Below Ground Construction Solutions
Master Builders Solutions from BASF

Master Builders Solutions
The Master Builders Solutions brand brings all of BASF’s expertise together to create chemical solutions for new construction, maintenance, repair and renovation of structures. Master Builders Solutions is built on the experience gained from more than a century in the construction industry.

The know-how and experience of a global community of BASF construction experts form the core of Master Builders Solutions. We combine the right elements from our portfolio to solve your specific construction challenges. We collaborate across areas of expertise and regions and draw on the experience gained from countless construction projects worldwide.

We leverage global BASF technologies, as well as our in-depth knowledge of local building needs, to develop innovations that help make you more successful and drive sustainable construction.

The comprehensive portfolio under the Master Builders Solutions brand encompasses concrete admixtures, cement additives, chemical solutions for underground construction, waterproofing solutions, sealants, concrete repair & protection solutions, performance grouts, performance flooring and tiling solutions.
Foundation engineering is at the heart of every project whether civil infrastructure, industrial or commercial building. With the challenging conditions of a high water table and an aggressive, corrosive ground water, the technologies required for this field of construction are continually put to the test.

Key Technologies:
1. Smart Dynamic Concrete
2. Sprayed Concrete
3. Injection
4. Waterproofing
5. Anchoring
Foundation Engineering

As building structures become ever more complex to construct, there is a real need to focus on watertight structures that genuinely extend the life of an asset. BASF’s construction systems have been incorporated for use on many projects with stringent durability requirements.

Whatever structure you are building and whatever foundation engineering challenges you face, BASF Construction Chemicals has an intelligent solution to help you be more successful.

BASF’s key application technologies for foundation engineering include:

**Smart Dynamic Concrete:** Filling every detail of formwork or excavation, even in the presence of dense reinforcing, it also provides high early strength gains and watertight concrete.

**Sprayed Concrete:** Provides ground support for tunneling, mining and slope stabilization.

**Injection:** Micro cement, resin and mineral grouts are injected to prevent water ingress, stabilize soils and enable structural repairs.

**Waterproofing Systems:** A full range of solutions for below ground civil engineering and building structures.

**Anchoring:** Cementitious and chemical grouts provide high performance anchoring solutions for all applications.

At BASF, we create chemistry – and have been doing so for 150 years. As the world’s leading chemical company, we combine economic success with environmental protection and social responsibility. Through science and innovation, we enable our customers in nearly every industry to meet the current and future needs of society.

BASF Construction Chemicals has a global team of 5,700, with a production, sales and technical support network in over 50 countries. Continuous innovation and tailor-made solutions ensure our customers are more successful.

The leader in construction chemicals in the Middle East and Africa region, BASF Construction Chemicals has over 35 years’ experience in the Middle East with a wealth of local industry knowledge and expertise. This is underpinned by the strong, highly qualified and experienced global resource base that drives our worldwide operations.
Concept
BASF’s Smart Dynamic Concrete concept upgrades high slump concretes to a higher performance level, introducing self-compacting characteristics while offering the same ease of production as standard concrete.

The essential components of the Smart Dynamic Concrete are a robust concrete mix with a low fines proportion:

**MasterGlenium®** superplasticizer, which provides the concrete with excellent flowability and high early strength, as well as improving engineering properties such as ultimate compressive and flexural strengths, bond to steel, modulus of elasticity, shrinkage, creep and impermeability.

**MasterMatrix®** viscosity modifying agent that achieves the right balance in the mix between fluidity, passing ability and resistance to segregation, thus enabling the production of a self-consolidating concrete.

**MasterLife® CI 222** is a state-of-the-art corrosion inhibiting admixture formulated to inhibit the corrosion of steel reinforcement in concrete.

**MasterLife® WP 730** is a hydrophobic pore-blocking ingredient (H.P.I.) which can be used as an additional measure to improve durability of the concrete.
Smart Dynamic Concrete adds economical, ecological and ergonomic values to concrete:

<table>
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<th>Category</th>
<th>Benefits</th>
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| **Economical** | Up to 40% faster placing  
Up to five times higher labor productivity  
Easy to produce |
| **Ecological**  | Less fines, less CO₂  
Higher durability |
| **Ergonomic**   | No vibration  
No noise  
Improved workability |
Sprayed Concrete

Wet mix sprayed concrete is rapidly becoming an integral part of below ground structures. High performance fibre reinforced sprayed concrete optimizes the excavation process in rock and hard soils, providing ground support for tunneling, mining and slope stabilization. Wet mix sprayed concrete is durable with reduced health risks compared to dry mix applications and can be applied in a rapid, quality controlled and cost effective manner. It can be adapted to meet the needs of different environments and applications, with early and long term strength, extended workability and myriad other properties achievable through use of proven and advanced technologies.

