

# Contite® Seal

## POWDER CONCRETE PROTECTION & WATERPROOFING BY CRYSTALLIZATION SYSTEM

### DESCRIPTION

**Contite Seal** is a unique chemical treatment for concrete corrosion protection and waterproofing by crystallization. Manufactured in the form of a dry powder compound **Contite Seal** protects and waterproofs concrete by the process of osmosis. Because the chemicals in **Contite Seal** have an affinity with water the crystalline formation migrates throughout the pores and capillary tracts of concrete sealing the concrete against intrusion of water, chemicals, sewage and other harmful chemicals.

The active chemicals penetrate the concrete and react with free lime and moisture to form a subsurface membrane effectively sealing the concrete. The layer formed allows the passage of water vapour from the inside of the structure (the concrete breathes) whilst waterproofing/sealing the surface against sea water, aggressive ground waters, waste water and certain chemical solutions.

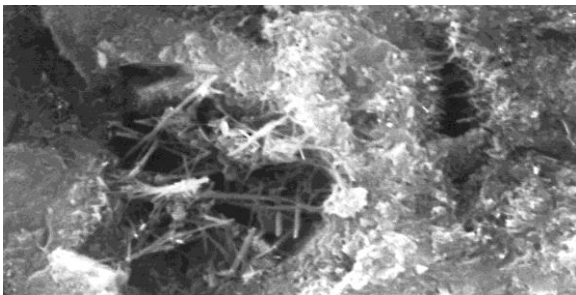
**Contite Seal** is also available with an anti freeze additive incorporated for applications during winter season at low temperatures.

Complies to EN1504 Part 9 and EN1504 Part 2

- Principle 1 : Protection Against Ingress (PI).  
Method 1.3 - Surface Coating.
- Principle 2 : Moisture Control. (MC)  
Method 2.3 - Surface Coating.
- Principle 5 : Increase in Physical Resistance (PR).  
Method 5.1 - Overlays or Coatings.
- Principle 6 : Resistance to Chemicals (RC).  
Method 6.1 - Overlays or Coatings.
- Principle 8 : Increasing Resistivity (IR).  
Method 8.3 - Overlays or Coatings.

### USES & ADVANTAGES

**Contite Seal** can be applied to all structurally sound concrete. Typical areas of application are :- sewage and waste water treatment tanks, reservoirs, tunnels, manholes, caissons, underground vaults and structures, foundations, parking decks, planter boxes, water tanks and swimming pools. **Contite Seal** improves concrete resistance against wastewater, sewage, certain chemical solutions, dilute intermittent acids, carbonation, salt water, sulphates, and other harmful chemicals. It is not, however, manufactured to replace chemical protection systems.



Fully developed crystal growth at 28 days within the capillary tracts of concrete blocking flow of water.

### Advantages include:-

- Protects concrete and steel rebar from deterioration.
- Non toxic & can be used for potable water tank.
- No solvents. No harmful vapours.
- Can apply to green or moist concrete.
- Fast tracks projects.
- Becomes an integral (internal) part of the concrete and is permanent.
- Seals minor shrinkage cracks up to 0.5 mm and will reactivate after many years in the presence of water.
- Does not require costly surface priming or leveling prior to application as for other coatings.
- Cannot puncture, tear or come apart at the seams as with other protection systems.
- Eco friendly green product.
- Less costly to apply than other systems.
- Does not require protection from backfill.
- Use in underground structures from the inside (negative side).
- Extensively used for concrete repair work and is particularly useful to apply on the negative side of water retaining or underground structures both above and below grade.
- Compatible with SCC and concrete containing PFA and other pozzolanic materials.

### PROPERTIES AND COMPLIANCE

<b>Appearance:</b>	Grey powder
<b>Wet Density:</b>	Approx. 1.90 kg/litre
<b>Chloride Content:</b>	Nil
<b>Water Permeability:</b>	Conforms to BSEN 12390 and JISA 1404
<b>Toxicity:</b>	Nontoxic. Tested by SGS
<b>Chemical Resistance:</b>	Tested to ASTM C-267-77 resists chemicals in pH range 3-11.
<b>Yield:</b>	16.5 ltr/bag of 25 kg

*\* Properties are typical under laboratory conditions and do not constitute a specification. Field trials are recommended.*

### STANDARDS

- BS EN 12390-8:2009 - Testing Hardened Concrete: Depth of Penetration of Water Under Pressure. Depth of Water penetration @ 5 bar water pressure for 72 hrs - Max 80% of Control.
- Complies to Chloride Ion Penetration: ASTM C1202 - Less than Control.
- Crystal growth depth in the Concrete by SEM - TISTR lab.
- Standard Test method for examination of Water & Waste Water -APHA,AWWA- SGS lab

### SUBSTRATE PREPARATION

Concrete surfaces to be treated must be clean and free of laitance, dirt, films, paint, coatings or other foreign matter. The surfaces must also have an open capillary system for the **Contite Seal** treatment. If surfaces are too smooth the concrete should be acid etched, lightly sandblasted or water blasted.

