

MC

aktiv

MAGAZINE

MC-BAUCHEMIE 1-2022

MAIN FEATURE

60 YEARS

MC- BAUCHEMIE | 8

Concrete meets diamond

INNOVATION

**COMMITTED TO INNOVATIVE
DEVELOPMENT | 6**

Over 60 years of pioneering
MC advancements

INTERVIEW

THE BIG ANNIVERSARY

INTERVIEW | 12

A passion for construction chemistry

IN-COMPANY

PORTRAIT | 22

Dr. Claus-M. Müller: a life dedicated to MC



BE SURE. BUILD SURE.



Ladies and Gentlemen,

MC-Bauchemie has written a unique success story over the past 60 years, so what better opportunity to reprise it here in MC aktiv than on the occasion of our company anniversary?

My grandfather Heinrich and my grandmother Hilde founded the company in 1961 and gradually built it up over the ensuing years. After my father joined the family firm in 1972 and my uncle Bertram did the same in 1983, MC started to go from strength to strength – with expansion beyond Germany’s borders. In 2017, I became the third generation of our entrepreneurial family to take over the management of MC. Today, we boast more than 2,500 employees active on four continents and in over 40 countries around the world.

The fact that MC has developed so well is primarily due to our employees. For us, their know-how, their commitment and their loyalty are constant sources of pleasure and gratitude. They have made MC what it is today: a healthy and successful company renowned in the marketplace for its innovative solutions and unlimited reliability. And we want it to stay that way in the future. Together with my Executive Board colleague Dr. Ekkehard zur Mühlen and my father, we have set a firm course for the further successful development of MC.

At the beginning of the year, my father withdrew from active management duties and will instead be supporting us in an advisory capacity as Chairman of the Advisory Board. Unfortunately, this also means you will have to make do with me in the editorial from now on. ☺

Of course, I am also grateful to you, our customers and business partners, for the confidence you have shown in us over all these intervening years. You can be sure that serving your needs is and will remain our top priority. Even in these difficult times, we are doing everything we can to underpin your trust in us as suppliers and solution-providers. Last but not least, I hope you enjoy reading this MC aktiv anniversary issue as it takes us on a journey through 60 years of MC-Bauchemie!

*With kind regards,
Nicolaus M. Müller*

CONTENTS

03 | IN BRIEF

Dr. Claus-M. Müller passes the baton to the next generation

04 | BIG PICTURE

A symbol visible from afar
Modern build on Bottrop’s skyline

06 | INNOVATION

Committed to innovative development: over 60 years of pioneering MC advancements

08 | MAIN FEATURE

60 years of MC-Bauchemie – Concrete meets diamond
More than 60 years ago, Heinrich W. Müller officially founded MC and started what remains a unique success story.

12 | INTERVIEW

The big anniversary interview
Dr. Claus-M. Müller, Chairman of the Advisory Board of MC, and the two Managing Directors, Nicolaus M. Müller and Dr. Ekkehard zur Mühlen, discuss MC’s past, potential and prospects.

16 | BEST PRACTICE

The NAFU roof protection and sealing system 16
In the 1960s, MC launched an innovation onto the market offering a seamless and jointless roof coating solution, a development that opened up completely new perspectives in flat and dome roof sealing.

On a special mission: the concrete admixture MC-Special 17
In the 1970s, the concrete admixture MC-Special became a real star of the MC portfolio – unmatched in the marketplace, especially in its primary usage in cooling tower construction.

MC’s QA system sets the standard 18
MC has repeatedly been at the forefront in the development of trend-setting processes, including the 1980s with its QA system for concrete repairs.

Potsdamer Platz – Berlin’s new city centre 19
Potsdamer Platz counted as the largest inner-city construction site in Europe between 1994 and 2001, with MC’s know-how constantly in demand.

Taiwan High Speed Railway (THSR) 20
The THSR construction project, which lasted from 2004 to 2006, represents MC’s largest single contract to date.

Matchless Maracanã make-over 21
The famous Maracanã stadium in Rio was extensively rebuilt for the 2014 World Cup.

22 | IN-COMPANY

Dr. Claus-M. Müller: a life dedicated to MC

Credits and legal

Publisher
MC-Bauchemie Müller GmbH & Co. KG
Am Kruppwald 1–8 | 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
Sonja Löw | inventos
Feldstraße 9a | 44867 Bochum
(Germany)

Climate neutral
Print product
ClimatePartner.com/53323-2008-1013





DR. CLAUS-M. MÜLLER PASSES THE BATON TO THE NEXT GENERATION

Three generations of the Müller family of entrepreneurs: Dr. Claus-M. Müller with his son Nicolaus in front of the portraits of his father and company founder Heinrich W. Müller (left; †2010) and of his brother Dr. Bertram R. Müller (†2012).

As planned, Dr. Claus-M. Müller retired from the management of MC-Bauchemie and thus from his direct operating business responsibilities on 1 January 2022, passing the baton to his son Nicolaus M. Müller and Dr. Ekkehard zur Mühlen.

A year ago, the management of MC-Bauchemie formed an Advisory Board to oversee the group of companies, consisting of three external members Carl-Josef Husken, partner at EY for many years, Michael Marhofer, CEO of ifm electronic group of companies in Essen, and Dr. Mark Spieker, Chief Financial Officer at E.ON, joined by the managing partner of MC-Bauchemie of many years' standing, Dr. Claus-M. Müller. The Advisory Board has the task of advising and supporting the MC Group in its medium- and long-term business policy-making and in tackling the challenges that the future is likely to bring.

Dr. Claus-M. Müller joins the Advisory Board of the of MC-Bauchemie Group

In recent months, Dr. Claus-M. Müller has held the dual position of Chairman of the Advisory Board and Managing Director. As planned, he stepped down from the Executive Board and withdrew from his active role in directing operational business affairs on 1 January 2022.

"I am happy and reassured to hand the baton over to my son and Dr. zur Mühlen in the sure knowledge that they will continue to develop

the company successfully. From now on, I will focus on my function as Chairman of the Advisory Board," says Dr. Claus-M. Müller.

Since the switch was completed, he has indeed been supporting the management as an active Advisor Board member. He is particularly involved in key issues, such as upcoming major investments, and undertakings in the area of research and development. He will also be advising certain affiliated companies.



A symbol visible from afar

MODERN BUILT ON BOTTROP'S SKYLINE

Founded in Essen in 1961, MC-Bauchemie has been located in Bottrop's "Am Kruppwald" industrial estate for over 60 years, growing building by building as the intervening years have passed. In October 2018, a major project was successfully completed at MC's main site, marking another milestone in the company's history. With the new construction, which has provided more than 3,000 m² of additional office and logistics space, and a whole series of structural modernisations and extensions, MC has gradually given itself a new face, assuming a dominant position on the Am Kruppwald site. Works performed recently comprise a new entrance complex with the porter's lodge and truck-weighing scales, as well as the extensive expansion of the warehouse and logistics area, including new loading ramps.

In implementing the new build and the renovation measures, MC has made a clear commitment to the city and its main site in Bottrop. With the modern façade of the new building, MC has created a real highlight around the Am Kruppwald area. The architectural concept is quite compelling with its symbiosis of a solid, aesthetically appealing concrete substructure and a light-flooded, glass superstructure. Recipient of the German Design Award in 2020, it provides an excellent fit with MC's corporate philosophy.



For a more detailed report,
please go to our webpage:
<https://bit.ly/39rSmvH>





Committed to innovative development

OVER 60 YEARS OF PIONEERING MC ADVANCEMENTS

Exposed concrete surfaces at Messe Düsseldorf superbly finished with MC's concrete cosmetics.

Dedicated to innovation and always one step ahead of the established norm: this is the ambition and the philosophy that drives MC forward. The company's commitment to research and the development of new products and systems has remained deeply embedded within its DNA since day one. And this is precisely one of the reasons for MC's success over the last sixty-plus years – as well illustrated by the following examples of its innovation excellence.

NAFU roof protection and sealing system

When MC-Bauchemie officially commenced business activities in December 1961, it had already launched its first innovation: the recently developed NAFU system. This seamless and jointless bitumen-based roof coating technology opened up completely new application possibilities for flat and dome roofs compared to the roofing membranes previously used. Through to the 1980s, the NAFU system was used on countless roof surfaces. In the following decades, its advent led to the development of further building waterproofing systems for structurally demanding surfaces, all of which are now marketed under the MC-Proof brand. You can read more about NAFU in the report on page 16.

