



Construction Chemicals

 **BASF**
The Chemical Company



Admixture Systems

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40,000 products to date. Over 100 new developments every year, and our specialists are far from finished. This brochure is designed to give you an overview of what the BASF Construction Chemicals division offers in the field of Construction Chemicals. Detailed information is available in the product brochures of the Admixture Systems and Construction Systems business units. The relevant contact addresses are included on the back cover.

Imprint

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Good connections have to be solid

Architectural masterpieces like bridges, high-rise buildings, and dams require the highest standards of engineering. Our admixtures add to concrete what it takes to meet these standards: intelligence.



Bridge over the Great Belt, Denmark. Intelligent concrete cuts a catching figure even when exposed to wind, rain and tides.

Rosenthal Center, Cincinnati/USA. Self-compacting concrete from BASF – the material of choice for demanding architectural applications.



Nagoya Dome, Japan. Fully covered sports arena with 40,500 seats and concrete foundations.

Photo courtesy of CAC



Bridges, for example, are strained not only by road traffic: winds, climate changes, currents, and the tides put additional stress on material and construction, as do the aesthetic requirements of architects and constructors.

There is only one material that can meet all these requirements in civil engineering: steel reinforced concrete. It combines the elasticity of steel with the solidity of concrete. Our concrete admixtures make it the perfect material.

Our admixtures result in high-strength concrete – a prerequisite for intricate architectural designs. They render unnecessary the mechanical compacting by vibration; they liquefy concrete, thus

increasing application time and ease of use; they cure the concrete instantly at the right time; they prevent the concrete's components from segregating; after curing they leave the concrete with a smooth and clean surface – and ensure an extremely long service life of the constructions.

Because concrete with our admixtures can do more than normal concrete, we call it “intelligent concrete”. That is what makes it the material of choice not only for highly demanding building projects.

Tatara Bridge, Japan.

Cable-stayed bridge with a span of 890 m – and pylons made of high-stability steel reinforced concrete.



Pumped over hundreds of meters and then hardening to full strength rapidly – the Roppongi Hills Tower posed extremely high demands on the concrete.

The silent revolution

The Zero Energy System (ZES) lowers the costs of manufacturing precast concrete elements, sets new ecological standards, improves working conditions – and in doing so has even surpassed the expectations of the market.

Long construction times are expensive, exceeded deadlines even more. Precast concrete elements are the solution: assembly of the prefabricated parts at the building site is quick and fairly independent of weather conditions. Precast concrete elements make planning easier, accelerate the construction process, and are suitable for custom-designed private housing as well as for office or industrial buildings. It comes as no surprise that the use of precast concrete elements is growing rapidly.

The traditional manufacturing process for precast concrete elements does however leave significant room for improvement. Up till now, large amounts of energy were necessary to compact the concrete in the mould through vibration. The acceleration

of the curing process using steam also consumed a lot of energy. Furthermore, there are health-risks involved for the operators: the vibration noise can lead to hearing defects, and the vibrations themselves to circulatory problems.

The Zero Energy System revolutionizes this manufacturing process. Our “Rheodynamic Concrete” flows and compacts automatically – without vibration and without segregation. On top of that, the accelerated curing process makes steam treatment unnecessary. All in all, the Zero Energy System drastically lowers energy consumption, reduces equipment requirements, increases productivity, and improves work safety.





The Zero Energy System™ has completely revolutionized the manufacture of precast concrete elements ecologically, economically and ergonomically.



Zero Energy System.
Working without vibration and steam.



Higher productivity and an improved working environment.



ZES precast elements.
Same-day removal from mould.

Superior quality on a large scale

Manufactured concrete products require utmost accuracy during the production process. Our products and services do not just raise the concrete itself to the highest level of quality, but the production process as well.

Concrete on the roof? A good choice. Roof tiles made from concrete are just as reliable as the traditional ones. The same is true for concrete paving stones, concrete pipes, or concrete panels.

However, the production of manufactured concrete products on a large scale and in an almost indefinite variety of shapes and sizes is not quite as simple as the final product may suggest. Unlike precast concrete elements, manufactured concrete products are not cast but pressed: within a matter of seconds, the earth-dry concrete is turned into, for example, a square meter of concrete paving stones or building stones. The final product has to immediately retain its form without a mold.

