Intelligent solutions from BASF Construction Chemicals

Whatever your construction problem, whatever the structure is you are building, BASF Construction Chemicals has an intelligent solution to help you be more successful.
Our market leading brands offer the widest range of proven technologies to help you build a better world.

Emaco® - Concrete Repair Systems
MBrace® - Composite Strengthening Systems
Masterflow® - Precision and Structural Grouts
Masterflex® - Joint Sealants
Masterseal® - Coatings and Waterproofing
Conideck® - Hand and Spray applied Waterproof Membrane Systems
Coniroof® - PU Based Roofing Systems
Mastertop® - Decorative and Industrial Flooring Solutions
Ucrete® - Flooring Solutions for Harsh Environments
PCI® - Tile Fixing, Cement Underlays and Waterproofing Systems
Glennis® - For “Hyperplasticized” and Rheodynamic™ Concrete
RheoFIT® - For improved MCP production

BASF is the world’s leading chemical company: The Chemical Company. Its portfolio ranges from chemicals, plastics and performance products to agricultural products, fine chemicals and oil and gas. As a reliable partner BASF helps its customers in virtually all industries to be more successful. With its high-value products and intelligent solutions, BASF plays an important role in finding answers to global challenges such as climate protection, energy efficiency, nutrition and mobility. BASF posted sales of more than €62 billion in 2008 and had approximately 97,000 employees as of the end of the year. Further information on BASF is available on the Internet at www.basf.com.
Basement Waterproofing

Everything a Basement needs
BASF Construction Chemicals range of THORO® waterproofing products for use inside any kind of basement provide full protection against damp and the ingress of water.

**Simple to Apply**
BASF Construction Chemicals’ range of THORO® waterproofing products contain no solvents for user and environmental protection. Only simple tools and equipment are required for application, which can then be easily cleaned as products are simply mixed with water.

**Time and Cost Effective**
THORO® waterproofing products can be applied to damp walls and floors, ensuring that no time and money is wasted drying the area before work commences.

The THORO® waterproofing range provides excellent long term protection, and will not blister off as products are permeable to water vapour.
As with all BASF Construction Chemicals products, extensive technical support is available - from comprehensive literature to on-site demonstrations and training.

**Officially Approved and Quality Assured**
THORO® waterproofing systems are universally approved by internationally respected regulatory authorities in countries such as France, the UK, Germany and the USA. Backed by extensive research and development facilities. THORO® products are manufactured to the highest standards and are fully tested by independent laboratories and approved by national building bodies.

With over 90 years' experience in concrete repair and waterproofing, THORO® has the know-how to provide the right solution, whatever the problem. Its unrivalled track record is backed not only by a range renowned for quality and durability, but also by superb customer service developed through years of expertise. THORO® products are recognised across the industry and the world, and are approved in the UK by BBA, WRAS and DWI.
Notes for Surveyors

Floors

**Does the floor need treatment?**

**Yes:** Is there a floor screed? If so it should be removed. Once removed - is the concrete base thick and strong enough to receive THOROSEAL® SUPER. A minimum of 100mm of good quality concrete is likely to be required to withstand hydraulic pressure. Consult a structural engineer for an exact specification. Once THOROSEAL SUPER has been applied, the floor should be re-screeded to protect the surface against wear.

**No:** But a wall/floor THORO® WATERPLUG fillet is required.
If there is a floor screed then remove a 20 x 20 mm band around the perimeter and treat with THORO® WATERPLUG.

**Does the floor need screeding?**

**Yes:** Is there sufficient headroom to lay a 40-mm screed?

**No:** Use latex self-smoothing floor screed such as MASTERTOP 524 to a depth of 2-25 mm.

**Yes:** Before placing your normal screed, brush on a bonding slurry coat comprising of neat cement and THORO® ACRYL 60, or use EMACO® FAST FLUID Screed.

