbonation is the longest pier in India, the Mumbai Trans Harbour Link, which opened on 12 January 2024 (see MC aktiv 1/2024). In fact, MC-Color Flex has already become the standard for infrastructure and civil engineering protection in India. During the construction of the Alexandra Road Bridge in Dublin's port, MC-Color Flex not only met the high demands for the structure's protection but also those pertaining to its aesthetic appeal (see MC aktiv 2/2022): MC-Color Flex pro gave the bridge a unique design.

**Comprehensive protection for bridge decks**

When repairing bridge decks, the properties of concrete replacement systems must meet the strictest performance requirements, as must the surface protection systems. After all, bridge decks are particularly exposed to freeze-thaw cycling and salt attack, which can damage the entire bridge structure over time. To prevent this, MC-DUR product family OS F (OS 11) systems are recommended to ensure a coating with enhanced dynamic crack-bridging ability, even in spray or splash areas exposed to de-icing salts.

This also applies to walkable and drivable surfaces. In the OS F(a) system, the epoxy resin primer MC-DUR 1320 VK forms the basis for a highly elastic, crack-bridging intermediate layer based on polyurethane with MC-DUR 2211 MB, followed by a durable, viscoplastic wear layer with MC-DUR 2210, which is filled and scattered with quartz sand. The final layer consists of a particularly resistant epoxy resin seal with MC-DUR 1322. For special requirements, MC has expanded the application range of its floor coating system MC-DUR TopSpeed to include a high-performance coating: The highly flexibilized roller coating MC-DUR TopSpeed flex, based on MC's Kinetic-Boost® technology, combines easy application and rapid curing, largely independent of moisture and temperature influences, with excellent crack-bridging properties.

**Special resins for sealing deck slabs**

The special resin MC-DUR LF 680 is a proven solution for sealing and scratch filling that complies with relevant German technical codes of practice when installed under a sealing layer of polymer bitumen sheeting. It can be applied on fresh concrete (≥ 5 days old), even at low temperatures (≥ 2 °C) and cures very quickly, even under moisture influence.

MC-DUR LF 680 has a reworking time of one hour at 20 °C and 50% relative humidity, or approximately two and a half hours at 2 °C. MC-DUR LF 680 therefore enables early application of the waterproofing membrane even in the autumn and winter months and ensures excellent adhesion to the substrate – without the risk of carbamate formation, a separating layer that can result from reaction with moisture in the air when using conventional products.

In less extreme weather conditions, the epoxy resin MBC-VT 116 can also be used. Recently, it demonstrated its strengths, including in the repair of four motorway bridges on the A42 in Duisburg (see MC aktiv 2/2024). Furthermore, MBC-VT 116 has ensured the reliable sealing of the deck slab over 27,000 m² in the first section of the new Leverkusen Rhine Bridge, a critical traffic point on the A1, which is crossed daily by over 100,000 vehicles (see also cover photo and photo on pages 8-9).

**Short supply routes and global availability**

The backlog of investment in bridge structures is increasingly becoming a global problem. Therefore, fast and sustainable solutions are needed. MC offers not only proven, technically high-quality product systems that meet the highest demands, ensuring safety and cost-efficiency, but also their optimal worldwide availability.

With 15 production sites across four continents, short and fast delivery routes are guaranteed. After all, MC's innovative product systems for bridge repair and long-term maintenance hold a special place worldwide. And the facts speak for themselves: Demand is high, and every repair is not only significantly faster and cheaper than a new build, but also much more climate-friendly.




Comprehensive repairs with MC products recently completed on a Heidelberg bridge

### Your contacts



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## GLOBAL AVAILABILITY

*MC's repair mortars and surface protection systems are produced locally around the world – this ensures faster availability, shorter transport routes and therefore lower costs, greater environmental friendliness and lower $CO_2$ emissions.*


# ISO 14001 CERTIFICATION RENEWED

MC has successfully participated in the EMAS eco-audit in accordance with European standards and has once again been certified under ISO 14001. The latest environmental statement provides insights into site-specific environmental indicators, environmental objectives, and the measures undertaken to achieve them. The goal of MC's quality and environmental management is to promote sustainable corporate development and long-term growth by continuously improving quality, environmental performance, occupational safety and health protection on the one hand, and the company's economic efficiency on the other.