Water-repellent concrete with MC-Special

In the 1960s, MC was just one of many suppliers of concrete and mortar admixtures – but the eager team soon found a unique selling proposition for the up-and-coming company: the concrete admixture MC-Special, formulated to produce “hydrophobic barrier concrete”, i.e. concrete that is water-repellent as well as water-impermeable. In the 1970s, MC also launched MC-Schutzüberzug 702 onto the market, a product that serves as both a curing agent for fresh concrete and a surface protection layer. Both these products developed into mutually beneficial best-sellers and you can find more information on their development and applications on page 17.

The MC-Grip system

One of the outstanding MC developments of the 1980s was in the field of road surfacing – MC-Grip, which premiered at a forum of traffic and road construction experts. This surface traction system restores the lost skid resistance of roads and motorways and often serves to alleviate accident black spots. The system was successfully tested in two construction phases in 1985 and 1986 on around 170,000 m² of road surface on the A52 motorway between Essen and Düsseldorf and has been applied since then for road rehabilitation, not only in Germany and other European countries, but also and above all in Asia.

MC concrete cosmetics

MC has also been at the forefront of concrete cosmetics from the very beginning. In the 1970s exposed concrete was popular with architects as a design element, but in practice it was not always capable of meeting the high demands of the designers. This meant some “touching up” was required. With the Nafuquick and Emcefix product families, MC has developed repair and fine fillers for just such cosmetic purposes, enabling spalling, gravel pockets, porosity, blowholes and colour differences in the concrete to be easily eliminated and thus the creation of attractive fair-faced concrete. The exposed concrete surfaces of the sports facilities and athletes' accommodation at the 1972 Olympic Games in Munich, for example, also benefited from the MC concrete cosmetics programme. MC still holds a leading position

in this segment of the market today. Indeed, MC concrete cosmetics have established themselves as the facelift system of choice for the very best fair-faced results. So now, wherever visual defects in concrete need to be eliminated and the surfaces optimised, MC's products are invariably in the mix.

Pioneer in PCE technology

Back in the early 1990s, the MC Research & Development department took its first tentative steps in the synthesis of polymers, leading to the first MC product formulation being presented in 1994. This provided a platform for the development of a new generation of concrete and mortar admixtures based on polycarboxylate ethers (PCE) during the years that followed. While PCE technology was still seen as speculative – albeit innovative – research at the time, now it is considered state of the art, not least thanks to MC. With the commissioning of the production plant for polymer concrete admixtures in Bottrop in July 2012, MC laid the foundation for a new chapter in the development of this technology, enabling the company – independently and using its own patented process – to quickly develop, test and produce PCE-based admixtures individually tailored to customer needs.

Pacesetter in reactive coating

At the beginning of the new millennium, MC intensified its research and development in the field of reactive sealants. In the 2010s, the com-



With KineticBoost-Technology®, MC has established a new benchmark for floor coatings in industrial infrastructure and building construction applications.



MC continues to set new standards with its bitumen- and solvent-free building sealants.



MC's low-cement or cement-free concretes and mortars offer a considerably reduced CO₂ footprint for improved climate compatibility.



Serving to rehabilitate and permanently stabilise endangered structures, MC's injection technology remains the world leader in its field.

pany pioneered the development of innovative, bitumen- and solvent-free building sealers with RD2 from Botament, a sister company of MC that supplies professionals and the specialist trade with construction chemicals, and with MC-Proof eco (formerly Expert Proof eco), a product family offering an array of exceptional technical properties. These polymer-modified thick-film coatings are highly flexible and crack-bridging, as well as being resistant to UV, ageing and frost. They dry quickly and can then be painted or plastered over – offering another example of how MC has constantly set new standards in building waterproofing.

Cement-free concretes

To mitigate climate change, more and more sustainable concepts are being developed worldwide, including in the construction industry. MC is contributing to the development of the geopolymers concrete “Earth Friendly Concrete” (EFC) from the Australian company Wagners, which uses industrial by-products such as ground blast furnace slag and fly ash as binders instead of cement. Several years of research work have gone into developing activators and admixtures tailored to this application. In September 2019, new Earth Friendly Concrete from Wagners became the first cement-free concrete to receive DIBt building regs approval in Germany. Once again, MC's expertise and concrete admixture technology have been key drivers for a pace-setting innovation, with climate-friendly concrete set to make a decisive contribution to significantly improving the CO₂ footprint of an

entire industry. MC is currently researching further cement-free concrete substitute and mortar products in order to meet future requirements for climate-friendly construction.

KineticBoost-Technology®

Another milestone in the recent history of MC is the development of its KineticBoost-Technology®. In addition to the high-performance coating MC-DUR 2496 CTP and the polyurethane resin MC-DUR LF 680 for bridge-coating applications, also based on this technology is the product family MC-DUR TopSpeed. With this special resin system, durable, heavy-duty floors can be built up quickly for industrial, car park and building construction applications, even in difficult weather conditions. Thanks to KineticBoost-Technology®, all system components of these products use the influence of moisture from the environment to create an accelerated hardening reaction, serving to increase the adhesive strength, abrasion resistance and scratch resilience of the coating. MC has thus set a new benchmark for floor coatings in the industrial, infrastructure and building construction domains. Committed to innovation: this has been true for MC since its foundation – and today more than ever. Not least thanks to six decades of experience in researching groundbreaking new solutions for the construction industry, the company has developed into a renowned player in the market whose know-how is set to remain in demand worldwide – both now and into the future.

INJECTION SYSTEMS FROM MC – LEADING THE WORLD

Cavities, damp walls, cracked decks, ceilings and roofs, and unstable floors are bad news in any structural or civil engineering environment. But all is not lost! With the unique and world-leading injection technologies available from MC-Bauchemie, endangered fabric can be quickly and permanently stabilised as well as effectively protected from water ingress and all that this entails.

The MC Fastpack System is particularly suitable for smaller repairs. With its 2-component cartridge technology, it is ready for immediate use and offers a viable solution for all standard injection requirements.



For more information, go to our webpage: <https://bit.ly/39ncWgG>



60 YEARS OF MC-BAUCHEMIE CONCRETE MEETS DIAMOND



MC's HQ on the 'Am Kruppwald' site in the 1960s



... and how it looks now in 2022.

MC-Bauchemie Müller GmbH & Co. KG had plenty of reason to look forward to December 2021: 60 years previously, on 1 December 1961, the company founded by Heinrich W. Müller officially started its business activities. Unfortunately, there was no celebration of the diamond jubilee due to the restrictions of the coronavirus pandemic, but there are firm plans in place to hold one once the pandemic is over. The focus of our first issue of MC aktiv in 2022 is therefore the eventful history of MC-Bauchemie – and its development from a small company with 25 employees to a globally active group with a workforce of over 2,500 dedicated people. So let us now take a look at the history of MC together!



MC-Bauchemie founded in Essen

1961



Construction of production and administration facilities in Bottrop

1963

Move to Bottrop

1965

First foray beyond the German frontier: MC Bati Chimie founded in France

1970

MC-Bauchemie: in the construction industry around the globe, this name is associated with attributes such as reliability, quality, innovation – and of course, in keeping with the company's motto "Be sure. Build sure." – safety in construction. Over the past six decades, this mid-cap family-owned company has developed from an ambitious business with 25 employees to a leading international manufacturer of construction chemicals, producing innovative solutions for the treatment, curing and hardening of concrete, as well as for the protection and maintenance of buildings. The group of companies with its more than 2,500 people has long been active worldwide. Research, development and production are carried out at more than 20 sites on several continents. And in more than 40 countries in Europe and overseas, expert advisors are available to investors, planners and operators of structural and operational facilities. Hence, a large part of the company's turnover is now generated outside Germany.

Founded in Essen

The starting point of this success story has little in common with those garage start-ups that we hear so much about in relation to e.g. America's high-tech giants. However, with MC too, the initial springboard was small. Just after the war, an energetic and entrepreneurial Heinrich W. Müller founded and subsequently successfully developed the sales company Prodorit Vertrieb Müller & Co. together with Mannheim-based Th. Goldschmidt AG. With the consent of the latter, in 1961 he then opened up a new operation under the name MC-Bauchemie to serve the rapidly developing market for ready-mix concrete and precast components. He wanted to expand the production of concrete and mortar admixtures in order to participate in upcoming major infrastructure projects involving areas such as highway and subway construction. However, with its focus very much on its building protection business involving bituminous membrane and coating products and corrosion inhibitors, Th. Goldschmidt AG had little time for this business model – and so Heinrich decided to set up his own company in parallel with the established sales company he had been running, based on a small production plant in Essen built on the Th. Goldschmidt AG site.