Walls

**How far should the treatment go?**

**Applying a patch on one wall may merely push the water further round the walls to reappear elsewhere. The application must be extended up to a working damp-proof course or to a minimum of 1 metre above outside ground level. Always check the joist ends of the ceiling/floor above as they may need additional protection if built into damp masonry.**

Decoration

If THOROSEAL® SUPER is left as the finish in the basement it should not be decorated until it has completely cured and dried. This process could take several months in damp conditions with little ventilation. The decoration applied should be restricted to a coating or a paint with a high-breathing capacity. Oil-based paints and wallpapers in general are not recommended.

Condensation

It is advisable to point out to clients that a waterproofed basement will be prone to condensation unless sufficient ventilation is provided. A cement based renovating render finish (THORO® MACROMIX) will reduce the problem, but there is no substitute for good ventilation.

Running Water

Waterproofing basements which are subject to active water pressure requires specialised techniques and equipment. Advice should be sought from the local distributor of THORO® products or from BASF Construction Chemicals.

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Please consult our Technical Helpline for further information on: 01527 512255
Basement Waterproofing Guidelines

Typically, the following steps should be taken to ensure successful waterproofing:

**Wall Pre-Treatment**
The prepared wall should receive a sulphate-resisting render 5-7 mm in depth, finished flat with a wood float.

**Wall/Floor Joint**
A 20 x 20-mm chase should be cut at the wall/floor intersections and filled solid with THORO® WATERPLUG, finishing in an angle fillet.

**Waterproofing**
All prepared/pre-treated surfaces should receive one brush coat of THOROSEAL® SUPER GREY at a minimum of 1mm thickness followed by one brush coat of THOROSEAL® SUPER WHITE at a minimum of 1mm thickness.

For advice on whether pre-treatment is necessary call BASF Construction Chemicals Technical Helpline on: 01527 512255.
Application

Substrate Quality
Prepared surfaces must be clean, sound and free of oil or any other contaminants that could adversely affect adhesion, and must be mechanically keyed. We do not recommend the use of THOROSEAL® SUPER over aerated concrete block. Please consult BASF Construction Chemicals for further advice.

Substrate Preparation - New Brick/Blockwork
Ensure that all joints are filled solid and remove mortar droppings from the surface. Thoroughly hose down the surface with clean water.

Recommendation: for engineering bricks, remove the glaze by abrasive blasting or needle gunning.

Old Brick/Blockwork
Remove all surface coating back to sound brick/blockwork. In order for surfaces to be clean and sound, they should be prepared using abrasive blasting, high pressure water jetting or by mechanical methods that will not cause damage to the substrate.

All renders and plasters should be removed back to a clean, sound surface, and mortar joints must be sound. Soft or loose joints should be raked out to a depth of 20 mm and repointed with mortar prepared according to pre-treatment instructions.

New concrete
Remove all traces of mould, oil, form treatments and laitance by high-pressure water jetting, abrasive or wet blasting. Clean down well with a hose and clean water. Fill all tie or bolt holes with THORO® WATERPLUG.

Old Concrete
Remove all surface treatments as above. All fungi/organic growth should also be removed with acid or fungal wash. Cut out any leaking static joints/cracks to 20 mm x 20 mm, making the sides as square as possible. Wash thoroughly with clean water and fill with THORO® WATERPLUG. For dynamic joints, consult the local distributor of THORO® products or BASF Construction Chemicals. After completing all repairs, wash down all surfaces thoroughly.
Stonework

Types and conditions of stonework are extremely varied, so preparation guidelines are general, and each specific application should be discussed with the local distributor of THORO® products or BASF Construction Chemicals. Remove all surface treatments, fungi and organic growth as previously described. Remove any render or plaster back to a clean, sound surface. Wash down thoroughly with a hose and clean water. Rake out all loose or soft joints to a minimum depth of the width plus 50%. Repoint with mortar using a mix of three parts clean rendering sand to one part sulphate-resisting Portland cement, and ensuring that the pointing material is as dry as possible.