Click here for the new Environmental Statement (only available in German):
https://bit.ly/30ea32Q

# RESOURCES AND EMISSIONS SAVED THROUGH RECYCLING

**407 t**
**of Greenhouse Gas Emissions Saved in 2023**

**5,528 t resource savings in 2023**

**EQUIVALENT TO THE WEIGHT OF 5,961 APPLE TREES**

In 2023, by recycling materials such as plastics, paper, cardboard, wood and kraft paper bags, MC-Bauchemie in Germany, in collaboration with Interzero Holding GmbH & Co. KG, achieved a calculated saving of 2,528 t of resources. These are primary raw materials extracted from nature for the production of the aforementioned materials. Additionally, over 407 t of greenhouse gases were avoided. This underscores MC-Bauchemie's ongoing significant contribution to environmental and climate protection.

* Source: Certificate resources SAVED 2023 / Fraunhofer UMSICHT calculation method based on data for 2022





Challenge in the Australian Outback

# MANHOLE REHABILITATION WITH MC'S OMBRAN SYSTEM


Logistical challenge: The products had to be transported 3,700 km to Jabiru.

*In a remote community in the Australian Outback, a complete renovation of the sewer network is currently being carried out. MC's ombran system is proving its worth in the rehabilitation of the sewer manholes, even under extreme environmental conditions.*

High-quality special products from MC-Bauchemie are used even in the remotest corners of the world. In the community of Jabiru in the Australian state of Northern Territory, for example, the rehabilitation of a total of 440 sewer manholes has been underway since August 2024. The small town is surrounded by the huge Kakadu National Park and has a population of 760. The regional capital Darwin is a good 250 kilometres to the west.


Workers are protected from snakes, spiders, dingoes and crocodiles by especially assigned wildlife rangers.

The company Energy Resources of Australia has operated a uranium mine, the Ranger Mine, in Jabiru since 1981. Since its closure in 2021, the mine site has been recultivated as part of an agreement between the operator, the Northern Territory government and various indigenous organisations; the work is due to be completed by 2026.

**A case for MC-Bauchemie Australia**

Part of the agreement is the complete rehabilitation of the wastewater network in the small town of Jabiru. Sydney-based Infrastructure Rehabilitation Services Pty Ltd, which has a strong reputation for successfully completing complex projects involving the installation and rehabilitation of pipework and associated structures, was contracted to carry out the work. IRS turned to MC-Bauchemie Australia, which was established in 2023, and after intensive consultation decided in favour of implementation with ombran MHP SP-3000 and ombran MHP rapid from MC.

**Extreme logistical and climatic challenges**

The challenges in the remote north of the continent were immense in every respect – starting with the logistics. To ensure the availability of the products in Jabiru, they had to be transported by road over 3,700 kilometres through the Australian interior. The timeframe for carrying out the work was also tight due to the extreme heat before the rainy season, with temperatures of up to 43 °C in the shade and the extreme rainfall that follows every year. As if that wasn't enough, wildlife rangers had to be hired to protect the workers from poisonous snakes, spiders, wild dingoes and crocodiles.

**180 shafts coated with the ombran MHP system**

Work on the first phase of the project, which comprised 180 manholes, began in August 2024. After a complete cleaning of the interior walls, the surfaces were treated with ombran MHP rapid. The coating mortar, which hardens very quickly, was used to repair breakouts and defects in the shafts. For the final coat, ombran MHP-SP 3000 was applied by machine using the wet-spraying method. Both mortars have high mechanical strength and are also highly resistant to sulphate. They also have excellent long-term performance and allow sewer systems to be put back into operation quickly – ideal for the renovation of sewer manholes.