Move to Bottrop

Thanks to his good contacts in the industry and with tendering authorities, this founding father was able to convince numerous customers and clients of the advantages of MC products in a relatively short time. His motto "Business is done between people, not companies" proved to be an effective guiding principle, and by 1962, the young company in Essen was already producing to capacity. That meant a long-term solution was needed to allow expansion. In Bottrop, the newly created "Am Kruppwald" industrial estate offered a suitable site for construction of the new capacity required. A production facility for the manufacture of concrete and mortar admixtures was completed there in 1963, with a laboratory, a small application technology centre, a warehouse and a goods-out department all part of the integrated setup.

New business areas

With the dissolution of the Prodorit sales company in 1969 and the resulting separation from Goldschmidt, new opportunities opened up for MC, allowing more creative scope to the company founder. Heinrich W. Müller decided to push ahead with the in-house production of bitumen and plastic products at MC-Bauchemie. With his entrepreneurial flair and his interpersonal skills, he was able to attract practically all the former Prodorit employees to MC-Bauchemie, despite a similar offer from Goldschmidt. The foundations for MC's successful future were thus laid.

MC's second generation takes the tiller:

Dr. Claus-M. Müller

In 1972, Claus-M. Müller, the elder of Heinrich W.'s two sons, joined the company after completion of his engineering doctorate at the University of Clausthal-Zellerfeld. He was appointed Managing Director in 1974 with the primary task of broadening the research and development areas of the still expanding company. He had an ultra-modern laboratory complex built, and was also responsible for a new paint and powder plant, the introduction of the first production planning and control system and the installation of high-bay warehouses in the logistics area. Subsequently, he turned to building up a foreign business with all the entrepreneurial risks that such an endeavour entailed. MC had already made its first forays beyond Germany's borders in the early 1970s with the founding of MC Bati

Chimie in Grosbliederstroff in the Moselle Département, as a distributor of MC products in the French market. Now similar expansion projects were to be pursued in other European countries. In Castleblayney, Ireland, not far from the border with Northern Ireland, Dr. Claus-M. Müller founded MC Building Chemicals in 1979 and, a little later, ECI (European Chemical Industries). These were MC's first manufacturing facilities outside Germany, producing silicone-based sealants and, from the mid-1980s, also double-glazing sealants for the entire European market.

Dr. Bertram R. Müller joins MC

Meanwhile, Dr. Claus-M. Müller's younger brother Dr. Bertram R. Müller, holder of a law doctorate earned from Bonn University with internships in Paris and London, had been gaining professional experience as a lawyer in an auditing, tax consulting and legal practice. He finally joined the family business in 1982, initially devoting himself primarily to expanding the business in Germany. In 1983, for example, he oversaw the takeover of the Esslingen plant of Unitecta-Bauchemie, a part of the Belgian Solvay Group. Dr. Bertram R. Müller continued this business under the newly established company Murasit-Bauchemie, managing its integration within MC as well as the systematic development and expansion of sales and distribution in the southern German states, ensuring fast and low-cost delivery to customers not just in the lower half of Germany but also in Austria and Switzerland. At the same time, he introduced a new sales structure for MC with the establishment of a network of regional service centres throughout Germany. Together with senior manager and authorised signatory Josef Heckerott, he separated the company's building protection and surface treatment operations into two different segments. In addition, Dr. Bertram R. Müller developed a forward-looking training and professional upskilling system for both new employees and customer personnel, a concept that still today enjoys benchmarking status in the industry. These measures and the implementation of modern marketing methods served to create the basis for the dynamic development of MC-Bauchemie.

Advancing internationalisation

After the successful establishment of ECI (European Chemicals Industries), Dr. Claus-M.



Founding of Ultrament

1975

Establishment of MC-Ireland and ECI

1979

Move beyond Europe's frontiers into Asia with the founding of MC-India

1985



Expansion into Germany's newly unified eastern states

1990

Founding of BOTAMENT

1993



Investment in the future: view of MC's new building in Bottrop, commissioned at the end of 2019.

Müller turned his attention to further expansion targets. The founding of MC-Bauchemie India in Bombay (now Mumbai) on 1 January 1986 constituted MC's first foray into a continent outside Europe. Two years later, a well-equipped production plant for concrete and mortar admixtures, together with a wide variety of concrete repair and sealing products, had been built in Ankleshwar in the state of Gujarat. MC-Bauchemie has since become well established on the Indian subcontinent.

The strong commitment of MC in Brazil, which started in 1999 and continues to this day, can also be traced back to Dr. Claus-M. Müller. And in 2001, together with Ottli, a well-known manufacturer of tile adhesives under the "Plitonit" brand, MC-Bauchemie Russia was founded in St. Petersburg. The business also had a branch in Moscow, enabling activities across the huge Russian market to be more efficiently managed. In addition, a new plant with state-of-the-art technology for the production of MC and Plitonit products was built near Kirovsk, with further sites in Tyumen, Samara and Krasnodar following.

"Growth without frontiers" following Germany's reunification

Meanwhile, Dr. Bertram R. Müller, a convinced European and, joining his brother, an MC managing director since 1984, was driving the establishment of sales companies in the neighbouring countries of Switzerland, Austria, the Netherlands and Belgium. After the fall of the GDR and the Iron Curtain in 1989, he initially focused on developing activities in the new federal states. This fundamental change in the political landscape also allowed for a completely new way of thinking at the European level. In the years that followed, sites were added in Central and Eastern Europe with numerous young, dynamic companies being established in Poland, the Czech Republic, Slovakia, Hungary, Bulgaria, Romania, Ukraine, Lithuania and later also in Croatia, Serbia and Bosnia and Herzegovina. Needless to say, MC was also looking westward, with Dr. Bertram R. Müller identifying plenty of potential for the dynamic expansion of MC-Bauchemie in, for example, Netherlands (again), France, Portugal and Spain.

Ultrament focused on DIY stores

MC's activities both national and international

were by this time burgeoning. In order to be able to target different sales segments and customer groups, another German subsidiary was founded in 1975, Ultrament GmbH, with the remit to respond to the boom in demand for do-it-yourself products. Items from the MC range were adapted, designed and packaged to meet the special requirements of the DIY store. Initially, the range focused on bitumen coatings, fillers and building waterproofing systems. Today, Ultrament offers complete systems in 15 countries throughout Europe to solve a wide variety of problems in construction, protection, sealing, renovation and refurbishment.

Botament targets trade professionals

In the mid-1980s, MC set up a department for professional products within the Ultrament portfolio. From 1985 onwards, this unit assumed responsibility for sales to builders merchants primarily serving the needs of small and medium-sized craft and trade firms. With success on the increase, in 1993 Botament-Systembaustoffe GmbH was founded from this specialist department as an independent company. The focus was on products for tile laying, the waterproofing



MC-Poland

First foray into Eastern Europe: establishment of MC-Poland and MC-Hungary

1994



Opening of a new training centre on "Müllerstrasse" in Bottrop

1996



Foothold in South America: MC-Brazil commences operations

2001

Further expansion and internationalisation in Europe and Asia

2001-2008

of structures, levelling compounds and flooring systems. In the meantime, Botament has also established itself as a system provider of high-quality and innovative products for all aspects of damp and wet room renovation and enjoys a position of considerable brand strength in the professional trades sector of 14 European countries.

MC's 50th: ongoing expansion and internationalisation

The company's 50th anniversary in December 2011 was celebrated under the banner "Committed to innovation". Senior boss Heinrich W. Müller, who steered the company's fortunes alongside his sons into old age, did not live to see this great moment. However, it is thanks to his ever-optimistic approach, his knowledge of materials and his intuition in divining the interests of his customers that MC-Bauchemie was able to continually expand and consolidate its position in manufacturing, with tendering authorities and in the construction industry. Having reached its half-century, MC enjoyed an excellent market position with a very good basis for further successful development going forward.