Important note

Stonework must be of sufficient strength to accept a THOROSEAL® SUPER coating.

Soft stone and delaminating sandstones/limestones need special attention - specifications and advice are available from the local distributor of THORO® products or BASF Construction Chemicals.

Wall/floor or kicker joint

This is usually the point of greatest water ingress. The joint should be cut out, thoroughly cleaned with water and filled with THORO® WATERPLUG as shown in Figures 1 and 2.

Caution

New concrete floor slabs can continue shrinking for some months after they have been placed. It is preferable to use THOROSEAL® FLEXI-JOINT after applying THOROSEAL® SUPER into the prepared chase.
Pre-treatments

Some areas of the UK and Ireland have ground water that contains high levels of sulphates or nitrates. Sulphates may also be present in certain types of brick or be impregnated into walls in coal cellars etc. To overcome the aggressive effects of these elements, it may be necessary to apply a salt-inhibiting render before applying THOROSEAL® SUPER.

(This treatment is not normally required on concrete.) If in doubt seek the advice of the local distributor of THORO® products or BASF Construction Chemicals. To be certain that the correct specification is followed, it may be necessary to have samples of the ground water and/or brickwork tested in a laboratory. The results obtained should be compared with the table in BRE Special Digest 1-2005 Part C.

If pre-treatment is required, follow the specification below.

Bricks, blocks and porous stonework

Thoroughly mix a render consisting of:
• 3 parts clean rendering sand
• 1 part sulphate-resisting Portland cement.

Do not use high alumina cement.

The gauging liquid should be clean potable water. The surface should be pre-dampened and the render applied to a thickness of 5 to 7mm. The surface of the render should be finished with a wood float to leave an open surface.

Dense non-porous stonework and engineering bricks

Thoroughly wet the prepared surface but do not leave free-standing water. Apply a bonding slurry coat consisting of THORO® ACRYL 60 and sulphate-resisting Portland cement. This slurry should be brushed firmly into the surface and the render, mixed as described above, applied immediately whilst the bonding coat is still wet.

Friable substrates

It is necessary on soft crumbling substrates to apply a render as detailed above reinforced with galvanized stainless expanded metal or polypropylene mesh secured firmly at 300-mm centres with galvanized or stainless fixings. The fixing should penetrate the substrate at least 100mm or to sound material, whichever is the greater. The thickness of the applied render should be increased to ensure complete coverage of the mesh.
Mixing THOROSEAL® SUPER

Mixing liquids
Blend 25kg of powder into approximately 5.4 litres of clean water. The quantity may vary slightly depending upon the ambient conditions. In all instances, it is important that the material is mixed to the correct consistency.

Keep the quantity of liquid the same for all mixes, in order to avoid as much as possible batch to batch variation.

A maximum of 5.8 litres of water should not be exceeded.

Mechanical mixing
Gradually add the powder to the water and mix using a suitable mixing paddle in a slow-speed drill (400-600rpm). Mix until a thick, lump free consistency is obtained. Leave the THOROSEAL® SUPER to stand for 5-10 minutes to allow full saturation to take place.

Re-mix, adding a small quantity of water if required, to restore the consistency. Do not exceed the maximum liquid demand.

Note
The volume of water will vary slightly depending on weather conditions. In all cases it is the consistency of the mixed material that is important as this will dictate the ease of application and the correct application rate. Any quantity of material may be mixed at one time provided the consistency is correct.

Mixed material must be used within 60 minutes.
Do not re-temper the mix.

Curing
In most basements there are no special requirements for curing, the exceptions are:

• Under hot conditions (boiler rooms etc.): fog-spray all applications after the initial set for as long as practicable.

• In cold, humid or unventilated areas: it may be necessary to leave the application for a longer curing period or to introduce forced air movement. Never use dehumidifiers during the curing period or within 28 days of completing the work.

Fixings
A great advantage of the THORO® System is the ease of providing fixings after the work is completed whilst maintaining the completeness of the tanking. (see figure below for details) Skirting is best replaced with adhesives.