Close-up of a coated manhole

**Beating the heat with ice water and air conditioning**

To combat the extreme temperatures on site, the products were mixed with ice water. In addition, mobile air conditioning units were used to blow cool air into the shafts. MC's ombran system enabled fast and efficient application even in this challenging environment, allowing the highly trained IRS teams to successfully rehabilitate 4 manholes per day and complete the first phase of the project on schedule. The second phase, which comprises a further 260 shafts, can now be tackled as planned in May 2025.

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Sustainable concrete repairs serve to rehabilitate holiday resort in the Maldives

# MC KNOW-HOW PROTECTS HOTEL VILLAS FROM AGGRESSIVE SEA WATER

The idyllic holiday paradise in the Maldives was sustainably restored using products from MC-Bauchemie.

*A repair and protection concept had to be developed for several hotel villas built on concrete stilts, as well as a pier, at a holiday resort in the Maldives. The client and planner relied on the expertise of MC-Bauchemie to ensure the long-term safety of the buildings under extreme climatic conditions.*

Some of the villas, built on concrete stilts in 2016 at a luxury resort on the Baa Atoll in the Maldives, had begun to show signs of damage due to exposure to chlorides from seawater. After the resort was acquired by a German owner in 2019, a Hamburg-based engineering firm was commissioned to investigate the structural integrity of the buildings. The goal was to design the repairs in a way that would prevent future damage from the aggressive sea climate, ensuring the villas would remain usable in the long term. The engineering firm involved MC-Bauchemie early in the planning stages to develop tailored solutions for the unique climatic and infrastructural conditions. The project timeline spanned from April 2022 to December 2024, with the renovation works being carried out during ongoing hotel operations.

**Concrete repair under challenging conditions**

The project was marked by a range of technical and logistical challenges. One of the largest was the geographical remoteness of the resort. All construction materials had to be transported by sea to the Maldives – careful planning of the required quantities was crucial, as resupply would have been costly and complicated. The climatic conditions, particularly the high chloride concentration in the seawater, also posed a challenge. Additionally, the existing structure had been treated with unknown materials, some of which no longer met modern standards.

**Long-term structural protection**

Together with MC, the engineering firm developed a customised concept for repairing the concrete damage and ensuring the long-term stability of the load-bearing structures. The construction company Isebarth GmbH from Hannover took the lead in implementing the project, training local workers along the way. First, the old coating was removed from the undersides of the water villas to expose the damaged concrete surfaces. Then, cracks and damaged areas were repaired and reprofiled using MC's Nafufill repair mortars. For surface protection and sealing, a specially adapted variant of MC-Proof Eco was used, both in manual and spray applications. The reactive sealant impressed with excellent application properties, quick reworkability, high crack-bridging capacity and UV resistance.

Close-up of the damaged concrete underside

Other products, such as the moisture-resistant and crack-bridging roller coating MC-DUR Top-Speed Flex and the injection resin MC-Fastpack 1264 compact, ensured quick and efficient sealing and reinforcement of the components. In total, approximately 167 tonnes of material were transported – a logistical feat that would not have been possible without the precise planning and collaboration of all parties involved.

**Successful concrete repair sets a precedent**

Thanks to the use of MC products, the first phase of the construction was successfully completed, ensuring the operation of the water villas for the coming years. Due to the positive results, the contract was extended to include the renovation of the pier, and MC's product systems will now also be applied as preventive concrete protection across two new construction phases.

