



The Chemical Company

PROTECTOSIL® CIT

Advanced organofunctional 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 organofunctional corrosion inhibition.

RECOMMENDED FOR

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, GFRG, 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 your local BASF Construction Chemicals technical representative 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 > 7 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

PROPERTIES

Colour	Clear
Density	0.88g/cm ³
pH	7 to 8
Flash Point	63°C
Viscosity	0.95 mPa.s

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 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

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.



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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**.

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.

Application

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

Do not apply at temperatures below 5°C or over 35°C. Allow concrete surfaces to dry for between 24 and 72 hours 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

600mLm² applied in two or three coats

Horizontal surfaces: 2 coats @300mL/m²

Vertical or overhead surfaces: 3 coats @ 200mL/m²

PACKAGING

Protectosil CIT is supplied in 20L and 205L containers

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

PRECAUTIONS

READ ALL SAFETY DIRECTIONS AND WARNINGS ON PACKAGING BEFORE USE. REFER TO MATERIAL SAFETY DATA SHEET FOR HANDLING PROCEDURES.

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.

Spillage

Chemical products can cause damage; clean spillage immediately.

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STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this **BASF** publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.

NOTE

Field service where provided does not constitute supervisory responsibility. Suggestions made by **BASF** either orally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not **BASF**, are responsible for carrying out procedures appropriate to a specific application.

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