Concept
BASF Construction Chemicals offers the key components that facilitate the design and application of sprayed concrete to meet the engineering specifications, practical requirements and environmental constraints.
MasterRoc® SA alkali-free accelerators provide low dust and rebound levels, high early strength gain, long-term strength development and enhanced durability. Rapid strength development is particularly useful when combined with an appropriate injection regime to control the ingress of ground water.

MasterGlenium® superplasticizers make the production of sprayed concrete mixes with low water to cement ratios possible while maintaining superior flow and workability.

MasterRoc® HCA stabilizer is a cement hydration control system which is designed to prolong the workability of the sprayed concrete mix, adding flexibility to site logistics.

MasterFiber® range of fibres increases the ductility of concrete providing optimization and speed of application enabling anchoring and tie backs to be installed faster and more cost effectively. In turn this enables a faster excavation and better utilization of labor and equipment.
Injection

BASF Construction Chemicals offers a complete range of injection products, including micro cements, resins and grouts that can be used to prevent water ingress, stabilize soils and enable structural repairs.
Concept
BASF Construction Chemicals backs up its broad range of injection products with expert technical support, assisting customers to select the right injection system and application approach, as well as providing site training and trouble shooting. We partner with suppliers of equipment and injection accessories to provide you with the best, most cost effective technology solutions.

**MasterRoc® MP** micro fine cement is a range of fast setting superfine cements for injection of rock and soil that have extremely good penetration to give excellent water tightness and durability. They are easier to handle, cost less than resins and can cope with most injection situations. Rapid setting allows uninterrupted excavation and enhanced productivity.

**MasterRoc® MP 320** is a mineral grout system composed of colloidal silica, a natural, non-hazardous, ecologically friendly solution. Due to its low viscosity, the grout will penetrate finer fissures than any cement based product, stabilizing fine, silty sands.

**MasterRoc® MP 355** is a series of polyurethane injection foams designed for water stopping, stabilization of jointed rock, sealing of running water, for filling voids and stabilization of loose rock.

**MasterInject® 1335 and MasterInject® 1320** polyurethanes with superior flexibility and foaming characteristics that can act as a temporary waterstop or provide permanent sealing of live and static cracks in concrete structures against ingress of water, corrosive fluids and gasses.

**MasterSeal® 901** is the industry standard for acrylate injection resins for the injection of pre-installed hoses or for permanent sealing in live cracks and joints.

**MasterSeal® 590** is the perfect partner for BASF’s injection range enabling additional leak control during injection. It is a fast setting mortar used to plug water leaks in concrete and masonry.
Moisture penetration is one of the most critical challenges facing concrete structures today. Interior or exterior, above or below grade, unprotected structures suffer from water-induced damage, including deterioration and corrosion caused by alkalis, salts, acids and mold.

BASF Construction Chemicals provides waterproofing systems for below ground, civil engineering and building structures. Our Waterproofing Systems range includes cement based solutions, preformed geosynthetic membranes polyurethane and polyaspartic based liquid applied membrane systems. We also have specific solutions for constructions like parking decks, bridge decks, reservoirs and secondary containment as well as for basements, below-ground structures, tunnels and underwater structures.
BASF Construction Chemicals offers integrated and complete waterproofing systems. We incorporate the use of preformed or liquid applied membranes, as well as a variety of resin technologies to treat joints providing protection against ground and surface water and harmful substances of liquid and gaseous nature. Concrete admixtures enhance the water tightness of the concrete that supports the waterproofing systems, further improving the durability of structures.

**Waterproofing System:** This system presents a sustainable approach to waterproofing through an evolution in performance concrete construction incorporating the MasterSeal® product range. Applications include reservoirs, water tanks, canals, dams, sewage treatment plants, liquid storage vessels, basements, underground car parks, subways, vaults, marine structures and tunnels.

**MasterSeal® 588,** an elastomeric waterproof coating for concrete and masonry in water retaining structures subject to movement.