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Nafuflex Easy Tech 2 permanently protects concrete from moisture

# GREEN OASIS IN THE GARDEN MALL ZAGREB INVITES YOU TO LINGER LONGER

The renovated entrance area of the Garden Mall in Zagreb, sealed with Nafuflex Easy Tech 2

**During the extensive renovation of the Garden Mall in Zagreb, the main entrance was at the centre of the redesign. The aim was to create an inviting green oasis for visitors. To permanently protect the concrete in the entrance area from moisture and damp, the client chose MC-Bauchemie's high-performance waterproofing solution Nafuflex Easy Tech 2.**

The waterproofing project at the entrance area of the Garden Mall in Zagreb, Croatia, was an important part of the renovation work carried out in August and September 2022. The aim of the project was to redesign the main entrance to the renowned shopping centre and create an aesthetically pleasing and calm oasis for visitors through the introduction of greenery.

Nafuflex Easy Tech 2 was applied using the spray method.

**In focus: Protecting concrete from water**

Waterproofing played an important role in permanently protecting the concrete in the entrance area of the Garden Mall from moisture and humidity. The project was implemented by the client and investor Supernova in collaboration with a designer, and MC-Croatia was selected as the waterproofing supplier due to its technical expertise and proven solutions.

The main challenges in this project arose from the transitions between the old and new concrete surfaces that were created during the concreting process. These construction joints required a solution that was both flexible and durable enough to provide long-term protection against water and moisture ingress. The waterproofing work was further complicated by the interruptions during concreting.

**Waterproofing with MC's polymer-modified thick bitumen coating**

For the waterproofing work, the client and planners opted for Nafuflex Easy Tech 2, the polymer-modified thick bituminous coating (PMBC) from MC-Bauchemie. High-yield, sprayable PMBC provides a high level of protection against water penetration and is also highly flexible and crack-bridging. Thanks to the powder component, the coating also dries quickly, accelerating construction progress. As a result, Nafuflex Easy Tech 2 can be applied quickly and efficiently. The product is solvent-free, meeting modern environmental standards, and provides reliable protection against ground moisture and non-pressing and moderately pressing water, as well as splash water and capillary rising water. Thanks to these properties, the existing joints between the old and new concrete surfaces, as well as the horizontal and inclined surfaces of the shopping centre's newly created green oasis, could be reliably waterproofed.

**Sown, sealed and delivered**

Thanks to the successful use of Nafuflex Easy Tech 2, the waterproofing work at the main entrance of the Garden Mall in Zagreb was completed on schedule. The flexible and crack-bridging coating now permanently protects the concrete surfaces in the entrance area from water ingress, so that visitors to the Garden Mall will be able to enjoy the newly created green oasis for a long time to come.

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The concrete was placed using the slipform method and cured with Emcoril Traffic.

Conversion of a military airport in northern Germany

# INNOVATIVE CONCRETE MIX DESIGNS ACCELERATE CONSTRUCTION PROGRESS AND REDUCE $CO_2$ FOOTPRINT

**For the conversion of a military airport in northern Germany, the client and the construction company relied on $CO_2$-saving concrete mix designs and MC-Bauchemie's expertise in concrete technology. This made it possible to reduce the environmental impact and at the same time fulfil the high strength requirements for the concrete.**

The military airport in question is being converted into a state-of-the-art site in several phases. The construction includes the refurbishment and expansion of the flight operation areas, in particular the taxiways, access roads and the central runway. This major project, which began in autumn 2022, is due to be completed by 2030, with the main flight operation areas scheduled for completion by the end of 2024.

**High concrete requirements and extreme weather conditions**

Concrete production and installation at the airport in northern Germany presented special challenges. In addition to extreme weather conditions, which often delayed the construction work, strict requirements had to be met by the concrete itself: Despite its low water content and the desired air void stability, it also had to be suitable for placement using a slipform mould. Due to the fluctuating temperatures between 10 and 38 °C during the construction period, the concrete mix design had to be adapted to the respective weather conditions to ensure smooth installation. For the taxiways and access roads, it was essential that the concrete could withstand not only frost and de-icing salt, but also aggressive de-icing agents which are frequently used in airport operations. To withstand the extreme loads caused by aircraft and to achieve a higher strength class than conventional road concretes, a concrete of class C35/45 with a consistency of C1-C2 and a maximum grain size of 22 mm was specified.