With the commissioning of a production plant for polycarboxylate ether (PCE) concrete admixtures in Bottrop in July 2012, MC laid the foundation for a new chapter in the development of this technology based on the company's own patented process. Internationalisation also continued apace: in Brazil, the second plant in South America had opened in Vitória de Santo Antão in the north-eastern state of Pernambuco. And the establishment of an MC company in Guinea meant MC also now had a West African base from which to develop the large, high-potential African market.

Shortly before the start of 2012, the company was shaken by the death of Dr. jur. Bertram R. Müller. With his characteristic hands-on approach over more than three decades, he had single-mindedly and persistently driven and decisively shaped MC's development as a European and globally active family business. His brother Dr. Claus-M. Müller subsequently managed the fortunes of MC alone for a time, thereafter being joined – on 1 January 2014 – by a new appointee as Managing Director, Dr. Ekkehard zur Mühlen.

Setting a course for the future – with Nicolaus M. Müller, the 3rd generation joins MC

"Be sure. Build sure." has been the banner slogan of MC-Bauchemie since 2015. It is part of MC's new brand and positioning concept, developed in a German-Brazilian cooperation project.

Dr. Claus M. Müller's son Nicolaus M. Müller, at the time working as Sales Manager for MC-Brazil, played a leading role in this project. He returned to Germany in February 2017 after working for MC in Brazil for several years and was appointed as a further Managing Director of MC-Bauchemie Müller GmbH & Co. KG. He thus became the third generation of Heinrich-W. Müller's family to take on executive managerial responsibilities at MC. The company was thus now in the safe hands of a triumvirate consisting of Dr.-Ing. Claus-M. Müller, Dr. Ekkehard zur Mühlen and Nicolaus Müller.

Expansion continues

In August 2017, MC also acquired the majority of shares in BIFI JSC in Vietnam, thereafter renamed MC-BIFI Bauchemie JSC. It remains one of the leading Vietnamese manufacturers of concrete admixtures and grinding auxiliaries for the cement industry. In 2018, the majority shares in a company in Ethiopia were also acquired. This further extended the MC group's commitment in Africa to East Africa. And things were also moving forward in Asia – concurrent with a major restructuring of business activities, the establishment of a separate company in the Philippines, MC-Bauchemie Philippines Inc., was completed in December 2020.

MC's presence in South America was also strengthened with the acquisition of both PK Chile and then Bautek in Chile. MC-Bauchemie Chile and Bautek merged in 2015 to form MC Bautek Chile. And on 1 April 2021, MC acquired a majority shareholding in Linco in Bolivia to commence business activities in this promising market.

These bold expansion steps, together with a large-scale investment programme at the Bottrop site, numerous projects for internal process and work optimisation and, last but not least, the advancing digitalisation of the company's activities, served to form a solid basis for the further growth and continued successful development of the MC group.

Growing together

Since the company started out, the number of MC employees has risen continuously. There were 25 at the time of its establishment, increasing to 160 by the beginning of the 1970s. By the early 1990s, there were already more than 490, and by the beginning of the 2010s, around 1,800. In the anniversary year 2021, the people working for the group of companies worldwide numbered some 2,500.

The importance of these employees for MC was underlined by the Top Job awards in 2018 and 2021. The accolade, presented by the Centre for Employer Attractiveness (zeag GmbH), is given to companies that make a special contribution to a healthy and at the same time high-performance workplace culture. These awards identify MC as one of the best employers in Germany. MC's employees receive ongoing training and professional development, operate in a markedly international environment and have a high level of technical expertise. Since the group of companies has always been committed to innovation, many MC employees are already working today on tomorrow's projects in order to continue to provide tailored solutions to MC customers worldwide.

With its know-how, experience and competence complemented by a worldwide presence, MC-Bauchemie is well positioned to meet the challenges of the future in a globalised economy. A sustainable corporate philosophy, clear and transparent management structures, highly qualified employees, groundbreaking products – and last but not least the strong continuity of a family-run business now in its third generation – are the components that have given MC its outstanding reputation at home and abroad over the past 60 years. And so, a slightly modified version of the age-old saying still holds true for MC today: Courage at the start brings success at the end, or to put it another way: "Who dares, wins!"



Commissioning of the PCE plant in Bottrop



Inauguration of new building complex in Bottrop



Further expansion and internationalisation in Europe, Asia, South America and Africa

MC celebrates its 50th anniversary

Entry into Africa with the establishment of MC-Guinea

2011

2012

2012

2019

2017-2021



“ THE BIG ANNIVERSARY A PASSION FOR

MC-Bauchemie has written a unique success story right from its early beginnings in December 1961. We spoke to Dr. Claus-M. Müller, who – having led MC for 50 years – moved from executive management to chairmanship of the Advisory Board at the beginning of the year, and the two Managing Directors Nicolaus M. Müller and Dr. Ekkehard zur Mühlen about the diamond jubilee and the development of MC-Bauchemie from a small German firm with 25 employees to a globally active company with a workforce of over 2,500 people.

What does MC's 60th anniversary mean to you personally?

Dr. Claus-M. Müller: I am rather puzzled and wonder where the time has gone, but I also feel a little pride in what has been achieved. *(smiling)*

Nicolaus M. Müller: My father has every reason to be proud. I am very grateful for what he, together with my grandfather and my uncle, has built up over the past decades. At the same time, this is a team effort involving all our people – MC's employees also deserve recognition and appreciation for their immense contribution. They have helped make MC what it is today: a healthy company aligned to the long-term perspective and renowned in the marketplace for its innovative solutions and unmitigated reliability.

Dr. Ekkehard zur Mühlen: And that's what we want to maintain going forward. Such anniversaries always serve as symbolic milestones to remind us where we have actually come from, what we have achieved and where we still want to go. For me, it also means taking stock of the situation and embark-

ing on the road to a new, dynamic and post-pandemic decade in which we intend to pursue ambitious growth targets. As in past decades, it is always good to take a look in the rear-view mirror as we drive on.

What have been the reasons behind this unique success story?

Dr. Ekkehard zur Mühlen: There are many success stories, but also failures. But if you compare MC with other successful companies, you will notice that MC plans and thinks in very long time frames and attaches great importance to finding the right employees – and ideally then just “lets them get on with it”.

Nicolaus M. Müller: From my point of view, it has been the combination of continuity and concurrent change: we have always remained true to our core values “Be Sure. Build Sure.” and will continue to do so in the future. Nevertheless, we have also consistently and successfully adapted to changing macro conditions at an early stage, and initiating improvements – some sweeping – often with exemplary foresight.

Dr. Claus-M. Müller: These are certainly weighty reasons, to which I would add our innovative prowess, our quality awareness and our customer focus, all of which are distinctive MC traits that set us apart from our competitors. However, in addition to the entrepreneurship that is firmly anchored in our corporate culture, just as important were and are qualities such as the perseverance, determination and stamina of our management and staff in the various development phases of our group of companies.

In your view, what were the decisive phases or milestones in the development of MC?

Dr. Claus-M. Müller: Rather than milestones, I would say that we benefited from a series of successes of various magnitudes, interconnected like a string of pearls, so to speak: from the development of new products, some of which have revolutionised the market, to the expansion of our research and development capability and production facilities, coupled with our embrace of geographical expansion and internationalisation.



INTERVIEW

CONSTRUCTION CHEMISTRY

Nicolaus M. Müller: A very important milestone in the last ten years was the reorganisation of our corporate structure towards decentralisation of responsibilities, combined with the establishment of strong, local management in the respective country organisations.

Dr. Ekkehard zur Mühlen: .. which was implemented from 2014. More than any other measure, it was this that powered MC's ensuing growth. Of course, change in the country organisations also needed to be carefully managed, with the levers for success being placed firmly in the hands of the now new decision-makers.

MC has always been committed to innovation. Which innovations do you regard as exceptional or transformational?

Nicolaus M. Müller: There are a number of examples. One of our latest innovations is KineticBoost Technology®, on the basis of which we have launched a range of unique high-performance coatings that can be safely installed even in challenging weather conditions, such as low temperatures or on damp substrates. Working together with a partner, we also became the first to obtain DIBT (German building regs) approval for a cement-free binder for structural components.

