NCC X-CALIBUR® CONSTRUCTION CHEMISTRY

Technical Datasheet

X-Roc Strong Patch

High strength low shrinkage repair and overlay mortar.

Product Description

X-Roc StrongPatch is a single component, fiber reinforced, shrinkage compensated, high strength concrete repair mortar manufactured from selected cements, aggregates and additives. It has exceptional resistance to carbonation, chloride ingress, sulphate attack and freeze thaw attack.

Advantages

- Shrinkage compensated
- High early strength
- Low permeability
- Excellent freeze/thaw resistance
- Single component

Uses

High strength concrete repairs for vertical and horizontal restoration of:

- Parking garages
- Decks and slabs
- Floors and columns
- Water and wastewater tanks
- Tunnels, dams, bridges
- Marine structures

Laboratory Test Data

Property	Typical Results
Nature	Powder
Color	Grey
Specific gravity	2.200 ± 0.05 g/cm^3
Compressive strength (ASTM C109) W/P 0.15	60- 70 MPa at 28 days
Flexural strength (ASTM C580) W/P 0.15	>10 MPa
Setting W/P 0.15 Initial Final	7 Hrs. 11 Hrs.
Slant shear bond strength	≥2 MPa
Chloride ion content	≤ 0.05%
Performance requirements BS EN 1504 - Part 3 Classification	Class R4 (Structural)

The above data was obtained under laboratory conditions using freshly manufactured material at a water/powder ratio of 0.15. Actual results in the field will vary as a result of different factors such as how long the product has been stored, storage conditions, temperature, actual water content, curing regime, quality of samples, compaction method and the type of equipment used for sample preparation & testing.

Volatile Organic Content

VOC = < 10 g/L

Packaging

25kg bags

Water Content

25kg bag take water from 3.5 to 3.75 liters dependent as workability required.

Yield

Approximately 13-14 L per bag.

Shelf Life

12 months when stored at below 35C under shade in a dry environment.

Installation Guidelines

NCC X-Calibur provides detailed method statements on all its products for use in various applications. These must be referred to prior to starting work. The information below is a summary intended for guidance only.

Surface Preparation

Concrete substrate must be structurally sound. Loose or unsound concrete should be removed. Surfaces must be entirely free of oil, grease, paint, corrosion deposits, dust, laitance or other surface deposits. Saw cut around the edge of the repair to a minimum depth of 6mm. Reinforcing steel should be fully exposed with enough room behind the steel to place the repair mortar.

Protection of reinforcement steel

Remove all corrosion from the exposed steel in accordance with ICRI Technical Guideline No. 03730. For additional protection against corrosion and to protect the adjacent edges of the repair, coat the steel with X-Roc GalZinc. The steel may also be protected using X-Roc EpoxyBond or X-Roc Latex mixed with cement. Prior to using either of these products, please consult with an NCC X-Calibur Authorized Technical Specialist.

Substrate Priming

After surface preparation has been completed, the substrate should be soaked with water and not allowed to dry out. The substrate should be primed using either of the following methods:

▪Priming with X-Roc BondCure

X-Roc BondCure is an acrylic bonding agent that is used undiluted straight from the pack. It is particularly useful.

in conditions where the bonding agent may dry out. Brush X-Roc BondCure into the saturated surface dry substrate, taking care to avoid ponding or excessive application.

▪Priming with X-Roc Latex

X-Roc Latex is a styrene butadiene rubber bonding agent that is mixed with cement 1:1.5 by volume to produce a latex/cement slurry. Brush the latex/cement slurry into the saturated surface dry substrate, taking care to avoid ponding or excessive application. The latex/ cement slurry **must not** be allowed to dry out, otherwise debonding may occur.

▪Priming with X-Roc EpoxyBond

In immersed conditions or where the maximum possible bond strength is required; or where a saturated surface dry substrate is not possible, X-Roc EpoxyBond should be used. Mix the entire contents of Part A with the entire contents of Part B until a uniform color is achieved.
Brush the mixed material into the surface of the substrate, taking care to avoid ponding or excessive application. X-Roc StrongPatch must be applied while EpoxyBond is still tacky.

Mixing

Add X-Roc StrongPatch to 3.75 liter water per 25kg bag and mix for three minutes until fully dispersed. Use an NCC X-Calibur approved forced action mechanical mixer.

Application

The mixed material should be applied immediately after mixing is completed. The material should be applied in such a way as to ensure thorough compaction around the reinforcement and against the edges of the reinstatement area. The repair is then finished by trowel.

Thickness

The application thickness between 10 mm and 75 mm for unsupported vertical applications and up to 50 mm for unsupported overhead sections. When formwork is used, or when used in the horizontal, the maximum depth can be increased to 100 mm and maximum length 3 m.
Applications in excess of the thickness quoted above may be achieved by "keying" the compacted layer and then applying X-Roc BondCure. Once this layer has reached sufficient strength, apply a primer coat of X-Roc BondCure and proceed as before.

Curing

Cure immediately after finishing using X-Roc BondCure or cure continuously in accordance with good concrete practice for seven days.

Limitations

Ensure the temperature of the mixed mortar does not exceed 35C.
Do not mix by hand.
Do not part mix, use only full bags.
Do not apply in rain or wet conditions or at temperatures below 4C.
Do not expose to running water until the product is cured fully.

Health and Safety

This product is for industrial use only by trained operatives. It is potentially hazardous if not used correctly. Please refer to the Material Safety Data Sheet (MSDS) prior to the purchase and use of this product. The MSDS can be obtained via our website www.ncc.com.eg

Authorized Technical Specialist

Please note that only NCC X-Calibur Authorized Technical Specialists ('ATSs') are permitted to change any of the information in this data sheet or to provide written recommendations concerning the use of this product. Visit www.ncc.com.eg for a full list of X- Calibur ATSs.

Datasheet Validity

NCC X-Calibur makes modifications to its product datasheets on a continuous basis. Please check the datasheet update section on www.ncc.com.eg to ensure you have the latest version.

Warranties

NCC X-Calibur supplies products that comply with the properties shown on the current datasheets. In the unlikely event that products supplied are proved not to comply with these properties, then we will replace the non-compliant product or refund the purchase price.
NCC X-Calibur does not warrant or guarantee the installation of the products as it does not have control over the installation or end use of the products. Any suspected defects must be reported to NCC X-Calibur in writing within five working days of being detected. NCC X-Calibur Construction Chemistry Inc. **makes no warranty as to merchantability or fitness for a particular purpose and this warranty is in lieu of all other warranties express or implied.** NCC X- Calibur Construction Chemistry Inc. shall not be liable for damages of any sort including remote or consequential damages, down time, or delay