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Structural defects such as cracks, faulty construction joints and honeycombing should be routed out to sound concrete and repaired in accordance with Cormix's specification. (It should be noted, however, that **Contite Seal** is not designed for use in expansion joints or chronic "moving" cracks.) Horizontal surfaces should preferably have a rough wood float or broom finish.

### **Wetting Concrete:**

Prior to the application of **Contite Seal**, concrete surfaces must be thoroughly wetted with clean water (concrete should be saturated) to aid the proper curing of the treatment and ensure the growth of the crystalline formation deep within the pores of the concrete. Excess surface water should be removed before the application.

### **MIXING**

Mix one 25 kg bag with 6.50-7.00 litres of clean water. Do not mix too wet otherwise the mix may crack & spall when drying. Always add powder to water. Mix until smooth and lump free. Do not rework stiff material by adding more water. Mix sufficient material to use within 20-30 minutes. In hot conditions use chilled water.

### **APPLICATION METHOD**

#### **Slurry coat:**

Apply **Contite Seal** with a stiff fiber brush. Scrub well into the damp wall filling all pores and finish with final strokes in one direction. Keep a wet edge. After the first coat has set but while it is still green apply a second coat, if this is not possible prewater before application of the second coat.

#### **Dry Shake Method:**

**For Newly Poured Concrete** - Use **Contite Seal** directly from the container. Wearing rubber gloves distribute the powder evenly by hand over the freshly poured concrete at 1.6 kg/m<sup>2</sup> before the final trowelling work. It is recommended to distribute approximately 50% of the powder in one direction with the remaining 50% at right angles to the first application.

Release the powder as close to the wet concrete as is possible. A roughened finish is recommended on the first pass to ensure adequate adhesion of the second, finally trowel the concrete to the required finish.

**For Under Slab Waterproofing** - Ensure that all debris is removed from lean concrete's surface including soil, grease, oil etc. Either apply in slurry coat or sprinkle by dry shake method on to the lean concrete just before pouring the slab at 1.2 kg/m<sup>2</sup>. If delays in pouring concrete keep **Contite Seal** moist by mist/fog spraying water.

#### **Existing Joints:**

Construction joints, cold joints and non-leaking joints greater than 0.25 mm wide must be routed out to a minimum 25 mm wide by 25 mm in depth to reach sound concrete, the profile of the routed joint should form a "U" shape.

**Contite Seal Mortar** should be mixed with water to provide a dry pack material which must then be rammed into the routed out joint.

#### **New Construction Joints:**

Install **Contite Waterstop** butyl rubber & bentonite waterstop at the centre of the joint at least 7.5 cm. from the concrete's exterior. A dry pack sealing strip of **Contite Seal Mortar** should be rammed into a prepared rout at least 25 mm. by 25 mm. Optionally & if high water pressure is anticipated a coat of **Contite Seal Slurry** or dry shake may be applied to the joints surface & over the waterstop at 1.5 kg/m<sup>2</sup>. Keep material moist by mist spraying with water before pouring concrete.

#### **Leaking Cracks:**

Should be prepared as above to form a chase of 25mm wide to approximately 35 to 50 mm deep. Remove all debris from the work area before proceeding with thorough saturation of the area prior to the next stage of the works.

Dry pack **Contite Seal Mortar** into the prepared rout. The **Contite Seal** treatment should be applied with a semi-stiff bristle brush, janitor's broom (for large horizontal applications) or with specialized spray equipment.

### **CURING**

**Contite Seal** should be protected against evaporation by sun & wind. Careful fog/mist spraying of water should be undertaken to keep the surface damp. Alternatively the surface once firm can be covered with plastic sheets, wet hessian or moist sand. Curing compounds are not recommended.

