

CERTI-VEX® PENSEAL CT

CORROSION INHIBITOR TREATMENT FOR STEEL REINFORCED CONCRETE

DESCRIPTION

CERTI-VEX PENSEAL CT is a surface applied preventative corrosion penetrating sealer treatment for new concrete or as part of a corrosion repair system to existing concrete. The product penetrates concrete and provides an organo-functional molecule to inhibit the electro-chemical interaction between rebar and chloride ions, oxygen and moisture within concrete. Easy to apply, Certi-Vex Penseal CT penetrates the concrete and chemically bonds with steel, cement paste and other siliceous material present in concrete.

Because corrosion is stopped before it happens, Certi-Vex Penseal CT provides a cost effective long term solution to potential costly repairs of reinforced concrete structures.

Certi-Vex Penseal CT will also reduce the rate of corrosion on concrete with evidence of existing on going corrosion.

BENEFITS

- Effectively inhibits corrosion of steel reinforced concrete
- Cost effective long term corrosion solution
- Reduces rate of chloride-ion induced corrosion
- Reduces corrosion in carbonated concrete
- Increase service life of structure
- Reduces repair costs
- Will not discolor or change the surface appearance or texture
- Breathable and will not entrap moisture
- Repels water and chloride ions
- Reduces wet-dry & freeze-thaw cycles

HOW IT WORKS

Certi-Vex Penseal CT inhibits the corrosion process by interrupting the electrolytic current by blocking the electrochemical cell actions at the anode and cathode sites preventing depassivation of the steel reinforcing. Also provides a deep penetrating barrier which further limits the penetration of water and chlorides.

RECOMMENDED FOR

- | | |
|---|---|
| • Steel reinforced, precast, prestressed or post tensioned concrete | • Parking garages |
| • Bridge decks | • Building facades |
| • Balconies | • Walkways |
| • Pier caps | • Beams and columns |
| • Abutments | • Where deicing salts are used |
| | • Any structure where reinforced concrete is used |
| • Marine environments | |
| • Under elastomeric deck coating | |

SHORT SPECIFICATION

[03 01 20][07 19 16]: Certi-Vex Penseal CT: Surface applied solution of alkaline corrosion and chloride ion inhibiting chemicals that penetrates concrete by diffusion and forms a protective film on steel reinforcement.

CONCRETE REPAIR

- Remove and repair delaminated, loose or spalled concrete.
- Non structural shrinkage cracks that are shallow in depth and dormant can be treated with multiple coats of Certi-Vex Penseal CT.
- Other cracks should be routed, treated with Certi-Vex Penseal CT and sealed with suitable solvent based sealant such as **PowerCoat Epoxy Flexible Joint Sealant**.
- Certi-Vex Penseal CT does not affect the adhesion of most sealants to concrete or that of concrete to rebar.
- Complete repair using Certi-Vex Epoxy AC and appropriate Vexcon repair mortar. For more information go to vexcon.com.
- See application section.

SURFACE PREPARATION

- Remove all traces of dirt, debris, oil, grease, curing compounds, sealers, paints, coatings, asphalt, laitance and other foreign materials from the concrete surface.
- Use one of Vexcon Chemicals surface prep products to properly clean the surface prior to application. Contact your Vexcon representative for product recommendations.
- Other acceptable cleaning methods are shot blasting, sandblasting, water blasting, or grinding.
- All caulking, joint sealants, repairing and patching of concrete surfaces shall be installed and cured prior to application.
- New concrete should be a minimum of 14 days. Alternatively, cure with **Certi-Vex Envio Cure**, an effective dissipating curing compound or wet cure for a minimum of 7 days.

APPLICATION

- Do not dilute. Ready to use.
- Prior to application, concrete surfaces must be dry and clean.
- Apply with low-pressure (20-40 PSI) airless industrial sprayer with a wet fan type spray nozzle to the entire surface including repaired areas.
- If using brushes or rollers care should be taken to ensure that enough solution is applied.
- Apply in a single saturating application with sufficient material applied so the surface remains wet for a few minutes before penetration into the surface.
- Surface residues, pools and puddles should be broomed or brushed out until they completely penetrate into the surface.
- Allow to dry between coats. (See dry times)
- Apply additional coats until the surface no longer accepts material.
- For vertical applications: Apply from the bottom up with sufficient material applied to provide a 6" to 8" run down below the contact point of the new spray pattern with the surface.
- Application of topcoats (solvent based only) and 100% solid primers over concrete treated with Certi-Vex Penseal CT shall be in accordance with manufactures instructions.
- Available upon request with a fugitive dye to aid in application.

ARCHITECTURAL FINISHES

- Vexcon manufacturers a complete product line of compatible wall and high performance coatings available in many formulations, finishes and textures. For more information on these products, contact your Vexcon Representative or to vexcon.com.

COVERAGE RATES/ESTIMATING

- Most applications typically require 2 – 3 coats at 175 to 225 sq.ft/g. per coat. The exact amount of Certi-Vex Penseal CT necessary for effective treatment will depend upon the extent of present corrosion rate, the chloride ion level as well as the porosity and surface texture of the concrete.
- Before full application, it is recommended that a test panel be applied to the concrete to verify appropriate coverage rates.

DRY TIMES

Dry times are based upon 68 - 77°F (20 - 25°C) at 50% RH. Lower temperatures and the relative humidity will extend dry times.