**Sustainable concrete mix designs with MC admixtures**

To meet the ecological and technical requirements, the client opted for innovative and environmentally friendly concrete solutions. Products specifically tailored to the project were used. For example, three special clinker-reduced cement types were applied to minimise the $CO_2$ footprint by up to 44% compared to conventional Portland cements. In addition, the high-performance superplasticiser MC-PowerFlow 5100 and the air-entraining agent Centrament 202 were used to optimise the placing of the concrete. These products improved the workability of the concrete and ensured an even distribution of air voids, which further increased the resistance to frost and de-icing salt. Due to heavy rainfall during the construction phase, additional curing treatments had to be applied. Emcoril Traffic was used to protect the fresh concrete from evaporation and to optimise the hydration process in the top layer of the concrete.

**A model for future infrastructure projects**

The construction of the military airport in northern Germany is a showcase project for the successful use of $CO_2$-reduced concrete mix designs and environmentally friendly construction methods.

The innovative solutions accelerated construction progress and met the high demands for load-bearing capacity and durability – an important step towards sustainable infrastructure development. The main parts of the airport will be completed by the end of 2024, allowing flights to resume as planned at the beginning of 2025.

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View of the completed runway of the military airfield





Reliable solutions for efficient tunnelling on the HS2 project in London

# MC TUNNELLING EXPERTISE IN DEMAND FOR EUROPE'S LARGEST INFRASTRUCTURE PROJECT


The huge tunnel tube of the HS2 project offers fascinating insights.

*The HS2 project, the UK's second high-speed railway line and Europe's largest infrastructure project, requires the highest levels of engineering skill and extensive technical expertise. MC-Bauchemie is supporting the construction with innovative products and solutions that are ensuring safe and speedy tunnel driving operations.*

The HS2 project is the second high-speed line in the UK following the successful completion of the HS1 high-speed line which connects London with the Eurotunnel under the English Channel and was built between 2003 and 2007. With a route length of 225 km and a planned completion date of 2031, HS2 will reduce the journey time between London and Birmingham from 80 to 42 minutes and offer a capacity of 14 trains per hour at a speed of up to 400 km/h. The costs for this mammoth project amount to the equivalent of more than €120 billion. A particular challenge is the approx. 11% tunnel section – 21 km in twin-tube tunnels, totalling approx. 42 km of tunnels running through the hilly landscape of the Chilterns and under the metropolis of London. Six tunnel boring machines (TBMs) with a diameter of 8.48 to 9.5 m are being used in the construction of the HS2 tunnels, which began in 2022.

**Accelerated construction progress thanks to MC's innovative solutions**

MC's tunnelling team helps tackle these enormous challenges with high-quality products and comprehensive service. With MC-Montan Drive FL 04, a special soil-conditioning foam, the London clay can be driven up quickly without sticking to the TBM. MC-Montan Drive CA 02, an eco-friendly, biodegradable anti-clay polymer for TBMs, reduces clay adhesion, clogging, tool wear, torque, and energy use while improving soil removal. Both products ensure faster and safer tunnelling. In addition, the innovative ArtSoil™ technology recently launched by MC is also being used in the HS2 tunnels. This technology consists of the liquid long-chain polymer MC-Montan Drive LB 02 which is used in combination with a high-density slurry (HDSL) for demanding TBM launch and heading situations.

The tunnel tube also has to be stabilised by filling the space between the tunnel segments and the surrounding soil. This is performed using MC-Montan Grout, a backfill mortar previously tested in the laboratory to confirm its mixing stability and fully qualified in subsequent site trials. Thanks to its special composition, MC-Montan Grout ensures even distribution of the backfill material and speedy curing, which in turn provides the basis for rapid construction progress. Damaged concrete elements are repaired with the fire-resistant, fibre-reinforced PCC/SPCC concrete replacement Nafufill 250, which is ideal for tunnel construction thanks to its outstanding properties. Cracks in the concrete are filled using MC-Montan TR-X, a swelling, elastic hydrogel sealant that increases the stability of the tunnel construction and ensures water impermeability.