Dr. Claus-M. Müller: We remain committed to innovation, because it is the driver of and an essential factor in our success. This was already true in the 1960s and still applies today: from our seamless and jointless bitumen-based roof

coating products in those early years, to our special concrete admixtures and curing systems with built-in long-term protection in the 1970s; from the MC-Grip roadway traction system to the first quality assurance concept for concrete repair work in the 1980s – which has become the standard in the marketplace – and more recently to our PCE-based concrete admixtures. In the 1990s, we were one of the first construction chemicals companies to commit to the related initial development work and thus help these admixtures achieve their breakthrough in the market. And we have also been a market pioneer in the field of bitumen- and solvent-free waterproofing systems for structural and civil engineering applications. (Editor's note: Read more about this in our report starting on p. 6)

Dr. Ekkehard zur Mühlen: Not to forget our innovations in tunnel construction, such as our cement-free annular gap grouting compound, which was developed for the Stuttgart 21 mega-project. This is a unique solution that can also be used in anhydrite-containing, i.e. swellable, rock. It solved a major problem for Stuttgart 21. Our environmentally friendly soil conditioning agents also ensured efficient tunnel driving, and not only in this project.

What has particularly distinguished MC over the years? How would you characterise MC's DNA?

Nicolaus M. Müller: Our claim "Be Sure. Build Sure." sums it up very well: since the very beginning, we have acted as a reliable partner for our

customers. For us, it goes without saying that our support extends far beyond the sale and delivery of our products. Especially in challenging times, such as we are experiencing at the moment, it is evident that both our customers and our employees greatly appreciate this reliability.

Dr. Claus-M. Müller: "A company is only as good as its people" – the quote from my father and company founder is still an essential constituent of our DNA today and best expresses what has distinguished MC over the past 60 years, namely the ability and willingness of our employees to go that extra mile.

Nicolaus M. Müller: And this will always be a guiding principle of our people management at MC going forward.

Dr. Claus-M. Müller: Exactly, because only with professionally and socially competent and committed employees are we able to be successful and develop innovative solutions for our partners.

Dr. Ekkehard zur Mühlen: The DNA of MC certainly includes a passion for construction chemistry that cannot be found everywhere, leading to technically sophisticated, occasionally maverick solutions that underpin the great reliability of our products. This enables MC time and again to keep pace with much larger companies and to win projects against even the toughest competition, while also impressing its clients with compelling individual technical, often unique, concepts.



Snapshot from the interview set: Saki M. Moysidis, Editor-in-Chief of MC aktiv, talking to Dr. Claus-M. Müller and the two MC Managing Directors.



Nicolaus M. Müller

Nicolaus M. Müller (36) started his professional career at MC-Building Chemicals in Ireland in 2010 after studying Finance & Accounting at the University of St. Gallen. Having worked for MC-Brazil for several years, he returned to Germany on 1 January 2017 to become a Managing Partner of MC-Bauchemie. In this role, his responsibilities include the regions of Western Europe, Africa and Latin America, international product management, plus HR, marketing and PR.

At a more personal level: What has been your best moment at MC to date?

Dr. Claus-M. Müller: I don't have a best moment but have indeed been fortunate to experience many wonderful events – more than I could relate here. I find I feel true satisfaction and joy with every single goal achieved.

Dr. Ekkehard zur Mühlen: For me it has been great to see how successfully the managements from Eastern Europe to the Far East – regions that are in my personal area of responsibility – have developed. Management in these countries has become more and more independent and people and personalities have been able to develop and grow within and through the working environment created by MC. We now have really strong and sure-footed market players growing up everywhere!

Nicolaus M. Müller: My first six years at MC-Brazil were very nice and have certainly left their mark on me. It was a great experience to build up a sales department and product portfolio from scratch. Understanding a new market, working out a suitable strategy, building up a new team and mastering new challenges every day – and celebrating successes together with the people there – gave me a lot of pleasure. Privately, too, I enjoyed my time in Brazil very much and learned to appreciate the openness to new ideas that pervades Brazilian culture.

What major headwinds have you faced in recent years? And which are you currently focusing on?

Dr. Claus-M. Müller: We are living in very unusual times, the likes of which I have never experienced before. Since March 2020, our economic, social and political existence has been dominated by the coronavirus pandemic. This has led to massive restrictions on our lives; however, we as MC can consider ourselves lucky to have gotten through this time largely unscathed. At the beginning of last year, another challenge was added, namely a worldwide shortage of raw materials unprecedented in recent history, which has led to drastic price increases for many commodities.

Nicolaus M. Müller: Unfortunately, this situation has not really improved to date; that said, we are glad that we have consistently delivered despite the difficulties. And, of course there is the issue of the invasion of Ukraine by Russian troops on 24 February 2022. The political, social and economic uncertainty this has caused is palpable, and the consequences of the conflict are completely unpredictable. Added to this, inflation has been rising for months, with the danger of a recession also growing. This year's trading environment is certainly set to suffer.

Dr. Ekkehard zur Mühlen: Despite everything, the transformation of MC continues. We find ourselves on a sound financial footing and – equipped with increasingly better administrative tools – we have succeeded in a very short time in introducing a powerful price controlling system and establishing it as a management and control instrument. In addition to motivated employees, good and solid products and a widespread hands-on mentality, these are exactly the tools that are needed not only to sail through stormy times, but also to come out of them stronger!



Lively exchange between Nicolaus M. Müller and Dr. Ekkehard zur Mühlen.

Perhaps now a look into the future: Which issues are likely to be particularly relevant to MC in the coming years?

Dr. Claus-M. Müller: I retired from executive management at the beginning of this year and have since been focusing on the work in our Advisory Board. In this new role, I support the management in an advisory capacity, so I am happy to pass this question on to my son and Dr. zur Mühlen.

Nicolaus M. Müller: We intend to continue pursuing our growth strategy and drive further international expansion with the aim of building strong, regional organisations outside of Europe. In addition, we will continue to focus on the development of sustainable solutions.

Further progress in the field of digitalisation, both internally and externally, will likewise remain an important priority – also with a view to offering our partners digital solutions that provide the best possible support for them in their projects. We have already made good progress in this regard. Internally, we intend to continue improving the efficiency of our business processes, with both digital and analogue solutions, in all areas.

Dr. Ekkehard zur Mühlen: This also means building up further local organisations and bringing new companies into our group, either through acquisitions or the establishment of greenfield entities, to enable us to continue developing from an internationally structured grouping to a global organisation. To this end, we intend to create powerful central functions in the coming years that will support and strengthen the regions

on the management side in order to be able to maintain our strong growth momentum. We will also expand our administrative functions and implement new ERP architectures at the core of our digitalisation strategy.

Finally, a question that begs a brief answer, if you wouldn't mind: If you had one wish for MC, what would that be?

Nicolaus M. Müller: I would like MC to be by far the most attractive employer in our industry and thus always retain and attract the best employees and talent. Success and everything else are then a logical consequence.

Dr. Ekkehard zur Mühlen: My wish is that we will continue to have the courage to listen to our regional management and local management in order to continue to effectively support them in the future, especially in the expansion of their organisations, and that they do not get bogged down in corporate structures as we continue to scale up our operations.

Dr. Claus-M. Müller: And I sincerely hope that MC will continue to develop as successfully as it has in the past as an independent family business.

Thank you very much for these concluding words. May all your wishes come true.



Dr. Ekkehard zur Mühlen

Dr. Ekkehard zur Mühlen (55) has been Managing Director of MC-Bauchemie since 1 January 2014. He is responsible for business development from Eastern Europe through to the Pacific. Specifically on the commercial side he oversees mergers and acquisitions, purchasing, production and logistics. The doctor of physics gained experience in sales in his early career, then took on responsibility for various commercial functions and served as CFO for a leading global manufacturer of high-quality plastic films before joining MC.

NAFU roof protection and sealing systems

MC'S FIRST MAJOR BREAKTHROUGH



The Obrigheim nuclear power plant went live in September 1968, with its dome having been sealed with MC's NAFU system. This photo was taken before application of the coating. The NPP was eventually shut down in 2005.

Not long after its establishment in December 1961, the young MC-Bauchemie conquered the German market with its NAFU system. The innovative seamless and jointless roof coating gained a name for itself in the 1960s and 1970s as a reliable solution for protecting and waterproofing flat and dome roofs with complicated constructions and became a major source of revenue for the start-up.



The first edition of MC's in-house magazine ran an article covering the dome coating project.

