Post-Tech®
PTI Impregnation System

Corrosion Protection System for Bonded Post-Tension Tendons
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The Post-Tech PTI Impregnation System is specifically engineered to mitigate corrosion in bonded post-tension tendons. The impregnation material is applied under pressure and travels along the length of strands to mitigate corrosion in tendons with grout defects such as segregation, soft grout, chloride contamination and voids.

- Post-tensioned bridges
- Other post-tensioned structures
- Grouted stay cables
- Suspension and hangar cables
- Prestressed concrete structures
- Buttonhead and paper-wrapped tendons

The Post-Tech PTI system uses the naturally occurring interstitial spaces in high strength steel strands to deliver a formulated low viscosity dual action hydrocarbon silicon polymer resin.

- Displaces moisture from the steel surface
- Forms a protective barrier on any exposed steel surfaces
- Impregnates the surrounding grout for an additional barrier to moisture and oxygen.
Post-tension Corrosion

The long term durability of grouted post-tension tendons is dependent upon the protective characteristics of the grout. Unfortunately in some cases, the tendon durability can be compromised by grout problems such as:

- Bleed water voids
- Voids due to improper grouting
- Segregated grout
- Chloride contaminated grout
- Soft (putty) grout
- Dissimilar grout materials

Insufficient grout protection can allow the post-tension strands to corrode and prematurely fail. Vector’s Post-tech PTI Impregnation System is specifically designed to mitigate corrosion in post-tension strands and can be used on both new and existing structures.
Application

The Post-Tech PTI impregnation process can be completed from the end anchorage or from intermediate locations along the length of the tendon. Experience has shown the Post-Tech PTI impregnation material can flow through the interstitial spaces along the length of a tendon at least 250 ft (75m) from a single entry point.

Illustrations of Post-Tech PTI Impregnation System being completed from the end of the tendon and from an intermediate location.
Example of impregnation being completed from the end of the tendon and the Post-Tech PTI Impregnation material (highlighted in yellow) exiting the opposite end of strands 250 ft (75m) away.
Performance Verification

The Post-Tech PTI Impregnation System has been subjected to extreme testing to verify its ability to mitigate corrosion and extend the life of post-tension structures.

Salt Spray Testing

Laboratory tests were conducted using treated and untreated steel plates directly exposed to salt spray using 5% sodium chloride, simulated seawater and 5% sodium sulfate solutions. The Post-Tech PTI treated section shows little or no sign of corrosion.

Direct salt spray testing was also conducted on treated and untreated post-tension strands. The Post-Tech PTI treated strand is highly resistant to corrosion.
**Potentiostatic Testing**

Laboratory testing was also conducted to verify the performance of the Post-Tech PTI Impregnation System on post-tension strands in chloride contaminated and chloride-free grout.

Post-Tech PTI treated and untreated lollipop samples were subjected to a one hour potentiostatic corrosion test. The test automatically adjusts the applied current to maintain a constant steel potential of +200 mV versus a silver-silver chloride reference cell. In this test, resistance to corrosion is measured by the reduction in current passed. The Post-Tech PTI treated samples passed significantly less current than the untreated controls.
Innovative Solutions for Corrosion Problems™

Vector Corrosion Technologies
Vector has earned numerous awards and patents for groundbreaking innovations in corrosion mitigation technologies and services.

- Galvanic Protection Systems
- Impressed Current Cathodic Protection
- Electrochemical Treatments
- Post-Tensioned Services

Post-Tech Services
Vector specializes in the investigation and rehabilitation of bonded and unbonded post-tensioned concrete structures. Our Post-Tech services include:

- Non-destructive Evaluation
- Moisture Testing / Corrosion Evaluation
- Cable Drying
- PTI Impregnation System
- Grease and Grout Injection
- Tendon Repair and Replacement