

# THOROSEAL<sup>®</sup> 501

Formerly sold as Hyseal Slurry

## Capillary Waterproofing, Surface Applied Slurry System, for use on Concrete and Mortar

### Description of Product

THOROSEAL<sup>®</sup> 501 waterproofing system is for waterproofing concrete and cementitious substrates. When applied to the surface of concrete or mortar, insoluble crystals are formed and developed in the water bearing capillaries, effectively blocking the passage of water and ensuring permanent water tightness throughout the life of the structure.

THORO<sup>®</sup> WATERPLUG fast setting mortar can be used in conjunction with THOROSEAL<sup>®</sup> 501 to plug active water leaks in concrete and masonry.

THOROSEAL<sup>®</sup> 501, when mixed with water, forms a slurry which is applied directly to concrete, blockwork and cement renders to provide general waterproofing. The product can also be used in powder form as a dry shake on to horizontal construction joints to provide additional waterproofing.

### Fields of Application

THOROSEAL<sup>®</sup> 501 has a wide use including:-

#### Water Retaining

- Water tanks and towers
- Reservoirs
- Swimming pools
- Water treatment works
- Dams
- Canals
- Harbours
- Concrete pipes

### Water Excluding

- Basements
- Tunnels
- Inspection pits
- Foundations
- Retaining walls
- Lift shafts
- Construction joints
- Sea defence walls
- Bridge decks
- Jetties
- Pontoons

### Features and Benefits

- Provides excellent waterproofing properties by becoming an integral part of the structure to which it is applied. Active ingredients will not delaminate, peel off or wear away.
- Protects concrete and reinforcement against corrosive water borne substances.
- Crystalline action reactivated by contact with water providing long-term additional protection.
- Effective against both positive and negative water pressure.
- Non-toxic or tainting.
- Proven world-wide track record.

### Technical Data/Typical Properties

Composition	THOROSEAL <sup>®</sup> 501	A blend of moisture activated chemicals, high grade silica aggregates and selected cements.
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## Application Procedure

### How THOROSEAL® 501 works

Moisture and free lime present in the substrate react with the active chemicals in the THOROSEAL® 501 to create a continuous barrier of insoluble crystals which penetrate deep into the capillary structure of the concrete. These capillaries and interstices are blocked to the passage of water, whilst permitting the transmission of air and water vapour, enabling the structure to breathe.

The rate and penetration of crystalline development varies with the density and surface absorption of the concrete. Surface penetration sufficient to provide full waterproofing properties is normally achieved after 5 - 7 days. Therefore, initial observations may suggest the application of THOROSEAL® 501 has not worked. This is not so - give it time!

THOROSEAL® 501 is equally effective against both negative and positive water or osmotic pressure and can be applied to the internal or external surface. Wherever possible however, THOROSEAL® 501 should be applied to the surface with which the water is in direct contact. This will result in an accelerated rate of penetration and crystallisation into the concrete structure. After the crystallisation process has successfully waterproofed the structure, THOROSEAL® 501 active chemicals remain dormant in the concrete to offer long-term protection.

Any later contact with water will reactivate the sealing process.

THOROSEAL® 501 can replace PVC waterstop in static construction joints.

### New Construction - Static Construction Joints

The vast majority of leaking water retaining (or excluding) structures constructed of sound dense concrete, leak only at construction or day work joints. Costly remedial work can be avoided by the use of THOROSEAL® 501 as a dry shake onto the horizontal surfaces of joints or as a slurry application on vertical surfaces see Figures 1 and 2.

### Waterproofing of Concrete Base Slabs

In conditions of high water table THOROSEAL® 501 may be applied as a slurry or dry shake over blinding concrete immediately prior to casting the slab. This sandwich system will prevent ingress of ground water preventing deterioration, and dampness or flooding. Foundations should be treated on the external face wherever possible, as should the face of construction joints. THOROSEAL® 501 can be applied immediately after the formwork has been removed, as the water curing process required for THOROSEAL® 501 will also ensure full hydration of the concrete.

If the treatment is to be exposed and an aesthetically pleasing finish is required, THOROSEAL® 501 after curing should receive a sand/cement render on which to apply the desired finish.

### Existing Structures

Structures subject to water leakage or ingress, must be carefully inspected to determine the cause. Any water present should be cleared away so that a thorough survey can be conducted. Dynamic cracks must be formed into a water tight elastomeric movement joint - contact Degussa Construction Chemicals (UK) for advice.