**MasterSeal® 590,** an ultra rapid setting durable mortar for plugging joints between concrete pours and active water leaks in concrete and masonry.

**MasterSeal® 345** is a sprayable membrane for the waterproofing of underground concrete structures that may offer considerable cost and project time improvements over conventional sheet membranes. It is spray applied in a sandwich construction between layers of sprayed or cast concrete to create a composite waterproof structure. It has good bond strength characteristics to the substrate on both sides of the membrane and behaves elastically, preventing the development of water migration at the concrete-membrane interfaces.
Anchoring

Ground anchors help to transfer the loads from structures into the ground and are a critical part of the support structure for many large and deep excavations. They may be used for tensioning, to prevent tipping and sliding of structures, to secure an underpinning or prevent buoyancy. They may take many different forms, from grouted anchors to rock and soil nails, drilled or driven piles, reinforced concrete or injected grout. Whatever the anchoring method, the ease of application, time required for anchors to reach load bearing capacity, consistent achievement of final strength and the durability of the bond to steel and substrate are the most important considerations in selecting a solution. BASF can supply additives or complete solutions for all your anchoring requirements including emergency applications.

Concept
BASF Construction Chemicals has a full range of grouting products to provide high performance ground anchors, with specialized solutions for vibration dampening, underwater construction and high strength applications.

Our formulations include high performance properties such as early strength, extended working life at high temperatures, shrinkage compensating, corrosion protection and predictable performance.

MasterFlow® 190 is a shrinkage compensated pre bagged cementitious grout suitable for post tensioned structures, cable duct grouting and anchoring. Additional applications for geotechnical works include rock bolts, cable anchors and forepoling for underground structures and slope stabilization.
MasterRoc® FLC 100 is the industry standard for anchors and post tensioned cable grouting. It is a chloride free admixture in powder form which is added to cement to produce a pumpable, non-shrink, non-segregating, impermeable grout, providing high strength and high bond to steel. It protects cables against corrosion from aggressive agents and stress.

MasterRoc® MP 364 is a two component resin grout which is the answer where rapid excavation is necessary, providing the ability to tension the anchor within one hour after injection.

MasterRoc® TIX 10 is a shrinkage compensated cementitious grout for the encapsulation of fully bonded rock dowels in both underground and above ground applications.
Master Builders Solutions from BASF for the Construction Industry

**MasterAir®**
Complete solutions for air entrained concrete

**MasterBrace®**
Solutions for concrete strengthening

**MasterCast®**
Solutions for the manufactured concrete product industry

**MasterCem®**
Solutions for cement manufacture

**MasterEase®**
Solutions for reducing concrete viscosity

**MasterEmaco®**
Solutions for concrete repair

**MasterFinish®**
Solutions for formwork treatment

**MasterFlow®**
Solutions for precision grouting

**MasterFiber®**
Comprehensive solutions for fiber reinforced concrete

**MasterGlenium®**
Solutions for hyperplasticized concrete

**MasterInject®**
Solutions for concrete injection

**MasterKure®**
Solutions for concrete curing

**MasterLife®**
Solutions for enhanced durability

**MasterMatrix®**
Advanced rheology control solutions for self-consolidating concrete

**MasterPel®**
Solutions for water tight concrete

**MasterPolyheed®**
Solutions for mid-range concrete

**MasterPozzolith®**
Solutions for water-reduced concrete

**MasterProtect®**
Solutions for concrete protection

**MasterRheobuild®**
Solutions for high strength concrete

**MasterRoc®**
Solutions for underground construction

**MasterSeal®**
Solutions for waterproofing and sealing

**MasterSet®**
Solutions for set control

**MasterSure®**
Solutions for extraordinary workability retention

**MasterTile®**
Solutions for tiling systems

**MasterTop®**
Solutions for industrial and commercial floors

**Master X-Seed®**
Advanced accelerator solutions for concrete

**Ucrete®**
Flooring solutions for harsh environments

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**Contact us:**

United Arab Emirates
BASF CONSTRUCTION CHEMICALS UAE LLC
Dubai: +971 4 8069400
Abu Dhabi: +971 2 5512562
www.master-builders-solutions.basf.ae