A recently developed technology referred to as the NAFU system was acquired by the sales company Prodorit-Vertrieb Müller & Co. KG, which MC founder Heinrich W. Müller managed for Mannheim-based Th. Goldschmidt AG. NAFU is the brand name for a seamless and jointless roof protection system. It is installed in several layers with cold- and/or hot-applied NAFUPLAST coating compounds (mainly based on bitumen and polymer-modified bitumen), embedding reinforcing fabrics within its structure. Compared to the roofing membranes used until then, the new coating from MC opened up completely new perspectives in industrial and residential construction, primarily for flat roofs, but also for domed roofs.

The trend towards flat roofs

The flat roof finally became established in Germany in the 1950s. At the 1958 World Expo in Brussels, Germany presented a flat-roof pavilion

designed by the architects Eiermann/Ruf, which was characterised by its particular lightness. By the 1960s, flat roofs were already enjoying great popularity – both in the industrial and private sectors. But this roof construction also harbours risks for the building structure underneath, since rainwater, for example, may not be completely drained off, unlike in the case of pitched roofs. The demands on the roof's waterproofing system are therefore particularly high, and regular inspections are imperative. This is especially true for older roofs – because once the insulation becomes soaked, the only option is to dismantle and remove.

MC gains a foothold in the power plant sector

It was precisely here that MC found its market: The NAFU system has the great advantage over prefabricated membranes that it has neither seams nor overlaps and thus offers no points of

attack from wind and rain, nor for moisture penetration – to the benefit not just of flat roofs, but also of domed roofs. The reactor dome of the first German nuclear power plant in Obrigheim in the Neckar-Odenwald region became the first, literally outstanding, reference object for this MC coating system. This successful project provided a huge boost for the further marketing of NAFU roofs across the entire German power plant sector.

NAFU and its successors

Up until the 1980s, countless roof surfaces, especially those with complicated constructions, were successfully protected with NAFU. After that, legislators, planners and architects began to put more and more emphasis on the thermal and cold protection of flat roofs, and MC turned to accommodating these and other areas of application.

The advent of NAFU led to the development of the MC-Proof family of building waterproofing systems for structurally demanding surfaces, plus special systems for waterproofing wet rooms, balconies and terraces, in which MC's sister company Botament also specialises. This gave rise to the bitumen-free, solvent-free thick-film coatings under the brands MC-Proof eco and RD2 at the beginning of the 2010s, with which both companies revolutionised and benefited the building waterproofing market (see also report starting on p. 6).

Particular areas of application for the concrete admixture MC-Special are cooling towers in power stations and especially nuclear power plants.

MC'S SPECIAL MISSION: THE CREATION OF A TRULY WATERPROOF CONCRETE CONCRETE ADMIXTURE MC-SPECIAL

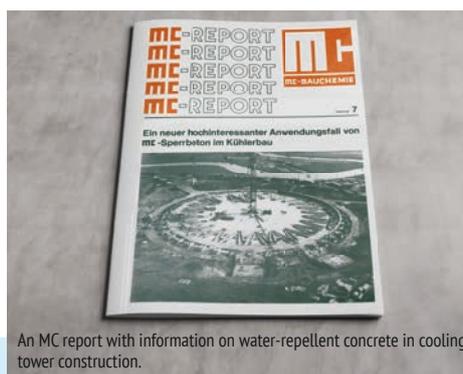
In the 1960s, the young MC-Bauchemie was just one manufacturer among many offering concrete and mortar admixtures. But then the enterprising team developed a real highlight for the up-and-coming company: the concrete admixture MC-Special for the formulation of “hydrophobic barrier concrete”, i.e. concrete that is water-repellent as well as water-impermeable. The product became an MC USP – a unique selling proposition – for a long time and opened up exciting prospects for the future.

Although hundreds of thousands of cubic metres of concrete with the “waterproof” designation were installed annually in the Federal Republic of Germany in the mid-1960s, there was no clear distinction between its two primary usage categories, i.e. water-impermeable concrete and the more thoroughly protective water-repellent or “hydrophobic barrier” concrete, and where and how these should be applied.

A new standard courtesy of MC

This was to change with the market launch of MC-Special. With a lot of sales and marketing effort and related articles in trade journals, MC informed customers of the advantages that water-repellent concrete offered through the incorporation of this special new admixture.

Such a hydrophobic barrier is indispensable for keeping utility rooms dry in the basements of residential buildings, commercial facilities, schools, public buildings etc. But even more important is the use of water-repellent concrete in industry where it is a must if the concrete structure is exposed to a mix of moisture and aggressive media.



An MC report with information on water-repellent concrete in cooling tower construction.

Water-repellent concrete in industrial construction

This applies, for example, to sewage treatment plants and harbour structures, as well as to industrial constructions exposed to aggressive atmospheres such as natural draught cooling towers. These imposing engineering structures often have a wall thickness of only 14 cm and a steel reinforcement cover of 2 cm. Yet they are under constant attack from aggressive exhaust gases (e.g. sulphurous acid) entrained by the natural draught. Precipitation moisture on the outside and cooling water running off on the inside would transport these aggressive substances into non-

repellent concrete – an acute danger for the steel reinforcement. Hence cooling towers in power plants, especially nuclear power plants, have been a particular area of application for MC-Special.

Success story in the power plant sector

The MC success story in the power plant sector gained significantly in momentum in the ensuing years. Then, in the mid-1970s, MC-Special was joined by a sister product: MC-Schutzüberzug 702, a curing agent that also offered long-term protection in one product. With this perfectly matched duo, MC established itself in the premier league of manufacturers of constructional and surface protection systems for the construction of cooling towers – not just in Germany, but worldwide.

Today, MC is considered a leader in the field of concrete technology for power plant applications, offering an enormous range of solutions for both the construction and maintenance of thermal generation facilities – from concrete admixtures and structural waterproofing systems to special protection and repair solutions.

MC'S QA SYSTEM SETS THE STANDARD

Concrete repairs redefined



For the first time, MC's QA system created clear and verifiable quality standards in concrete repair work.

Over the past sixty years, MC-Bauchemie has repeatedly acted as a pioneer in the development of trend-setting processes and innovative products in the construction industry. This also applies to the field of concrete repair, in the shaping of which MC has played a decisive role since the early 1980s.

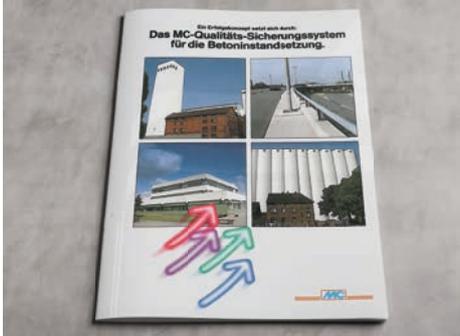
It is hard to imagine from today's perspective, but until 1984 there were no binding technical rules for the repair of load-bearing concrete structures. Not only that, there were also no trained specialists for the professional rehabilitation of such structural damage. The mantra read: "Anyone who can hold a trowel can repair concrete." The necessary change in this mistaken belief came with the advent of the MC Quality Assurance System (QAS). It was developed in 1984 by MC-Bauchemie together with the materials testing authority MPA Braunschweig and has met with a high level of acceptance among builders and planners alike. The "Braunschweig Paper", as the QAS was initially titled after its place of origin, created clear and verifiable quality standards at the levels of product, workmanship and monitoring.

Quality founded on three pillars

The first pillar of the QAS is the required use of products that are not only tested and monitored internally during production in the factory, but also externally. This is not about the evaluation of individual products, but about the complete system applied, including proof of the usability or compatibility of system components with one another.

As a second pillar, MC developed a course together with the University of Braunschweig to train skilled craftsmen for concrete repair – from substrate preparation to reprofiling and surface protection. After successfully passing theoretical and practical examinations, the participants receive a certificate

A brochure from the 1980s introduces the new quality assurance system.



issued by the university confirming them as accredited concrete repairers. The interest this generated was overwhelming, with demand leading to a long waiting list of prospective trainees.

The third pillar related to both supplier-managed monitoring and external surveillance on the construction site, complemented by an offer to clients and engineering offices to have the services and products professionally checked as early as the tendering stage. This, too, was very popular and was later incorporated into related supply specifications and standard service-level catalogues.

A product revolution

The start of the 1990s saw a step change in ensuring safe, speedy and efficient concrete repairs with the introduction by MC of its Zentrifix range. Depending on the system elements, companies

were now able to perform their structural concrete repairs based on three or five individual operations, with a maximum of four different products to cover everything from corrosion protection of the reinforcement to the final pigmented finish. The materials were so optimally coordinated that, including waiting times, all work could be completed within two to three days. Fewer application processes and reduced reworking meant a reduction in both cost and time.