At the same time, the production process has to be economical and geared toward optimal performance, while the final product has to meet the highest demands in terms of durability and aesthetics: it has to look good and stand out in the mass-market. To meet these challenges, we have developed a unique approach: by means of the Production Efficiency Method we recreate the complex production process in a laboratory and analyze it systematically without slowing down production. Economy, durability, performance, and aesthetics are improved significantly. The result: satisfied customers.



Made possible by tailor-made admixtures from BASF: concrete tubes are pressed into shape and retain their exact form without the aid of a mold.



We aim at improving each individual production process.



Mass produced goods, too, can be expected to be of superior quality.

Answers to probing questions

Our products – a breakthrough for underground and mining projects even under adverse geological conditions.



Rock-face sealing using sprayed concrete with accelerators and polymers from BASF Construction Chemicals.





Multifunctional special systems support the machines and protect people.

Our comprehensive system solutions enable tunnel boring machines to perform optimally under all kinds of geological conditions.



Those who dig below the ground have to take surprises into account. Possible complications can rarely be anticipated, and rock and soil often harbor unexpected obstacles. While in the past entire projects could be at stake, today, thanks to BASF technologies and systems, the previously unthinkable has become possible.

Take tunnels, for example: an underground connection is faster and more convenient than the detour across the mountain. Feasibility and profitability may become problems, though. Our underground and tunnel construction experts have developed tailor-made machinery and product systems that support engineers throughout the entire construction process: from tunnel boring machine auxiliaries through robot-controlled rock securing units to products for shotcrete.

Security is a hotly debated issue in tunnel construction. Fire within a tunnel tube can reach temperatures in excess of 1000 degrees centigrade within a matter of minutes. Such enormous heat destroys the tunnel structure at the fire source and frequently leads to the explosive spalling of the tunnel's concrete lining. This is where passive fire protection comes into play. Our experts have devised special thermal barriers for tunnel tubes that withstand fire and keep the entire construction intact for hours even when exposed to extremely high temperatures. This can not only drastically reduce secondary damage after a fire but possibly even save lives.

On firm ground

A broad portfolio of building systems products ensures smooth tiling and perfect adhesion for tiles in bathrooms and spas.



Tailored tile mortars for all kinds of tiling applications.

Joint sealants from BASF Construction Chemicals are highly resistant, have excellent sealing qualities and are easy to apply.

Functionality and atmosphere must be complementary. Like, for example, in spas and indoor swimming pools. Bathers want to have fun. Thus, designs get increasingly imaginative. At the same time, quality requirements rise and the implementation gets ever more demanding.

Whereas swimmers have an eye for attractive surroundings, cleanliness, and smooth surfaces, construction experts look beneath the ceramic linings.

What mortars and leveling compounds can be used to restore the underlying structure? Is mortar better than synthetic resin for durable surface sealing? Which mortar is most suitable for tiles or natural stone? Which sealing materials offer the best elasticity? Which materials stand up best to wear and tear, cleaning, and climatic conditions?



Arlberg-Well, Austria (above),
Bad Blumau, Austria (left).
Imaginative designs with products
from BASF Construction Chemicals.

For all these problems BASF Construction Chemicals provides a wide range of high-quality solutions. Permanent development and innovation – also utilizing nanotechnology amongst others – make these products even more durable, flexible, economical, resistant, solid, and easier to apply. In this way, guests can look forward to a lasting, enjoyable bathing experience.



Our grouting and laying materials grip when everything else is floating.

Building for the future

Changing weather conditions, environmental pollution, and the ravages of time take their toll on all building fabrics. This is where we come in.

Every construction is continuously subjected to assaults of all sorts. Weather conditions, temperature changes, as well as environmental pollution and vibration of the building all leave their traces, as do the ravages of time. To counter these challenges, BASF Construction Chemicals has developed tailor-made solutions, namely products and systems that improve, preserve, or repair construction materials, thus prolonging a building's life-span. With our precision grouting mortars, concrete repair products, joint sealants, and injection materials you ensure that your building can be used by generations to come.

But even what is good already can be made better still. That is why we keep improving or products and systems con-

tinuously. This is done by our own experts from our global research network, often in conjunction with specialists from universities and other institutions. Recent results from this ongoing work include Emaco® Nanocrete, a new generation repair mortar, as well as several other renovation products that are easy to handle, safe to apply, even more resilient to weathering, and will significantly prolong the life-span of constructions of any kind.