Regional Offices

Bahrain: +973 1 7786427
Oman: +968 2 4218596

Kuwait: +965 2 4742653
www.master-builders-solutions.basf.com.kw

Algeria
BASF CONSTRUCTION CHEMICALS ALGERIA SARL
Tel: +213 21 3056909
www.basf.com.dz

Azerbaijan
BASF Caspian CC LLC
Tel: +994 18 0531030
www.master-builders-solutions.basf.az

Egypt
BASF CONSTRUCTION CHEMICALS EGYPT SAE
Tel: +2 02 25980600
www.master-builders-solutions.basf.com.eg

Kazakhstan
BASF CENTRAL ASIA LLP
Tel: +7 70727 70613
www.master-builders-solutions.basf.kz

Kenya
BASF EAST AFRICA LIMITED
Tel: +254 20 4443454
www.master-builders-solutions.basf.co.ke

Morocco
BASF MAROC SA
Tel: +212 522 669939
www.master-builders-solutions.basf.co.ma

Near East
JORDANIAN SWISS COMPANY FOR MANUFACTURING AND MARKETING CONSTRUCTION CHEMICALS
Tel: +962 6 5526773
www.basf-cc.com.jo

Nigeria
BASF WEST AFRICA LIMITED
Tel: +234 1 4607483
www.master-builders-solutions.basf.ng

Russia
BASF STROITELNYE SISTEMY
Tel: +7 495 2256436
www.master-builders-solutions.basf.ru

United Arab Emirates
BASF CONSTRUCTION CHEMICALS UAE LLC
Dubai: +971 4 8069400
Abu Dhabi: +971 2 5512562
www.master-builders-solutions.basf.ae

South Africa
BASF CONSTRUCTION CHEMICALS SOUTH AFRICA (PTY) LTD
Tel: +27 11 2032425
www.master-builders-solutions.basf.co.za

Turkey
BASF CONSTRUCTION CHEMICALS
Tel: +90 216 5703400
www.master-builders-solutions.basf.com.tr

Ukraine
BASF T.O.V
Tel: +380 44 5915595
www.master-builders-solutions.basf.ua

UAE
BASF CONSTRUCTION CHEMICALS UAE LLC
Dubai: +971 4 8069400
Abu Dhabi: +971 2 5512562
www.master-builders-solutions.basf.ae

Regional Offices

Bahrain: +973 1 7786427
Oman: +968 2 4218596

Kuwait: +965 2 4742653
www.master-builders-solutions.basf.com.kw

Algeria
BASF CONSTRUCTION CHEMICALS ALGERIA SARL
Tel: +213 21 3056909
www.basf.com.dz

Azerbaijan
BASF Caspian CC LLC
Tel: +994 18 0531030
www.master-builders-solutions.basf.az

Egypt
BASF CONSTRUCTION CHEMICALS EGYPT SAE
Tel: +2 02 25980600
www.master-builders-solutions.basf.com.eg

Kazakhstan
BASF CENTRAL ASIA LLP
Tel: +7 70727 70613
www.master-builders-solutions.basf.kz

Kenya
BASF EAST AFRICA LIMITED
Tel: +254 20 4443454
www.master-builders-solutions.basf.co.ke

Morocco
BASF MAROC SA
Tel: +212 522 669939
www.master-builders-solutions.basf.co.ma

Near East
JORDANIAN SWISS COMPANY FOR MANUFACTURING AND MARKETING CONSTRUCTION CHEMICALS
Tel: +962 6 5526773
www.basf-cc.com.jo

Nigeria
BASF WEST AFRICA LIMITED
Tel: +234 1 4607483
www.master-builders-solutions.basf.ng

Russia
BASF STROITELNYE SISTEMY
Tel: +7 495 2256436
www.master-builders-solutions.basf.ru

United Arab Emirates
BASF CONSTRUCTION CHEMICALS UAE LLC
Dubai: +971 4 8069400
Abu Dhabi: +971 2 5512562
www.master-builders-solutions.basf.ae

South Africa
BASF CONSTRUCTION CHEMICALS SOUTH AFRICA (PTY) LTD
Tel: +27 11 2032425
www.master-builders-solutions.basf.co.za

Turkey
BASF CONSTRUCTION CHEMICALS
Tel: +90 216 5703400
www.master-builders-solutions.basf.com.tr

Ukraine
BASF T.O.V
Tel: +380 44 5915595
www.master-builders-solutions.basf.ua

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