The ingenious all-rounder Nafufill KM 250

With the passing of another ten years, the increasing complexity of repair tasks and the numerous technical regulations that had since been enacted required a new generation of technologically more sophisticated products – materials capable of meeting new, heightened standards in terms of corrosion protection, bond strength, structural capability and fire protection. So it was that, at the beginning of 2000, MC launched Nafufill KM 250, a universal concrete replacement system that met all these requirements and could be used for any concrete repair task. Since that time, this ingenious all-rounder has continued to add chapters to its unique success story, with its capabilities being further enhanced by the advent of ever more advanced bond coats and repair mortars.

MC has decisively shaped the concrete repair segment over the last 40 years or so, once again underlining its claim to always be one step ahead of established norm.

CONCRETE ADMIXTURES FOR EUROPE'S BIGGEST BUILDING SITE

POTSDAMER PLATZ – BERLIN'S NEW CITY CENTRE



View of the "Neue Mitte Berlin" construction site at the end of the 1990s

The German capital is no stranger to superlatives – and in the post-reunification period, Potsdamer Platz has contributed decisively to the excitement created. After all, between 1994 and 2001 it was not only considered the largest, but also the most interesting inner-city construction site in Europe – one that, incidentally, made extensive and constant use of MC's products and expertise.

Potsdamer Platz is a very special piece of real estate in a very special city. In the Belle Époque of the 19th century, sophisticated venues frequented by international high society were built here; at the beginning of the 20th century, the Wertheim department store emerged as a crowd puller; and by the 1920s, it was the busiest plaza in Europe. After the Second World War, the dividing line between two social systems ran right across Potsdamer Platz, with the construction of the Berlin Wall literally cementing it for posterity.

The birth of a new centre

After Germany's reunification, Potsdamer Platz became the new city centre of Berlin, with countless office and residential buildings, restaurants, leisure amenities and shopping centres. Internationally renowned corporations invested

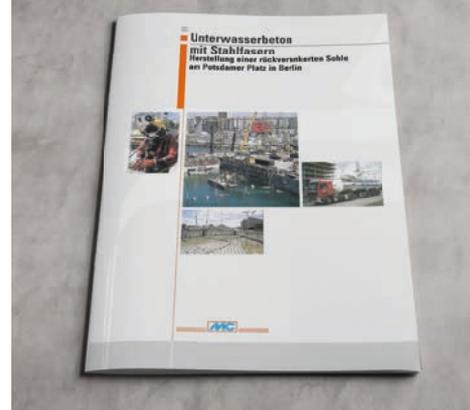
in their future at this historically significant site. The Daimler-Benz Group, for example, built an entirely new city district with a total area of 68,000 m² at the cost of around 4 billion euros. However, developments of such magnitude quickly led to problems with the urban groundwater balance due to the inherently high groundwater table at Potsdamer Platz. And with half of these investments requiring underground construction measures, challenges were bound to arise, including for MC as a company called in to find viable solutions.

Foundations under water

Excavation of the construction pits below the water table eventually leads to the formation of artificial lakes. Consequently, for the first time in construction history, a back-anchored concrete foundation made of steel-fibre-reinforced underwater concrete (UW concrete) had to be laid with an excavation pit depth of 20 m over an area of approx. 24,000 m².

As early as the tendering phase, proof had to be provided showing that a UW concrete with steel fibres could indeed be installed under such conditions. Since fibres in the concrete greatly reduce flowability, the concrete composition had to be fundamentally changed compared to "normal" concrete. Since only formwork-enclosed sections concreted "in one pour" could guarantee a UW concrete base of the required density, it had to be possible to delay pumping the concrete with steel fibres and superplasticiser for up to 20 hours if conditions – e.g. inclement weather – so dictated. Round-the-clock concrete delivery also had to be guaranteed.

A special report for a special project.



Maximum performance – maximum success

Success in this unique undertaking required everyone involved to be right at the top of their game. At the bottom of the huge water pits, divers helped lay the UW concrete foundation slabs. Good application properties tailored to these conditions were, of course, essential. With MC's expertise at the forefront, the concrete used was alloyed with around 250 tonnes of superplasticiser and 50 tonnes of concrete retarder – all products offering MC's renowned quality and reliability.

The former Iron Curtain zone that was Potsdamer Platz was quickly transformed into the capital's newest quarter, with 19 apartment and amenity blocks, ten new streets, a central plaza, Marlene-Dietrich-Platz, and a lake containing around 12,000 m² of water.

A BREAKTHROUGH FOR MC'S PCE SOLUTIONS

TAIWAN HIGH SPEED RAILWAY



The Taiwan High Speed Railway was built in a record time of just over two years.

The construction of the Taiwan High Speed Rail (THSR for short) on Taiwan in the Republic of China from 2004 to 2006 proved to be a truly mammoth undertaking. It was the largest project in the history of MC up to that time – and the first test for its Z4 series of concrete admixtures based on polycarboxylate ether (PCE), these having been newly developed at the turn of the millennium.

The Taiwan High Speed Rail connects the two largest cities of the island republic: the capital Taipei in the north and the port city Kaohsiung in the south. When the new line – still considered one of the most challenging infrastructure projects worldwide – went into service at the beginning of 2007, the construction time spent by the project participants was just 27 months. By the end, more than 13 million m³ of concrete had been used on the approximately 350-kilometre-long line – an almost unbelievable effort, to which MC made a significant contribution in two construction phases involving more than 3 million m³ of concrete.

New demands on concrete formulation

Since the planned new railway line had to be routed through earthquake-prone areas, high-performance concretes were required for construction of everything from the bored piles, columns, supports and bridges, to the foundations, pillars and other route elements. They not only had to meet the exacting demands in terms of strength, but also offer a working period of 8 hours at tem-

peratures of up to 40 °C. The concrete also had to be ready for use within a short time. In addition to the classic concrete admixture Muraplast FK 88, attention quickly turned to a trend-setting new development from MC: a polymer solution known as Z4 which had been developed just a few years earlier.

PCE research at MC

MC's Research & Development department had been looking into the synthesis of polymers since the early 1990s. In 1994, Dr. Wolfgang Karl presented a prototype product formulation, and a contract manufacturer was initially tasked with its production. The booming construction industry of the time had an insatiable hunger for concrete – and the MC management believed it had a new product line offering great potential for growth. So they pressed on with the project. This led to the development of Z1 and ultimately to that of Centrament N 10, MC's first PCE-based concrete admixture. The new product ensured better dispersion of economically dosed cement, guaranteed an improvement in the workability of the concrete

and exerted a slight retarding effect. Z1 was well received by concrete producers, encouraging MC's research effort to be stepped up. Further PCE-based products followed, culminating in the patented polymer compound Z4 in 2000.

Game-changing PCE solutions

An extensive programme of tests provided proof positive that Z4 would be ideal for use in the construction of the high-speed railway line in Taiwan. Thereupon MC developed a range of special concrete admixtures for the mammoth project tailored to the cements selected and the extreme climatic conditions likely to prevail. Thus Z4 provided the basis for an entire construction kit comprising ten different polymers. In order to be able to ensure the supply of the huge quantities of modern PCE admixtures to the gigantic planned construction site, a separate production company was established on the island of Taiwan on 25 July 2001, and MC-Bauchemie Taiwan has been operating there ever since. This new facility meant that the required admixtures could now be produced locally. MC-Bauchemie Taiwan subsequently supplied the various sites along the route with almost 10,000 tonnes of concrete admixtures over a period of two years, making the Taiwan High Speed Railway the largest single project in MC's history. Its official opening on 5 January 2007 was thus not only a game-changer in terms of the infrastructure serving the island of Taiwan, but also for the PCE solutions from MC-Bauchemie.

MATCHLESS MARACANÃ MAKE-OVER

World-class stadium repair and refurbishment

Large portions of the MC product range were used in the renovation of the time-honoured Maracanã stadium.



The legendary Maracanã in Rio is one of the most famous football stadiums in the world. It was extensively restored for the 2014 World Cup and provided a worthy setting not just for the group matches but also for the final. MC-Bauchemie Brazil supplied a range of tailored product systems for this major make-over project.