Service pipes or ducts entering through external walls

1 WATERPLUG
2 FLEXIJOINT
3 THOROSEAL® SUPER WHITE
4 THOROSEAL® SUPER GREY
Applying THOROSEAL® SUPER

Always apply to a pre-dampened surface using a stiff-fibred THORO® brush. High-suction substrates will require more dampening than dense substrates.

Usually THOROSEAL® SUPER grey is applied as a first coat. It should be brushed into the surface well, taking care not to brush the material out, with the typical thickness being 1.5 mm. Finish the first coat with vertical brush strokes - this allows the operative to easily trace any possible pin-hole leaks.

Allow to cure at least overnight before applying a second coat. In very humid or cold conditions, curing may be delayed. The second coat should be applied when the first coat is hard enough to receive it without damage.

Apply the second coat (usually THOROSEAL® SUPER white) to an approximate thickness of 1 mm (see Figure 4). Finish this coat with brush strokes in one direction for a neat appearance. If this is to be the final finish, it may be textured with a brush or sponge floated to give an even surface. If a cement based render is to be applied, finish the THOROSEAL® SUPER with horizontal brush strokes to give more grip.

In most cases, the cement based render can be applied the next day. Where finishing is likely to be delayed for some time, the THOROSEAL® SUPER should be sand-dashed immediately after application to aid adhesion. Do not use a Gypsum based plaster directly over THOROSEAL® SUPER.
The BASF Watertight System
BASF’s Watertight System provides integral waterproofing that eliminates the need for external membranes, coatings and sheeting treatments. With the BASF Watertight System, concrete is batched with our admixtures to achieve hydrophobic performance (less than 2% absorption). The BASF Watertight system transforms concrete from an open network of capillaries and cracks into an ultra-low absorptivity, waterproof, protective building material.

The system consists of watertight concrete delivered through local concrete suppliers, construction support, and a comprehensive performance warranty. The key feature of this construction approach is the elimination of the entire external waterproofing process. The benefits are extensive:

- Simplified design
- Reduced material demands
- Increased site mobility
- Safer conditions
- Project acceleration

The BASF Watertight System provides a high value, sustainable approach to waterproofing through an evolution in performance concrete construction.

The Alternative to Membranes
The traditional approach to overcoming water penetration has been to apply external membranes to the concrete, which normally have a temporary life span and require periodic replacement or maintenance. Membrane layers are often discontinuous around elements, and are prone to leaks.

Identification of membrane punctures or penetration is frequently difficult and expensive as the source of a leak is not necessarily where the visible evidence of the problem occurs. Problems often appear long after construction is complete so, if possible, repairs are often disruptive and expensive.

The BASF Watertight System provides a totally effective and permanent integral waterproofing and corrosion resistant system throughout the full depth of the concrete. There is no need for membranes or built-up treatments, offering major savings in construction costs.

BASF Watertight System technology puts developers and contractors at the cutting edge of concrete construction through a faster, cheaper and more reliable alternative to traditional waterproofing techniques.
In the second action, GLENIUM® is used to reduce the water/cement ratio as well as optimize workability. The result is a non-absorptive, moisture-impervious concrete permanently protected from water ingress, and protected against soluble salts and acid attack.

Watertight Joints with MASTERFLEX® 900

Designed to be used in tandem with the BASF Watertight System, BASF’s MASTERFLEX® 900 re-injectable hose system for construction joints has been developed as an alternative to waterbars where watertight joints are essential.

Installation

MASTERFLEX® 900 is constructed from a tough, specially formulated PVC compound. Unaffected by weathering, low temperatures and constant immersion in water, it can withstand rough treatment and is easy to install and splice.

The system is installed in the joint area of the hardened concrete construction and clamped into position. Designed to stay sealed tight during the concreting operation to prevent the entry of mixing water and cement slurry, the hose’s sealing membrane releases its openings once the injection process begins, discharging the injection resin over the entire length of hose.