Protectosil®

Technical Data Sheet

Protectosil® CIT

Advanced surface applied corrosion inhibitor for steel reinforced concrete

PRODUCT DESCRIPTION

Highly effective corrosion inhibitor for steel reinforced concrete based on an organofunctional silane formulation

Typical Properties

Property	Unit	Value
Appearance		low viscous, colorless to slightly amber liquid
Density DIN 51757 (@20 °C)	g/ml	0.882
Diluents		none
Active Content	%	100
pH Value		11
Viscosity DIN 53015 (@20 °C)	mPa·s	0.95

The data represents typical values (no product specification)

Registration Listings

Registry	Status
Australia (AICIS)	Yes
Canada (DSL)	Yes
China (IECSC)	Yes
EU (REACH)	Yes
EU (EINECS/ELINCS)	Yes
Japan (ENCS)	Yes
Korea (KECL)	Yes
Philippines (PICCS)	Yes
USA (TSCA)	Yes

TYPICAL APPLICATIONS

Protectosil® CIT

- is suited for every type of steel reinforced concrete
- is suited for old and new structures
- is effective in heavily chloride-contaminated concrete
- is effective in marine environments with high relative humidity and areas where deicing salts are used such as jetties, piers, parking decks, walkways, bridge decks, beams, columns
- reduces corrosion in carbonated concrete steel-reinforced structures

BENEFITS & ADVANTAGES

Protectosil® CIT

- dramatically reduces the chloride induced corrosion rate of concrete steel reinforcement
- significantly reduces water uptake
- prevents ingress of additional chlorides
- is highly reactive and resistant to alkaline environment
- forms colorless and water vapour permeable impregnation
- is absorbed quickly and penetrates deeply into the concrete
- effectively inhibits macrocell (mat-to-mat) and microcell (along rebar) corrosion of steel reinforced concrete
- equalizes the differences in electrochemical potential between polymer concrete and existing concrete when applied to concrete structures repaired with polymer concrete
- is easy to apply
- meets the requirements of EN 1504-2
- can be used according to principles 1, 2, 8 and 11 of EN 1504-9

DOSAGE

The whole concrete surface including existing repairs should be treated with undiluted Protectosil® CIT. Several consecutive coats should be applied in order to achieve the required consumption rate of minimum 500 g/m^2.

Substrate	Consumption rate	Mode of application
Concrete (above water level)	min. 500 g/m²	Airless Spraying, 2–3 coats (180–250 g/m² per coat)
Concrete (in tidal or splash zone)*	> 600 g/m²	Airless Spraying, ≥6 coats (100–150 g/m² per coat)

*As surfaces in tidal or splash zones will always be wet the ability to absorb is decreased. Therefore Protectosil® CIT has to be applied in several coats (6 coats or more) in order to achieve the required amount of corrosion inhibitor inside the treated concrete.

HANDLING & PROCESSING

Concrete must be allowed to cure for a minimum of 28 days. Concrete surface must be clean before application. All traces of dirt, dust, efflorescence, mold, grease, oil, asphalt, paint, coatings, curing compounds, and other foreign materials that would inhibit penetration have to be removed. Acceptable cleaning methods include shotblasting, sand-blasting, water blasting, grinding, and chemical cleaning.

All delaminated, loose or spalled concrete must be removed and repaired. Shrinkage cracks that are dormant, shallow in depth and with no structural significance can be treated with a multiple coat application of Protectosil® CIT.
Other cracks should be routed, treated with Protectosil® CIT and then sealed with a suitable sealant. Protectosil® CIT does not affect the adhesion of most sealants to concrete.

Protectosil® CIT may be applied directly to the cleaned rebar prior to placing the repair material. Protectosil® CIT does not negatively influence the ability of concrete to adhere to the steel rebar. After the repair measurements Protectosil® CIT should be applied to the whole surface.

Proper application conditions are between -5 °C and 40 °C. Do not apply if rain is expected within four hours following application, or if high winds or other conditions prevent proper application. The substrate should be as dry as possible prior to application. Depending on weather conditions allow 24 to 72 hours for the substrate to dry after rain or cleaning with water.

Protectosil® CIT should be applied to concrete using low-pressure pumping equipment with a wet fan-type spray nozzle. Alternate methods include roller, brush or pouring (into a crack, for example). Protectosil® CIT should not be atomized.

A liquid film of Protectosil® CIT must remain in contact with the substrate for several seconds. Horizontal surfaces should have a shiny, wet appearance for 3-5 seconds. Vertical surfaces should exhibit a 30-50 cm shiny curtain of liquid. Apply Protectosil® CIT to the entire concrete surface, including repaired areas, in a multiple coat application. Allow a minimum of 15 minutes waiting time (or until visibly dry) between coats.

Protectosil® CIT is best not applied on wet concrete.

Substrates in tidal or splash zones should dry as long as possible before Protectosil® CIT is applied. As the substrate will still be wet the ability to absorb is decreased. Therefore, Protectosil® CIT has to be applied in several coats (6 coats or more) in order to achieve the required amount of corrosion inhibitor in concrete.

Non-absorbent substrates such as window frames, metal, plastic fittings, window glass, etc., should be covered before application. Surfaces which accidentally come into contact with Protectosil® CIT can be cleaned with alcohol (spirit) or aqueous soap solution. Cleaning should be carried out as quickly as possible (within a few hours), otherwise formation of a silicone resin film can make cleaning more difficult. Silicone resin films are best removed using ethanol (or spirit). Plant life should be protected from overspray.
All equipment and containers must be clean and dry. After use they can be cleaned with any organic solvent (methylated spirit, petrol or thinners).

Protectosil® CIT should not come into contact with asphalt as it would dissolve. Applied sealants should be fully cured before Protectosil® CIT is applied. Protectosil® CIT should not accumulate on horizontally applied sealants since it could act as a solvent.

SAFETY

Before considering the use of Protectosil® products please read its Safety Data Sheet (SDS) thoroughly for safety and toxicological data as well as for information on proper transportation, storage and use.
The Safety Data Sheet is available on our website silanes.evonik.com or upon request from your local representative, customer service or from Evonik Operations GmbH, Product Safety Department, E-MAIL sds-hu@evonik.com.

PACKAGING

Protectosil® CIT is supplied in 28 l, 205 l as well as 1.000 l container.

STORAGE

Protectosil® CIT should not come into contact with moisture. Protectosil® CIT should be stored at temperatures between -10 °C and 50 °C.

SHELF LIFE

The product has a shelf life of at least 12 months when stored in originally sealed containers.

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EN 1504-2

Protectosil® CIT

Hydrophobizing Impregnation

Storage conditions: -10 °C up to +40 °C;
containers must be kept tightly sealed and protected from moisture;
shelf life in originally sealed containers 12 months

Penetration depth: Class II ≥10 mm

Water absorption and alkali stability:

Absorption coefficient < 7,5 %, compared to the non-treated sample

Absorption coefficient < 10 %, after storage in alkali solution

Drying speed for hydrophobizing impregnation: Class II: > 10

Harmful substances: In accordance with 5.4

For further information
visit our
Customer Portal

World of Protectosil®

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