- | | | |
|----------------------------|-----------------|---------------|
| • Dry time | Vehicle traffic | 1 hour |
| • Dry through | | 3-4 hours |
| • Additional coats | | 45-60 minutes |
| • Elastomeric Deck Coating | | 24 hours |

PHYSICAL PROPERTIES

- | | |
|------------------|-------------------------|
| • Color | Clear |
| • pH | 11 |
| • Density | 0.89 gr/cc – 7.43 #/gal |
| • Active content | 100% |
| • Flash Point | 128°F (53°C) |

SPECIAL NOTES

- For use by experienced contractors.
- The product should be stored in sealed containers and kept away from extreme heat.
- Protect from vehicular traffic until the surface is dry.
- Do not apply on windy days.
- Do not apply when surface temperatures are below or expected to fall below 20°F (-6°C) or above 90°F (32°C).
- Do not apply if frozen or frost is covering substrate.
- Protect plant life and landscaping from overspray.
- Line stripping can be done after application of sealer. Contact Vexcon technical service for additional information.
- Do not apply in rain or when rain is expected within 4 hours following application.
- Protect non-porous surfaces.
- Inadvertent overspray should be immediately rinsed with water. If allowed to dry, clean with **Certi-Vex Equipment Cleaner**.
- After rain and/or cleaning allow substrate to dry completely until there is no surface darkening. Depending on weather conditions, as a guide 24 – 72 hours.
- The use of admixed corrosion inhibitors (calcium nitrite and amine based) in patching materials or in the existing concrete will not affect the performance of Certi-Vex Penseal CT.
- Pozzolans and high strength concrete does not interfere with the penetration of Certi-Vex Penseal CT.
- Shelf Life: If properly stored in its original sealed container, one (1) year from date of manufacture. Rotate your stock.
- Storage/Handling: Store in tightly sealed original factory container. Keep from freezing and exposure to moisture. Store at room temperature prior to use. Special care should be taken to keep dirt, water and contaminants away from the openings of containers.
- Proper application of Vexcon material is the responsibility of the installer or user. Telephone consultation and/or field visits by Vexcon personnel are for the sole purpose of making technical recommendations only, and not for providing quality control or supervision on location.

PACKAGING

Certi-Vex Penseal CT is available in 55-gallon drums and 5-gallon pails. Contact Vexcon to discuss your customized packaging requirements.

SPECIFICATIONS/COMPLIANCE

- VOC - <250 grams/liter or <2.08/gal
- Meets
 - US EPA AIM – Waterproofing Sealer & Treatments
 - OCT. LADCO/MRPO, CEPA/EC – Waterproofing Sealers
 - CARB – Reactive Penetrating Sealer
 - SCAQMD – Rule 1113 – Reactive Penetrating Sealer
- **FHWA-RD-98-153 Cracked Beam Concrete:** Federal Highway Administration test for evaluating inhibitors and coated rebar in aggressive corrosion environments. The testing is carried out under 48 weeks of cyclic salt water ponding (15% salt), high relative humidity (70% to 80%) and elevated temps. (100°F).
- ASTM G-109 - Corrosion Reduction: >99%
 - 15 mil micro cracked concrete, no preexisting corrosion: >99% reduction of corrosion compared to untreated specimen. (Application rate 3 coats @ 225 sq.ft./gal.)
- ASTM C-1202 – Electrical Indication of Treated Concrete Ability to Rapidly Resist Chloride Penetration
 - ASTM Table X1.1 Chloride Ion Penetrability-100-1,000-Very Low
 - Before coating - 1463 coulombs
 - After coating - 443 coulombs
- ASTM C876 - Corrosion Activity Test: Micro Cell Reduced >99% at 80% RH & 100°F.
- ASTM C1152 - Chloride Ion Test: Reduction >95% @ 1" above top Reinforcing Bar, 270 days – 250ppm
- NCHRP 244 Series II and IV @ 250 sq.ft./gal
 - Reduction of Absorbed Chloride into Concrete, Series II, IV – 98%
- NCHRP 244 Series II Water Weight Gain % Reduction – 95%
- AASHTO T259/260 - Chloride Ion Analysis – 90 day Salt Ponding
 - 1/16" – 1/2" 0.63 #/cu.yd. avg. @ 250 sq.ft./gal
 - 1/2" – 1" 0.35 #/cu.yd. avg. @ 250 sq.ft./gal
- ASTM C672 - Scale rating - 100 freeze thaw cycles-0 (no scaling).
- ASTM C457 - Depth of Penetration - 0.150 -0.26", substrate dependant
- ASTM E96 - Water Vapor Permeability - 95%
- ASTM D2047 - Coefficient of Friction 0.84 average
- ASTM C642 -Water Absorption Reduction in Hardened Concrete > 98%
 - 24 hour immersion 0.33%
 - 48 hour immersion 0.40%
 - 24 hour boil 0.81%
 - 50 days immersion 1.43%
- CSI: [03 01 20], [07 19 16]

WARRANTY

Certi-Vex Penseal CT is covered by a ten-year comprehensive limited replacement warranty. For more warranty information contact your Vexcon Chemical representative.

HEALTH AND SAFETY

- Use of respirators is mandatory when using this product in confined areas.
- Use only with adequate ventilation.
- If swallowed, do not induce vomiting.
- Use of gloves, goggles and other protective clothing is advised when using this product.

Vexcon SDS PS135 is an integral part of the safety and application of our product. A short synopsis is provided in this data sheet. Before using this product it is advisable to obtain a copy of the SDS from your distributor or at vexcon.com.

CONTACT US @

Additional product information, technical assistance and customer service is available by contacting Vexcon Chemicals directly or our distributors.

- | | |
|------------------------------|-----------------------|
| • vexcon.com | • sales@vexcon.com |
| • techservice@vexcon.com | • Voice: 888.839.2661 |
| • customerservice@vexcon.com | • Fax: 215.332.9997 |