Fresh surfaces should be protected from rain for 24 hours & frost for 5 days. In deep pits & enclosed areas air circulation should be provided for 24 hours following treatment. Moisture cure **Contite Seal** treated surfaces 3-4 times per day for a period of 2 days starting with fine water fog spraying the day following the completion of **Contite Seal** applications. Backfill material can be placed on **Contite Seal** after moisture curing has been completed no protection boards are required.

### **OVERCOATING**

All **Contite Seal** treated surfaces to receive epoxy coating or to be painted must be neutralized with a solution of **Contite Seal** cleaner. The **Contite Seal** application has to be aged for a minimum period of two weeks before application of epoxy.

### **WATER RETAINING STRUCTURES**

For concrete structures that hold liquids (e.g. reservoirs, tanks, etc.), **Contite Seal** should be cured for two days and then allowed to set for 12 days before filling with liquid. Allow at least 48 hours before foot traffic.

For **Contite Seal** to fully activate may require 2-4 weeks after application.

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### FINISH

**Contite Seal** is not a decorative finish. Discolourations of the treated surfaces may occur. This may be as a result of chemical reactions between **Contite Seal** and the concrete or water. These discolourations do not reduce in anyway the waterproofing effect.

### CONSUMPTION RATES

**Contite Seal** must be uniformly applied under the conditions and quantities specified. When a second coat is required, it should be applied after the first coat has reached an initial set but is still "green" (less than 48 hrs.). Light pre-watering between coats may be required due to drying. For best results, application should take place at temperatures above 40°F (4°C). Use as single coating on above or below grade concrete, or as the first of a two coat application where two coats are required. Also use as a Dry-Pac for sealing strips (fillets) at construction joints, and for repair of cracks, faulty construction joints and honeycombing and as dry shake on fresh concrete or on lean concrete under slabs. As a general rule, it may be taken that for a two-coat slurry application, the rate of use of **Contite Seal** should be between 0.5 kg and 0.75 per square meter per coat. As a minimum one coat may be applied at 0.8-1 kg/m<sup>2</sup>. If in doubt consult Cormix International Technical Service. The following is a guide to material consumption.

**Dry Shake Method:** 1.6 kg/m<sup>2</sup> before final trowelling work.

**Backfilled Concrete Surfaces, Internal Walls & Water Retaining Structures:** 2 coats applied at 0.75 kg/m<sup>2</sup> per coat by brush or spray or 1 coat at 1 kg/m<sup>2</sup>.

**Backfilled Concrete Surfaces with Hydrostatic Pressure:** 2 coats at 0.75-1 kg/m<sup>2</sup>/coat or one coat at 1 kg/m<sup>2</sup>. Keep moist for 3-4 days after applications. If high hydrostatic pressure is anticipated consult Cormix.

**Construction Joints:** 1.5 kg/m<sup>2</sup> applied in slurry coat or dry powder consistency just before pouring concrete.

**Blinding Concrete:** 1.2 kg/m<sup>2</sup> applied in slurry coat or dry powder consistency just before placing overlying concrete slab.

**Concrete Slabs:** Dry shake method as above or apply in one slurry coat of 1 kg/m<sup>2</sup>.

### LIMITATIONS

- **Contite Seal** must be cured as per the instructions.
- It is not a decorative coating.
- It is not a replacement for chemical resistant coatings.
- When experiencing high temperatures chilled water may be used, keep product, tools, surfaces and water shaded.
- Do not immerse in water retaining structures until 14 days old.
- Allow at least 48 hours to cure before subjecting to foot traffic.
- Protect against drying out.
- To fully activate the material may require 2-4 weeks.
- If high hydrostatic pressure is anticipated consult Cormix.
- Do not apply to dry surfaces.

### PACKAGING

**Contite Seal** is supplied in 25 kg plastic lined paper bags or 25 kg plastic pail.

### STORAGE & SHELF LIFE

Store in dry conditions out of sun. Shelf life up to 12 months stored properly in original unopened packaging. Shelf life may be shortened at high humidity or temperatures.

### HEALTH & SAFETY

**Contite Seal** is alkaline, use protective gloves, glasses and protect skin. If gets into eyes clean out with water immediately, wash off skin with soap and water immediately.

### TECHNICAL SERVICE

The Cormix International Technical Service Department is available to assist you in the correct use of our products and its resources are at your disposal entirely without obligation.

### QUALITY ASSURANCE

ISO 9001: 2015 verified by TUV Nord.  
ISO 14001 : 2015 verified by Lloyd's Register International.

### CONTACT DETAILS

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