



News Release

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Concrete admixtures from Master Builders Solutions[®] optimize construction of Marienturm high-rise building in Frankfurt am Main

- » **MasterEase enables pumping height of 155 meters**
- » **With Master X-Seed, concrete hardens up to ten times faster compared to conventional concrete**
- » **Experts from Master Builders Solutions and client jointly develop custom-tailored concrete mix**

The skyline of Frankfurt's banking quarter has a new landmark: The 155-meter Marienturm tower, set for completion by the first quarter of 2019. The new high-rise office complex owes its quick ascend skyward also to the contribution of the MasterEase and Master X-Seed concrete admixtures from Master Builders Solutions[®]: After the foundation stone was laid in November 2016, the topping out ceremony was already held in August 2018. With a mere six days allocated to the construction of each of the structure's 38 floors, time was pressing and demands on the concrete – some 39,500 cubic meters in all – accordingly high.

“One particular challenge was the specified strength at peripheral slab areas of 22 Newton per square millimeter after 14 hours”, Andreas Arbeiter, Managing Director of ready-mix producer Sehring Beton, points out. “But with Master X-Seed we even obtained a strength of 26 Newton per square millimeter after only 12 hours.” With

Master X-Seed, a liquid hardening accelerator, concrete hardens up to ten times faster than without admixture. Sebastian Dittmar, Head of Application Technology Germany at the Construction Chemicals unit of BASF, considers Master X-Seed one of Master Builders Solutions' key innovations in recent years: "Its unique effect really sets Master X-Seed apart, and it has become a reliable essential across a wide variety of application areas. Constructing the Marienturm, Master X-Seed enabled us to obtain significantly earlier formwork removal and thus contributed to a faster construction progress."

MasterEase meets challenging pumping height

Early strength, however, was not the only challenge during the construction of the Marienturm: Requirements also included pumping the concrete up to a height of 155 meters, a task that requires a particular flowability of the concrete: "This is why, next to Master X-Seed, we also used MasterEase, a new range of products that significantly improves the rheology properties of fresh concrete", Sebastian Dittmar explains. "In this way, we were able to reduce the viscosity of the concrete – its stickiness – and improve its workability. This enabled us to pump the concrete up to the required height." Highly satisfied with the result, Andreas Arbeiter comments: "MasterEase is the ideal plasticizer for extreme pumping heights, as in the case of the Marienturm: The admixture reduces viscosity by up to 30 percent and provides the concrete with ideal rheology properties and a precise early strength that remains available even during extended work cycles." The reduction in viscosity also greatly facilitates surface troweling – an added benefit, for ready-mix producers, but likewise in precast production or the casting of concrete slabs. In this way, MasterEase saves time and costs in each construction project, increases the utilization of vehicles and machinery, and reduces the wear-and-tear to mixers, pumps and piping.

Custom-tailored mix designs for all weather conditions

"In order to have the best-possible concrete mix available to meet each requirement, close cooperation was vital", says Nils Winter, Head of testing laboratory at HOCHTIEF Infrastructure's Technical Competence Center. "Together with the Master Builders Solutions and Sehring Beton teams, we developed a variety of concrete mix designs with the goal to provide optimal solutions for every weather condition and every construction-site requirement – such as early strength or early trafficking – which only differed in their specific Master X-Seed dosage."

Praising the concrete experts' expertise, Volker Zoll, Senior Site Manager at HOCHTIEF, comments: "Master X-Seed enabled us to adhere to the strict time schedule for the construction of the Marienturm, and MasterEase, to overcome the challenging pumping height without any difficulties – the Master Builders Solutions team definitely developed the perfect product combination for this ambitious project."

For more details on the products of Master Builders Solutions, please visit: www.master-builders-solutions.basf.com

Success stories from the Master Builders Solutions sustainability campaign can be found at:

www.sustainability.master-builders-solutions.basf.com/en

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The Construction Chemicals division's approximately 7,000 employees form a global community of building experts. To solve our customers' specific construction challenges from conception through to completion of a project, we draw on our specialist know-how, regional expertise and the experience gained in countless constructions projects worldwide. We leverage global BASF technologies and our in-depth knowledge of local building needs to develop innovations that help make our customers more successful and drive sustainable construction.

The division operates production sites and sales offices in more than 60 countries and achieved sales of about €2.5 billion in 2018.

About BASF

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