



The Chemical Company

PROTECTOSIL[®] CIT

Advanced Organo functional Silane based Corrosion Inhibitor

Description

PROTECTOSIL[®] CIT is a single component, ready to use, low viscosity, clear liquid which combines the proven effectiveness of penetrative silane treatments for the control of moisture and Chloride ion ingress with advanced organo functional corrosion inhibition.

Fields of application

PROTECTOSIL[®] CIT is sprayed directly onto the surface of steel reinforced concrete structures and buildings.

It is equally suited to cast in situ, precast, post tensioned, prestressed, GFRC, or other steel reinforced concrete.

It is particularly suited for the protection of:

- Bridge decks, piers columns and beams
- Multi-Storey Car Parks, building facades and balconies
- Marine jetties and structures

PROTECTOSIL[®] CIT can be used as part of an overall repair strategy using Emaco[®] Concrete Repair Systems to mitigate corrosion rates within the balance of the structure and significantly reduce the possibility of “ring anode” induced spalling at a later date.

Equally PROTECTOSIL[®] CIT can be used as a cost effective preventative measure before the onset of corrosion induced problems occur.

Contact the Technical Department of your local BASF Construction Chemicals for further information.

Features and benefits

- Dramatically reduces chloride induced corrosion of concrete steel reinforcement
- Reduces corrosion in carbonated reinforced concrete
- Works at the molecular level to effectively inhibit macrocell (rebar to rebar) and microcell (on the same rebar) corrosion
- Proven long term effectiveness in laboratory and field trials >10 years proven performance in aggressive environment subject to deicing salts and vehicular traffic
- Equally effective in high humidity conditions
- Chemically bonds to steel, cement paste and other silaceous material – will not wash or leach out during wetting / drying cycles, ensuring extended active life
- Simple and easy to use
- Does not discolour or change appearance of concrete
- Breathable vapour permeable treatment
- Repels further ingress by chlorides and water

Packaging

PROTECTOSIL[®] CIT is supplied in 205 litre and 20 litre containers.

Technical data / Typical properties

Properties listed are only for guidance and are not a guarantee of performance

Colour	Clear
Density	0,88g/cm ³
pH	7 to 8
Flash Point	63°C
Viscosity	0,95 mPas

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Performance data

U.S. Federal Highways Administration Test protocol for cracked Beam Concrete

Test Method:

PROTECTOSIL[®] CIT was sprayed at the approved application rate onto standard test specimens where the concrete (W/C ratio 0,47) had been deliberately cracked along the length of the reinforcing steel to simulate real life experiences of transverse bridge deck cracking. Some specimens showed existing corrosion before application while others were others did not.

The specimens were then subject to the following rigorous conditions 48 weeks cyclic salt water ponding (15% salt solution)
High Relative Humidities:70–80%
Elevated temperatures: 37°C

The results are summarised below

Corrosion Inhibition

Specimen conditioning	Observed results compared with untreated control specimens
Cracked concrete: NO preexisting corrosion	99% reduction in corrosion
Cracked concrete WITH existing corrosion	92% reduction in corrosion

Reduction in Chloride ingress

Tests according to ASTM 1152 at depths of 12,5mm, 32mm, 50mm and 69 mm

Control			PROTECTOSIL [®] CIT treated		
12 weeks	24 weeks	48 weeks	12 weeks	24 weeks	48 weeks
0,703*	0,861	1,020	<0.007	0,010	<0.007
0.321	0,628	0,645	<0.007	<0.007	<0.007
0.032	0,386	0,0386	<0.007	<0.007	<0.007
<0.007	0,040	0,040	<0.007	<0.007	<0.007
* Chlorides measured according to ASTM 1152					

Application procedure

Preparation of Substrate

Concrete surfaces must be dry and cleaned to remove all traces of mould oil, curing compounds, dirt, dust, efflorescence, mould, algae, grease, oil asphalt, paint, lacquers, or other coatings or any other materials that would prevent penetration. Acceptable cleaning methods include shotblasting, high pressure water blasting, or grinding.

All delaminated, loose or spalled concrete must be removed and repaired with an approved product from the Emaco[®] or other approved Concrete Repair range.

PROTECTOSIL[®] CIT can, as an additional protective measure, be applied directly to exposed rebar before repair work commences.

Non moving shallow shrinkage cracks with no structural significance are simply treated with multiple coats or ponding of PROTECTOSIL[®] CIT.

PROTECTOSIL[®] CIT

Other cracks or failed joint sealants should be routed clean and treated with PROTECTOSIL[®] CIT before being filled with suitable joint sealant from the Masterflex[®] range or similar approved. Apply PROTECTOSIL[®] CIT to the entire surface to be protected, including any repaired areas, using low pressure spray equipment with a suitable fan nozzle.

A total application of 600ml/m² is usually required applied in two or three separate applications. (e.g. Horizontal applications 2 x 300ml while vertical and overhead 3 x 200ml)

Allow a minimum of 15 minutes between coats (or until visibly dry).

Application watchpoints

In cases where the temperature is below 5°C and above 35°C, please contact BASF Technical Services for guidance. The concrete surfaces should be surface dry after heavy rain or cleaning with water before applying PROTECTOSIL[®] CIT.

Do not apply if rain is expected within 4 hours.

Do not alter or dilute the material as supplied.

Coverage

600ml/m² applied in two or three coats
Horizontal surfaces: 2 coats @300ml/m²
Vertical or overhead surfaces: 3 coats @ 200ml/m²

Storage

PROTECTOSIL[®] CIT should be stored under normal warehouse conditions between -15°C and 50°C.

Keep containers closed when not in use and away from naked flames, heat sources and sparks.

Shelf life

PROTECTOSIL[®] CIT has a shelf life of 12 months when stored in undamaged, unopened containers

Note

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local BASF representative.

BASF reserves the right to have the true cause of any difficulty determined by accepted test methods.

Quality and care

All products originating from BASF's Dubai, UAE facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and OHSAS 18001.

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