### Preparation of Substrate - Important

In common with all surface treatments to concrete, the quality of substrate preparation directly effects the performance of the system. Surfaces to be treated must be free from dust, oil, grease, paint residual curing compound, mould oil or any previous surface treatment that will impair adhesion of THOROSEAL® 501 treatment, or inhibit penetration of the chemicals or water into the surface. These include polymer modified renders and those substrates treated with silicon or silane water repellents.

Remove any laitance and provide an open pored, slightly rough surface sufficient to act as a mechanical key, essential for adequate adhesion of THOROSEAL® 501.

Areas of weak or honeycombed concrete must be repaired. Hollow debonding renders must be removed and made good.

Surfaces to be treated that are not damp, must be pre-wetted and still be damp at the time of application.

### Mixing

Always add water to THOROSEAL® 501 - not in reverse order.

Mix 1 part of water to 2.25 - 2.5 parts THOROSEAL® 501 powder by volume.

### Application

THOROSEAL® 501 mixes are applied by brush or spray onto the dampened substrate. Apply the material in 2 coats at right angles, the second coat whilst the first is firm, but 'green' - usually 3 - 4 hours after first coat (dependant on temperature).

### Plugging Leaks

Leaks and holes drilled to relieve water pressure are sealed permanently using a plugging compound of THORO® WATERPLUG (for further information see THORO® WATERPLUG technical data sheet).

### Coverage

Two coat slurry application:  
THOROSEAL® 501 approximately 1kg/m<sup>2</sup> per coat

Dry shake application:  
Unmixed THOROSEAL® 501 approximately 1kg/m<sup>2</sup>

Curing/After Treatment  
THOROSEAL® 501 must be prevented from drying out too rapidly and should be kept damp for 5 - 7 days. Mist spraying with water and covering with polythene is effective when drying out would otherwise take place. Curing compounds are unsuitable for use with THOROSEAL® 501 technology. Protect from weathering, sun, frost and wind for a similar minimum period.

Tanks and other water retaining structures may be filled 24 hours after final THOROSEAL® 501 application as crystal growth is accelerated by water pressure.

Cleaning  
Clean tools and equipment immediately after use. Use of plastic or rubber containers is recommended.

Packaging  
THOROSEAL® 501 is supplied in 25kg

Storage  
Store as for cement, in dry, cool conditions.

Shelf Life  
12 months if stored according to manufacturer's instructions in unopened containers

Watchpoints  
THOROSEAL® 501 is not suitable for subsequent decoration unless first protected by sand/cement render.

THOROSEAL® 501 acts via a crystal growth mechanism. Therefore, it may take up to 3 weeks from application for complete waterproofing properties to be achieved.

## THOROSEAL® 501 Degussa Construction Chemicals UK Version 5

### Health and Safety

\*For full information on Health and Safety matters regarding this product the relevant Health and Safety Data Sheet should be consulted.

The following general comments apply to all products.

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs, (which may also be tainted with vapour until the product is fully cured and dried). Treat splashes to eyes and skin immediately. If accidentally ingested, seek medical attention. Keep away from children and animals. Reseal containers after use.

### Solvent Based Products

Use in well ventilated areas; avoid inhaling. Suitable respiratory equipment may be needed, eg when spraying. Can cause skin, eye irritation. Wear protective eye shields and gloves during use. Do not smoke or allow sparks or naked lights when stored or in use.

### Powder Products

Should be handled to minimise dust formation; use light mask if excessive dust unavoidable. Cement powders when wet or moistened can cause burns to skin and eyes which should be protected during use.

### Resin Products

Can cause irritation, dermatitis or allergic reaction. Use protective equipment particularly for skin and eyes. Use only in well ventilated areas.

### Spillage

Chemical products can cause damage; clean spillage immediately.

### Disclaimer:

This information and all further technical advice is based on our present knowledge and experience. However, it implies no liability or other legal responsibility on our part, including with regard to existing third party intellectual property rights, especially patent rights. In particular, no warranty, whether express or implied, or guarantee of product properties in the legal sense is intended or implied. We reserve the right to make any changes according to technological progress or further developments. The customer is not released from the obligation to conduct careful inspection and testing of incoming goods. Performance of the product described herein should be verified by testing, which should be carried out only by qualified experts in the sole responsibility of a customer. Reference to trade names used by other companies is neither a recommendation, nor does it imply that similar products could not be used.