**Stable tunnels thanks to MC-Bauchemie**

MC's solutions are helping ensure the safe yet rapid construction of the HS2 tunnels. This major project impressively demonstrates how specialised products and tailor-made solutions from MC-Bauchemie can accelerate progress in tunnel construction. With innovative soil-conditioning products as well as high-performance backfill mortars and concrete repair products, MC is making a decisive contribution to overcoming the demanding challenges of the project and achieving the planned completion date of 2031.

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# PORTRAIT

## Hannah Araba Gyamfi
## INTERNAL AFFAIRS MANAGER AT MC-GHANA

Family photo with husband and children

Group photo with Hannah's favorite mentors

**Hannah Araba Gyamfi (44) has been Internal Affairs Manager at MC-Ghana since 2021. In this key position, she is responsible for organisational and capacity development, as well as human resources and facility management.**

Born in Accra, Hannah was one of the first students at Ghana's first private university, the Central University in Accra. She graduated in 2001 with a Bachelor's Degree in Business Administration and began working while continuing her studies part-time. Hannah completed her Master's in Management in 2007.

**Organisational talent across sectors**

Hannah began her career in the financial sector but quickly realised that her strengths lay in organisation. She moved into event management in 2004, organising international construction exhibitions. From 2006, she worked for nine years on various projects at the Institute for Democratic Governance. After the birth of her second son in 2013, she sought a new challenge and joined the International Central Gospel Church. Although this was a demanding job, she has also worked in radio from 2012 to 2020, first as a commentator and later as a presenter of a family programme.

**Hannah's career path at MC**

Hannah joined MC-Ghana in April 2021. "One of the most exciting experiences for me at MC was immersing myself in the completely new world of concrete," Hannah recalls. The likeable yet highly motivated woman mastered this with flying colours. One of her first tasks was to develop important standard processes in collaboration with Managing Director Noble Bediako.

Today, she is responsible for organisational development, training, human resources and facility management - and feels very comfortable in her role: "At the heart of MC is a supportive environment that encourages personal growth. I have met colleagues who inspire me to go above and beyond," she says, describing her experience. Hannah is also grateful for the support she receives from Noble Bediako, who encourages her to follow her instincts and take responsibility.

**A mentor by conviction**

Hannah emphasises that her life and career have been shaped by many mentors. No wonder she has herself been volunteering as a mentor for young adults for many years. And in her free time, she enjoys going for walks, reading a lot and cooking with her family.

## INTRODUCING: UTA KLEINKOENEN

### The caring soul of MC-Bauchemie

Uta Kleinkoenen (64) has been with MC since 2008, initially starting as assistant to her departmental head, Christoph Hemming, who retired in June 2024 after 37 years with the company. The Duisburg native is known as the "heart and soul" of her team and is now serving as assistant to the Regional Manager for Africa, Yassine Ben Ayada. She supports him and his team with organisational expertise, but also takes on special tasks such as handling insurance, trademark protection and complaints. Her professional career began as a nurse, and she later transitioned to becoming a foreign language correspondent. She gained valuable experience in various companies and used career changes as an opportunity for personal growth. After the birth of her two children, who are now both over 30 years old, she took a break and eventually found her way to MC in 2008. In her private life, the proud grandmother of two enjoys an active lifestyle, going for runs and rock climbing. Her optimistic life motto is: "Life is not easy, but it is simply beautiful." Uta embodies the team spirit of MC, values personal responsibility and honesty, and lives by the company's values. She plans to work for at least another two years before considering retirement.

