

**FIVE STAR STRUCTURAL CONCRETE
PLUS MIGRATING CORROSION INHIBITORS**

- **ONE COMPONENT FOR RELIABILITY AND EASE OF USE**
- **HIGH 3 HOUR STRENGTH**
- **VERY LOW CHLORIDE ION PERMEABILITY**
- **HIGH BOND STRENGTH**
- **COARSE AGGREGATE EXTENSION**
- **VERY LOW SHRINKAGE**
- **FAST TURNAROUND TIME**
- **OUTSTANDING CORROSION RESISTANCE FOR REINFORCEMENT PROTECTION**

PRODUCT DESCRIPTION:

Five Star Structural Concrete is a high early strength, single component, permanent concrete repair material containing migrating corrosion inhibitors. The dimensionally stable repair develops an integral bond to existing concrete and restores structural integrity within hours of placement. Application thickness can range from 10mm to 300mm in a single pour. The incorporation of MCI provides increased corrosion protection of steel reinforced structures with migrating corrosion inhibitor technology and very low chloride ion permeability. Moisture sensitive coatings can be applied in 8 to 24 hours.

USES:

- Structural repair of concrete structures
- Rapid machinery foundation rebuilds
- Fast repairs for coatings
- Concrete floor repairs and overlays
- Construction joint edge repair
- Marine and hydraulic structure repairs
- Repair of tanks, sumps and curbs
- Effluent and water treatment plants

PACKAGING & COVERAGE:

25kg Polyethylene lined bags yielding 14 litres.
18 Litres when extended with 12.5kg Pro-Struct 53-MC Aggregate.

SHELF LIFE:

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

TYPICAL PROPERTIES AT 25°C

Compressive Strength, ASTM C109	
3 Hours	17.2 MPa
1 Day	34.5 MPa
7 Days	48.3 MPa
28 Days	55.2 MPa
Bond Strength, ASTM C882	
1 Day	13.6 MPa
7 Days	17.3 MPa
Length Change, ASTM C157	
28 Days Wet	+ 0.05%
28 Days Dry	- 0.09%
Chloride Ion Permeability, ASTM C1202	
28 Days	Very low (<1000 Coulombs)
Working Time	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 apply Pro-Struct 529-MCI Structural Repair Concrete, ensuring a minimum depth of 10mm to the repair. For trafficable floor areas, a minimum depth of 25mm is required.

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 engineer'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:

1. Mix Pro-Struct 529-MCI with 2,6 litres of clean potable water using a mechanical mortar type. Adjust consistency if necessary but do not exceed 3,2 litres or add an amount that will cause segregation. 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.
2. Where pours are greater than 50mm thick, Pro-Struct 529-MCI can be extended by the addition of Pro-Struct 53-MC (6mm double washed) aggregate. The recommended addition is 12,5kg (approximately 10 litres) of Pro-Struct 53-MC per bag of Pro-Struct 529-MCI. This will increase the yield of the total product to 18 litres. Should other aggregate (locally sourced and washed) be used, then the product and aggregate must be submitted to a testing authority to determine performance prior to its use.

APPLICATION:

Place Pro-Struct 529-MCI full depth from one side of the repair to the other, filling the hole to the desired level (do not place in layers). Where this is not practical, placement must be continuous to prevent cold joints between pours. In the case of horizontal placement, the finishing will be with a steel trowel, wood float or brush to the desired texture.

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.

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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