Faster and easier: BASF's repair and renovation products not only provide superior quality, but also allow for new ways of application.



Improving, preserving, or repairing building fabrics: BASF Construction Chemicals' products and solutions prolong the life-span of all kinds of structures.

Façades – more than meets the eye

With a complete range of products and services we ensure that façades cut a good figure from every perspective.



Energy-saving façades can also be attractive – the Southern Nevada Community College in Las Vegas.

Unlike film sets, which are but fleeting façades that don't have to keep their promise, façades in real life have to stand the test of time. Whether historical or modern, brickwork or earthquake-proof paper-construction, energy-saving façade, wood, or daring glass curtain, the façade is a building's face, offering protection to the spaces behind it. And, just like faces, façades need to be taken care of.

Conservation laws determine the way in which historical façades can be renovated. All materials used need to have the same or similar properties as the original building materials, with the sole exception of prolonged durability. The products of BASF Construction Chemicals cover the entire renovation process from the drying out of the brickwork through the restoration of ornaments to loam renderings and paints with a high degree of breathability.

Even modern façades require a face-lift at one time or another: renderings have to be renewed, colors need refreshing, the retrofitting of insulation systems for energy-conservation may be required. Water-repellent and breathable coatings preserve the newly-acquired beauty for years to come.

In order for the façades to shine in renewed splendor, construction, material, and aesthetics have to be finely attuned to one another. We provide specialist services, such as function and style consulting, including inspection of the building and renovation proposals.



“Ginger and Fred”,
the dancing house on the
Vltava in Prague, dances
with a thermal insulation
system from BASF
Construction Chemicals
division.



Schwerin Castle. With façade
products from BASF Construction
Chemicals you can tell its period,
but not its age.



BASF’s renovation renderings
make the “Französischer Dom”
in Berlin shine anew.

Applied for top performance

BASF is also tops on flooring. Whether sports, industry, or decorative flooring – we are first off the mark in all disciplines.



When the sprinter goes down for the start, he can take a deep, reassured breath. Our sports floorings and line markings are ecologically sound, offer good grip, are fast, wear-resistant, ageing-resistant, and can be laid very quickly. They are the perfect base for records.

Quite different demands are made on industrial flooring. Here, the main concerns are wear resistance, impact resistance, as well as easy cleaning. Depending on the environment, specific additional requirements have to be taken into account. In the chemical, pharmaceutical, and foods industries, the flooring has to be jointless, non-skidding, decontaminable, odorless, as well as resistant to chemicals, water, and temperature changes.

Computer manufacturers, computer centers, and operating rooms require anti-static floors. Car park surfaces have to be resistant to salt, oil, and changes in temperature.

Our decorative floorings are convenient, resistant, elastic, and can be customized to a large degree: paints, glass, plastic, or stone can be integrated into the flooring, as can pictures or typography.

Competent consulting and in-depth analyses ensure solutions that meet all requirements.



Whether for schools, operating rooms, computer centers, or car parks – our diverse range of floorings can meet all the requirements.



Fit for records: our deep-blue “IAAF Class 1” certified sports flooring for the Olympic Stadium in Berlin.

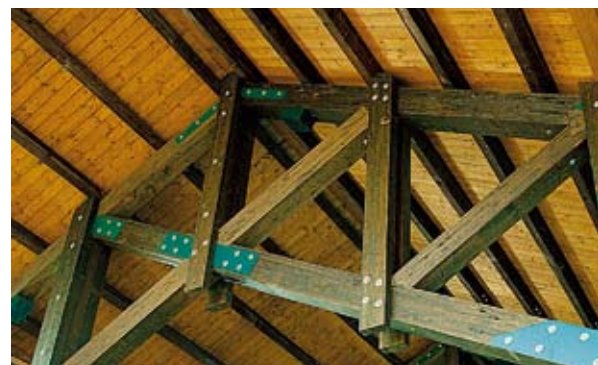
Making natural beauty last

In order for wood to retain its natural beauty and functionality for many years, an effective protection against weathering and vermin infestation is required.