*Wishing you continued success and enjoyment!*





# PERSONNEL NEWS AT A GLANCE

## New employees

**STEFAN EGGEMANN (53)** joined MC-Bauchemie's Management Committee in Germany on 1 October 2024. He is responsible for the Operations division, which includes production, engineering, logistics and procurement. Stefan Eggemann brings extensive experience from various companies and family-run businesses, most recently serving as a managing director in the paint and stain industry. He began his career with an apprenticeship as a chemical technician, later furthering his qualifications as a chemical engineering technician and finally as an industrial economist. The new member of the Management Committee in Germany has been with MC for some three months now and is pursuing his role with great commitment and enthusiasm while looking forward to continuing the trusting and successful cooperation that exists within the MC team.

**STEFAN HÜPPE (40)** started at MC's Service Center West A Infrastructure, Industry & Buildings in Germany on 1 September 2024. He has taken over as Regional Sales Manager from Holger Schwarze who will retire in mid-2025 after 34 years with MC. After completing his apprenticeship as an office administrator in the trades industry, Stefan Hüppe began his career in project management for a construction company. He later completed a dual degree in business administration at the private university for professionals FOM. Most recently, he worked as a project manager at a specialist application contractor focusing on concrete and structural repairs. He brings extensive experience in project management and customer service and now leads a team of four field sales reps.

## HONOURING OUR LONG-SERVICE AWARDEES

On 5 December 2024, we were once again able to continue our long-standing company tradition by honouring this year's employee anniversaries within the MC Group on the occasion of a traditional festive dinner at Gasthof Berger in Bottrop-Kirchhellen, Germany. Employees from Germany who celebrated their 10, 25, or 40-year company anniversaries this year were honoured. Managing Director Nicolaus M. Müller opened the celebration with a warm welcome, after which the managing directors and department heads personally honoured each of the celebrants. In appreciative words, they expressed their gratitude for the awardees' long-standing loyalty and exceptional commitment to the company. The employees were also presented with gifts and enjoyed the evening with a delicious three-course meal in a relaxed atmosphere.

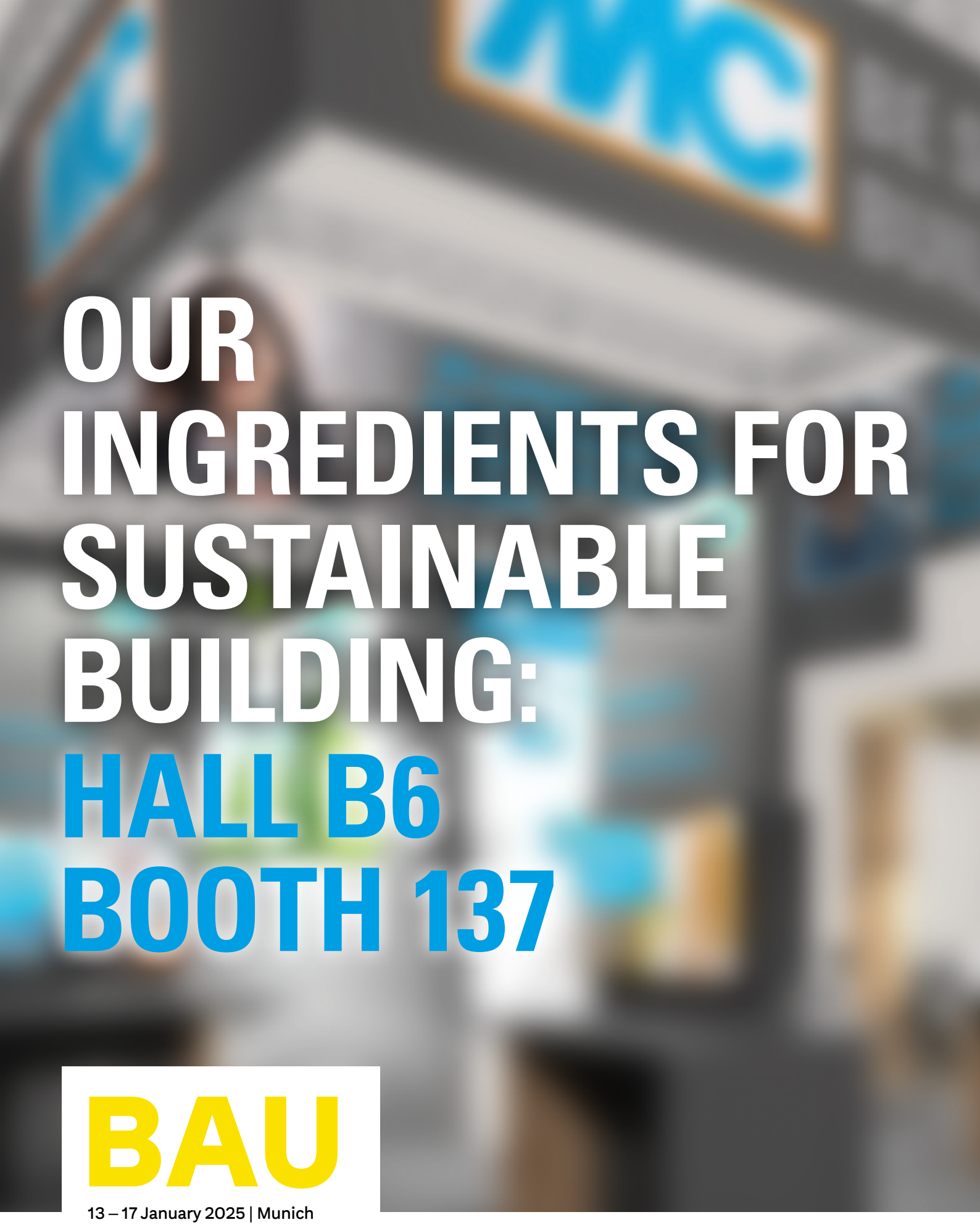
As in previous years, alongside the celebration in Bottrop, similar events were held at other MC locations worldwide to honour our long-serving employees. Below, we present the list of all this year's anniversaries worldwide, sorted alphabetically by country and surname.