The tradition-steeped Estádio Municipal do Maracanã – or, as it is officially called, Estádio Jornalista Mário Filho – was built in the 1940s. Then the largest stadium in the world, it was also the star venue for the first Football World Cup in Brazil in 1950. Around 200,000 spectators watched the final between Brazil and Uruguay, which Uruguay won 2-1. To prepare it as one of the main venues for the 2014 World Cup, including for the final, the stadium was extensively rebuilt from 2010 to 2013 at a cost of 316 million euros.

From September 2010 onwards, the construction site was very busy: up to 5,200 people worked on repairing and modernising the arena and building both a press grandstand and new hospitality boxes. These repair and reconstruction measures reduced the capacity of the stadium to around 75,000 spectators. In the process, around 80,000 m³ of concrete was used. This had to meet a wide range of strength and resilience requirements, with admixtures from MC helping to ensure solid specification compliance.

Outstanding products, extensive expertise, trusted partner

As early as 2010, the MC-Brazil team began working closely with the planning engineers and



Dr. Claus-M. Müller together with his wife Ulrike and son Nicolaus visiting the construction site of the Maracanã stadium.

construction consortium chosen for the project to find solutions for the diverse structural engineering tasks of this large-scale undertaking. In addition to admixtures for the concretes, Emckrete grouting concretes and concrete replacement systems from the Nafufill product family were also earmarked for application.

The MC systems offered were so compelling that the client ordered further MC solutions such as the crack-bridging polymer-quartz mixture Zentri-fix CR and other Nafufill products. In February 2012, MC began the regular supply of these products in the huge quantities required to keep this major reconstruction project on track. The concrete repair and refurbishment work extended to all the grandstands and concrete floors. In add-

ition, some of the concrete pillars were strengthened with MC's injection technology. MC-DUR floor coatings were also used for the stadium walkways and stands, while MC concrete cosmetic products served to improve the appearance of the exposed surfaces.

Total team effort through to the final whistle

MC's Brazilian team was very proud of its contribution in upgrading the legendary stadium to World Cup status. Offering numerous system solutions, MC exhibited extraordinary commitment to the tasks in hand. "The continuous presence of our employees as key contact persons on site, the professional instruction given to the installers and applicators, and the coordinated cooperation of all parties involved required enormous dedication from the entire team, from sales to application technicians," said a delighted Jaques Pinto, Managing Director MC-Brazil and Regional Director LATAM at MC. Even though Brazil did not make it to the final, the Brazilian MC colleagues rejoiced with their German counterparts in Germany's World Cup victory over Argentina in the final.

PORTRAIT

DR. CLAUSS-M. MÜLLER

A LIFE DEDICATED TO MC



As the elder son of Heinrich W. Müller, founder of MC-Bauchemie, Dr. Claus-M. Müller joined MC in November 1972 and was appointed Managing Director just two years later. In this role, he demonstrated great courage in his entrepreneurial decision-making and developed the company into one of the world's leading manufacturers of construction chemicals.

Dr. Claus-M. Müller was born in rural Hachenburg in the Westerwald region in November 1946. However, he grew up in Essen in Germany's industrial heartland where, early on, he developed a close bond with his father's up-and-coming company; at the age of twelve he was already supplementing his pocket money by doing odd jobs for the firm, enabling him to get his first whiff of the big wide world of work.

After graduating from high school in 1966, he enrolled to study chemistry at the University of Karlsruhe. He pursued his studies with great diligence and graduated with a masters' equivalent and "cum laude" distinction after just four and a half years, thereafter moving on to take his doctorate at the University of Clausthal-Zellerfeld.

Getting started at MC

He joined MC in November 1972 and was appointed Managing Director in 1974. One of his first tasks in this executive role was to extricate himself – and limit the damage – from his first foreign venture, MC Bati Chimie France, which had run into difficulties. Despite this negative experience with investing abroad, he succeeded in convincing his father to set up further foreign companies. When his younger brother, Dr. Bertram Rüdiger Müller, finally joined the company in the early 1980s, a division of responsibilities took place. Dr. Claus-M. Müller was handed the functions of development, production, logistics and finance, while Dr. Bertram Müller, who held a doctorate in law, was made responsible for sales, advertising and public relations, HR and legal. The

subsidiaries were also split between the now two Managing Directors.

Business management with courage and foresight

Both showed vision, bravery and a willingness to take calculated risks in their business decisions. The group of companies thus underwent increasing expansion in Europe and, from the mid-1980s onwards, also beyond. In 1990, soon after the political upheavals in Eastern Europe and reunification in Germany, MC began establishing sales organisations in the new German states, followed by sales organisations and production facilities in the former Eastern Bloc countries. Internationalisation continued after the turn of the millennium with expansion into South



Group photo of the Executive Board of Deutsche Bauchemie (German Construction Chemicals Association) taken in 1999.



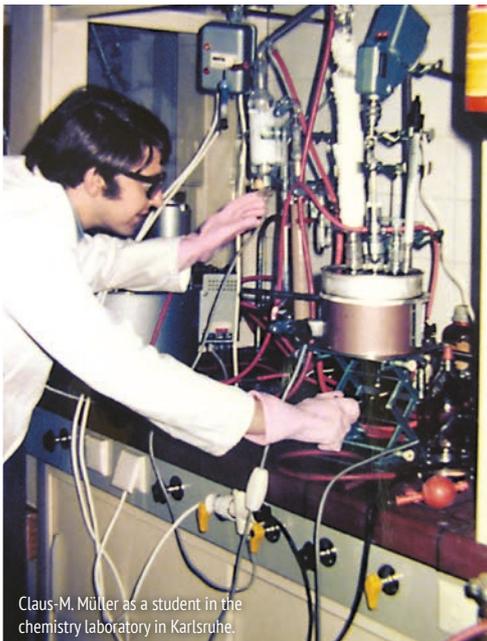
The young Dr. Claus-M. Müller with his mother Hilde in the 1970s.



Dr. Claus-M. Müller examines a delicate concrete sculpture in the stairwell of the MC laboratory.



2005 together with his brother Bertram (†2012).



Claus-M. Müller as a student in the chemistry laboratory in Karlsruhe.



Group photo in front of MC's UAE agency at the end of the 1970s.

America, Asia and Africa. While setting up further national subsidiaries, Dr. Claus-M. Müller also devoted meticulous and extensive effort to creating new product and sales strategies and taking them to notably successful outcomes.

Strategic rethink in favour of decentralisation

His instinct was again in evidence in 2013 when, despite the successes achieved with an organisation centrally managed from Germany, he recognised that the group of companies would not be able to properly exploit its long-term potential within such a structure. In the process of decentralisation that was subsequently set in motion, he was ably supported both by new Managing Director Dr. Ekkehard zur Mühlen, who was appointed in 2014, and his son Nicolaus, who had also joined

the family business. Country responsibilities were decentralised, with a regional management level also being introduced. This constitutes one of the most far-reaching changes in the recent history of MC, and the part played by Dr. Claus-M. Müller in initiating it and driving it forward cannot be overstated.

Smooth generational succession

Dr. Claus-M. Müller was delighted when, after several years working for MC-Brazil, his son Nicolaus joined MC in Germany at the end of 2016. Nicolaus M. Müller was duly appointed to the management team in February 2017, with his father keen to ease him into his new role. It was not unusual for the latter to open events with the words: "I am the past, this is the future." Even when it came to

important decisions, he was happy to leave the last word to the next generation, justifying this by saying that it was his son who would have to live with the results. As generational transitions go, this one has been particularly smooth. For his 75th birthday and on the occasion of MC's 60th anniversary in December 2021, Dr. Müller was presented by his son with the second volume of a company chronicle, to the visible delight of the recipient.

At the beginning of 2022, Dr. Claus-M. Müller retired from the operational side of the business to take up an active role on the company's Advisory Board (see p. 3), formed in 2021 to support the management in its decision-making, thus ensuring that his wealth of knowledge and experience would remain available to MC going forward.



Times may change, but our ambition remains.

For 60 years, we have been developing construction chemical products and systems with all the agility of a family-run company. Our ambition throughout has been to continue optimising construction and maintenance applications with our solutions. Strict quality standards, courage to innovate and a strong focus on service and support remain the essential drivers of our successful international growth – aided and abetted by committed employees, reliable partners and loyal customers. To each group we owe a debt of gratitude. So our sincere thanks to one and all, and here's to many more successful years together.



info@mc-bauchemie.com



BE SURE. BUILD SURE.