

Protectosil® CIT

Advanced corrosion inhibitor for steel reinforced concrete based on organofunctional silanes.

Technical Data

Properties and test methods	Value	Unit	Method
Color	clear to slightly amber	-	-
Density	0.882	g/cm ³	DIN 51757
Viscosity (20 °C)	0.95	mPa·s	DIN 53015
pH	11	-	-

Registration

Protectosil® CIT

EINECS/ELINCS (EU):	Yes
AICS (Australia):	Yes
DSL/NDL (Canada):	Yes
PICCS (Philippines):	Yes
TSCA (USA):	Yes
IECSC (P.R. China):	Yes
ENCS (Japan):	Yes
ECL (South Korea):	Yes

Advanced corrosion inhibitor for steel reinforced concrete based on organofunctional silanes.

Application Details

Substrate	Application rate
concrete (above water level)	min. 500 g/m ² in 2-3 coats with 180-250 g/m ² each
concrete (in tidal or splash zone)*	>600 g/m ² in ≥ 6 coats with 100 - 150 g/m ² each

*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.

Packaging and Storage

Protectosil® CIT is supplied in 28 l, 205 l as well as 1.000 l container. Protectosil® CIT should not come into contact with moisture. Protectosil® CIT should be stored at temperatures between -10 °C and 50 °C. Protectosil® CIT has a shelf life of 12 months if stored in originally sealed containers.

Safety and Handling

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 after on our website www.protectosil.com or upon request from your local representative, customer service or from Evonik Resource Efficiency GmbH, Product Safety Department, E-MAIL sds-hu@evonik.com.

Properties and Use

- low viscous, colorless to yellowish liquid
- > 98 % active ingredient
- solvent free
- pH of 11
- ready-to-use

Protectosil® CIT

- dramatically reduces the chloride induced corrosion rate of concrete steel reinforcement
- is highly reactive and resistant to alkaline environment
- forms colorless and water vapour permeable impregnations
- significantly reduces water and chloride uptake
- is applied undiluted to a concrete surface and is absorbed quickly
- penetrates deeply into the concrete
- is suited for old and new structures
- is suited for every type of steel reinforced concrete
- is effective in marine environments with high relative humidity and areas where deicer salts are used such as jetties, piers, decks, facades, balconies, walkways, bridge decks, beams, columns
- effectively inhibits macrocell (mat-to-mat) and microcell (along rebar) corrosion of steel-reinforced concrete
- reduces corrosion in carbonated concrete steel-reinforced structures
- equalizes the differences in electrochemical potential between polymer concrete and existing concrete when applied to concrete structures repaired with polymer concrete
- meets the requirements of EN 1504-2
- can be used according to principles 1, 2, 8 and 11 of EN 1504-9

Application

Concrete surface must be clean before application. All traces of dirt, dust, efflorescence, mold, grease, oil, asphalt, laitance, paint, coatings, curing compounds, and other foreign materials that would inhibit penetration have to be removed. Acceptable cleaning methods include shotblasting, sandblasting, waterblasting, 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.

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/m².

Protectosil® CIT may be applied directly to the cleaned rebar prior to placing 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.

All equipment and containers must be clean and dry. After use they can be cleaned with any organic solvent (methylated spirit, petrol or thinners).

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.

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.

Protectosil® CIT CE label

 1119
Evonik Resource Efficiency GmbH, 79618 Rheinfelden 06
1119-CPR-0715 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 of closed 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

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