**40th Anniversary**
Michael Goldschmidt (GER)
Eugen Kleen (GER)
Klaus Koslowsky (GER)

**25th Anniversary**
Tomáš Plicka* (CZE)
Abdelouahed Aissaoui (GER)
Heino Galla (GER)
Valerij Gerage (GER)
Julia Gött (GER)
Birgit Kundschaft (GER)
Marcel Neumann (GER)
Manfred Poersch (GER)
Anja Spirres (GER)
Benjamin Stauch (GER)
Uwe Strauch (GER)
Ute Timmann (GER)
Sándor Szabó* (HUN)
Olga Harasym* (POL)

**10th Anniversary**
Thomas G. Baumgartner (GER)
Mark Bohne (GER)
Dana Burkart (GER)
José da Costa (GER)
Oliver Czysollek (GER)
Michael Groll (GER)
Anja Hoffmann (GER)
Andreas H. Hofmeister (GER)
Dr. Joachim Käppler (GER)
Sven Kirfel (GER)
Björn Matenar (GER)
René Müller (GER)
Melanie Parthe (GER)
Julien Sajowic (GER)
Sven Schacht (GER)
Dominik Schäfer (GER)
Brigitte Schlosser (GER)
Steffen Sünboldt (GER)
Markus Treinen (GER)
Dmitrii Ukolkin (GER)
Vladimir Vanner (GER)
Nina Wolf (GER)
Patryk Zöbisch (GER)
Dr. Ekkehard zur Mühlen (GER)
András Mikics* (HUN)
Greta Skirkevičienė* (LTU)
Krste Ilievski* (NLD)
Alexandra Stankewitz* (NLD)
Daniel Nowak* (POL)
Krzysztof Ratajski* (POL)
Anna Usmial* (POL)
Dragana Djukic Orlic* (SRB)

* These employees were honoured in their country of work.



# OUR INGREDIENTS FOR SUSTAINABLE BUILDING: HALL B6 BOOTH 137

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