Wood is one of the most traditional and versatile construction materials. Whether for house building or in the garden, in parks or on playgrounds, or even for the supporting structure of a roller coaster, this renewable resource remains a favorite building material. But unprotected wood is vulnerable, especially when used outside. While sunlight, rain, extreme heat or cold all take their toll on the material, insects or fungi can have an even more destructive effect. The solution: permanent protection against any such assaults.

With the vacuum pressure treatment, for example, the protective agent can penetrate the wood deeply and evenly. But our products also provide effective protection when applied using dipping treatment or spraying application. Our high quality requirements are not limited to the effectiveness of our products, of course.

Their toxicological and eco-toxicological properties are taken into account as well. The products of our portfolio have to be as effective as they have to be environmentally sound, in order for your wood to retain its beauty and functionality for many years to come.



Robust and attractive:
a wooden attic construction.



Safety first: the roller coaster's wooden structure has to be protected against weathering, vermin infestation, and fungal decay.



Protected by BASF products, wooden constructions brave the ravages of time.



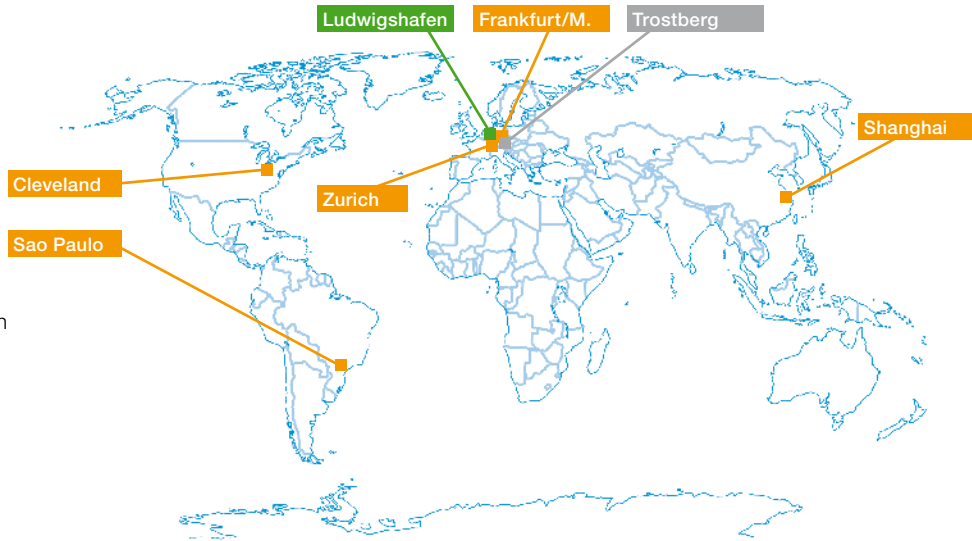
Just the right climate for the future

Dynamic innovation and reliability are values that are convincingly implemented by the BASF Construction Chemicals division, the market and technology leader in customer-oriented products, systems, and services.



The BASF Construction Chemicals division is the leading supplier of chemical systems and formulations for customers from the construction industry. With continuous innovation and tailor-made solutions the division helps its customers to be more successful. The Admixture Systems business unit especially caters to customers from the ready-mix, prefabrication, concrete products, and underground mining industries. The Construction Systems business unit offers products in the sectors of sports and industrial flooring, exterior insulation, façade systems, expansion joints, wood preserving agents, and construction and repair products like grouts, repair mortars, tile adhesives, or insulation systems. The division operates production sites and distribution centers in more than 50 countries.

BASF is the world's leading chemical company – in other words: The Chemical Company. The product portfolio comprises chemicals, synthetics, performance products, herbicides, fine chemicals, as well as mineral oil and natural gas. As a reliable partner, BASF helps its customers from almost all sectors with intelligent system solutions and high-quality products to be more successful. BASF develops new technologies and utilizes them to meet future challenges and to unlock new market potential. The company combines economical success with environmental protection and social responsibility, thus contributing to a future worth living. For further information please visit www.basf.com.



Headquartered in Ludwigshafen and comprising five business units on four continents as well as central research & development, the Construction Chemicals division is decidedly international.



At the Competence Center Polymers for Inorganics, scientists work on Construction Chemicals' innovations. Close by, experts subject the results to tests under realistic conditions.





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