

**FIVE STAR STRUCTURAL CONCRETE VERTICAL OVERHEAD  
REPAIR PLUS MIGRATING CORROSION INHIBITOR**

- CAN BE TROWELLED VERTICALLY
- VERY LOW CHLORIDE ION PERMEABILITY
- MCI GIVES OUTSTANDING CORROSION PROTECTION TO EMBEDDED REBAR
- ONE PRODUCT FOR THIN OR THICK PLACEMENT
- HIGH 3 HOUR STRENGTH
- CAN BE COATED IN 8 TO 24 HOURS

**PRODUCT DESCRIPTION:**

Five Star Structural Concrete VO is a high strength, rapid setting, one component permanent concrete repair material for vertical and overhead repairs. The dimensionally stable repair develops an integral bond to existing concrete and restores structural integrity within hours of placement. The incorporation of MCI provides increased corrosion protection to steel reinforcement with migrating corrosion inhibitor technology and very low chloride ion permeability.

**USES:**

- Rapid repair of load-bearing structures
- Rapid repairs during shutdown
- Effluent and water treatment plants
- Cold weather repairs
- Concrete tanks and sumps repair
- Chemical process areas prior to linings

**PACKAGING & COVERAGE:**

25kg Polyethylene lined bags yielding 14 litres

**SHELF LIFE:**

One year in original unopened packaging when stored in dry conditions. High humidity will reduce shelf life.

**TYPICAL PROPERTIES AT 25°C**

<b>Compressive Strength, ASTM C109</b>	
3 Hours	17.2 MPa
1 Day	24.2 MPa
7 Days	27.6 MPa
28 Days	34.5 MPa
<b>Bond Strength, ASTM C882</b>	
1 Day	10.4 MPa
7 Days	15.2 MPa
<b>Length Change, ASTM C157</b>	
28 Days Wet	+0.04%
28 Days Dry	-0.13%
<b>Chloride Ion Permeability, ASTM C1202</b>	
28 Days	Very Low (<1000 Coulombs)
<b>Working Time</b>	15 Minutes

# APPLICATION INSTRUCTIONS

These instructions are not intended to show product recommendations for specific service. They are issued as an aid in determining correct surface preparation, mixing instructions and application procedure. It is assumed that the proper product recommendations have been made. These instructions should be followed closely to obtain the maximum service from the materials.

## PLACEMENT GUIDELINES

### SCOPE OF WORK (BOQ):

Break out defective concrete and hand apply Pro-Struct 528 VO-MCI Structural Repair Concrete, ensuring a minimum depth of 10mm to the repair (Measurement – litres or m<sup>3</sup>).

### SURFACE PREPARATION:

1. All defective areas and areas which have degraded due to carbonation and chloride ingress or areas of insufficient concrete cover will be clearly marked out by the client's representative in rectangular repair areas.
2. Saw-cut the concrete within the outlines to a minimum depth of 10mm, ensuring all cuts are perpendicular to the surface, thus avoiding feather edges at all times. Side edges to be roughened by chipping to create an adequate bond.
3. It is necessary to remove concrete around the full circumference of the steel reinforcing to a minimum of 15mm behind it. Continue to remove concrete along all exposed reinforcing bars to at least 45mm beyond the point of corrosion.
4. All defective concrete must now be completely removed.
5. After removal of defective concrete, ensure that the reinforcing bars are free of frost, rust, dirt, grease, oil, curing compound, paints, impregnations or any other foreign matter likely to affect the bond or performance of the repair material.
6. Where reinforcing bars have to be replaced, they must be adequately secured to meet the client's requirements.
7. Remove all signs of corrosion and thoroughly high pressure wash with clean potable water to ensure removal of debris and residual contamination.

### PRIMING:

The concrete needs to be pre-soaked with clean potable water, leaving the concrete saturated but free of standing water.

### MIXING:

Mix Pro-Struct 528VO-MCI with 3 litres of clean potable water using a mechanical mortar type mixer. Adjust consistency if necessary, but do not exceed 4 litres of water. Do not mix more material than can be placed in 15 minutes. Do not re-temper the mix by adding more water, this will cause strength reduction as well as shrinkage cracking.

### APPLICATION:

#### a) Vertical Placement:

Work the product into the concrete surface. Apply with a trowel, taking care not to leave air pockets. Apply from bottom of the cavity from one side to the other. When embedding reinforcement, ensure a minimum of 10mm cover over the reinforcing bar. Should multiple layers be required, roughen and pre-soak surface between layers. Total concrete cover to be determined by the engineer.

#### b) Overhead Placement:

Build up in layers, roughening and pre-soaking between them, ensuring a minimum of 10mm cover when embedding the reinforcing bar. Total concrete cover to be determined by the engineer.

### WET CURING:

After the patch has set (20 minutes) keep surfaces wet with clean potable water for 2 hours, and protect from rain, wind and rapid evaporation for 24 hours after application.

### SPECIAL CONDITIONS:

- Never exceed the maximum water content as stated on the packaging.
- The temperature of materials, equipment and surfaces must be between 2°C and 32°C at the time of placement.
- For cold weather patching, keep materials warm (approximately 22°C). For hot weather patching, use cold water to extend the working time and keep materials in a cool, dry place.
- Substrate shall be free of frost and ice.
- The required patch must be protected from freezing for a period of 3 hours after placement.

### PRECAUTION:

Contains cementitious material and crystalline free silica. Take appropriate measures to avoid breathing dust. Avoid contact with eyes and contact with skin. In case of contact with eyes, immediately flush with plenty of water for at least 15 minutes. Immediately call a physician. Wash skin thoroughly after handling. Keep product out of reach of children. PRIOR TO USE, REFER TO THE MATERIAL SAFETY DATA SHEET.

### NOTE:

- MCI™ is a trademark of the Cortec Corporation, registered in the United States and other countries.

**CAUTION: MAY CONTAIN FLAMMABLE SOLVENTS. KEEP AWAY FROM SPARKS AND OPEN FLAMES. IN CONFINED AREAS WORKMEN MUST WEAR FRESH AIRLINE RESPIRATORS. HYPERSENSITIVE PERSONS SHOULD WEAR GLOVES OR USE PROTECTIVE CREAM. ALL ELECTRONIC EQUIPMENT AND INSTALLATIONS SHOULD BE MADE AND GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. IN AREAS WHERE EXPLOSION HAZARDS EXIST, WORKMEN SHOULD BE REQUIRED TO USE NON-FERROUS TOOLS AND TO WEAR CONDUCTIVE AND NON-SPARKING SHOES.**



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