XYPEX FCM 40

DESCRIPTION

XYPEX FCM 40 is specifically designed for repairing cracks subject to movement, sealing construction joints, restoring deteriorated concrete, and waterproofing concrete structures. FCM 40 has exceptional adhesive and elongation characteristics and is often used in conjunction with the Xypex Crystalline Concrete Waterproofing and Protection System. FCM is a two component product consisting of a specialized liquid polymer dispersion and a cementitious powder. These ingredients are mixed just prior to application.

Note: Xypex FCM Products have been specially formulated to meet varying temperature conditions. FCM 40 is used under normal environmental conditions, where the lowest annual ambient temperature is not below -15°C. Consult with a Xypex Technical Representative for the most appropriate FCM product for your project.

RECOMMENDED FOR:

- Moving Cracks
- Construction Joints
- Deteriorated Concrete Surfaces
- Concrete Block Walls
- Balconies, Terraces, and Planters
- Water-holding Structures
- Sewage and Water Treatment Tanks
- Marine Structures
- Thermal Contraction and Expansion

ADVANTAGES

- Flexible
- Superior elongation properties
- Excellent adhesive qualities
- Impermeable to water and chlorides
- Breathable, seamless
- Durable, retains properties in climatic extremes
- Non-toxic, solvent-free, odorless
- UV resistant
- Effective when subjected to thermal contraction and expansion

PACKAGING

The Xypex FCM 40 is packaged (in a carton) as a unit (kit), which includes the liquid component (4 l bottle) and the powder component (10 kg pail). For larger projects, customized packaging is available.

COVERAGE

When mixed, one unit will cover an estimated 2.9 m^2 at a thickness of 3 mm.

STORAGE

Xypex products must be stored dry at a minimum temperature of 7°C. Shelf life is one year when stored under proper conditions.

PROPERTIES

Adhesion:
0.4 to 2.5 MPa depending on mix ratio and temperature

Elongation:
3 mm

Resistance to Tearing (non-reinforced membrane):
0.30 MPa to 2.0 MPa depending on mix ratio and temperature

Elongation at Tear:
70% to 100% (non-reinforced)
30% (reinforced)

Water Pressure Resistance:
Positive side: 30.5 m head pressure (0.3 MPa)
Negative side: 7 m head pressure (0.07 MPa)

Chemical Resistance:
2 to 13 pH (periodic contact)
3 to 11 pH (constant contact)

APPLICATION PROCEDURES

SURFACE PREPARATION

Concrete surfaces must be free of all bond inhibiting materials such as loose concrete, dirt, dust, oil, grease, release agents, curing and cleaning compounds. Clean the surface thoroughly by sandblasting, waterblasting or etching with muriatic (HCL) acid. Prior to the FCM application, the concrete substrate can be dry or damp but not dripping wet. Where a damp or porous (e.g. masonry blocks) substrate exists, a FCM Primer slurry coat is recommended. Please consult with the Xypex Technical Department regarding your specific requirements.

MIXING

Mix by weight: one part FCM 40 liquid with 2.5 parts FCM powder. Mix thoroughly for 3 to 4 minutes to obtain a homogeneous and lump-free compound. Do not mix more material than can be used in 30 minutes.

PRIMER SLURRY

In situations where damp or porous substrates exist or where increased bond is required, a FCM Primer "slurry coat" is recommended prior to the FCM 40 membrane application. The FCM Primer slurry is mixed one part FCM Primer with one part FCM Powder by weight to create a slurry consistency. Do not mix more material than can be used in 30 minutes.

Note: The FCM Primer is packaged (in a carton) as a unit consisting of a liquid component (4 1 bottle) and a powder component (4 kg pail). When applied at a thickness of 1 mm, one FCM Primer unit will cover approximately 4.8 m^2.

REPAIR OF CRACKS AND FAULTY CONSTRUCTION JOINTS

No Water Flow

1. Clean and prepare the concrete surface as specified above.

2. Brush-apply one coat of Xypex Concentrate, approximately two inches wide, to the crack or joint line at the rate of 1 kg/m^2 and allow to set for two hours.

3. Trowel-apply first coat of FCM 40 to a width of 10 - 15 cm and a thickness of 1.5 mm. Allow first coat to dry for six hours, then apply second coat at the same rate to a total membrane thickness of 3 mm. The second coat of FCM 40 should be applied at right angles to the first coat.

Against A Flow Of Water

1. Clean and prepare the concrete surface as specified above.

2. Rout out crack or construction joint in a "U" shaped slot one inch 25 mm wide and 37 mm deep.

3. Utilize Xypex Patch'n Plug in the slot to control and stop water flow. In the event that there is any active water flow under high hydrostatic pressure, rout out the slot area affected to a depth of 50 mm and insert a "bleeder hose" using Patch'n Plug to secure it into place.

4. Fill slot to within 12 mm of surface with Xypex Concentrate Dry-Pac. Dry-Pac is mixed by adding one part clean water to six parts Xypex Concentrate by volume. Apply the Dry-Pac by glove, by compressing it tightly and then compact it with pneumatic tool or a hammer and block.

5. Fill remainder of slot to surface with Xypex Patch'n Plug.

6. Apply the FCM Primer slurry with a brush or roller to a width of 10 - 15 cm along crack repair line. Work slurry into surface. Allow to dry for one hour.

7. Trowel-apply the first coat of FCM 40 to the surface to a thickness of 1.5 mm. Allow first coat to dry for six hours, then apply second coat at the same rate to a total membrane thickness of 3 mm. The second coat should be applied at right angles to the first coat.

Note:

1. The ambient temperature for applying FCM should be between 10ºC and 35ºC.

2. To increase the tensile strength of FCM 40 over cracks and joints, use a reinforcing poly-propylene mesh (3 mm square pattern). Do not use a fiberglass mesh. Embed mesh into the initial FCM coat and fully cover with second application of the FCM membrane.

3. If significant crack movement is anticipated, a "bond-breaker" is recommended. Simply place 25 mm wide masking tape or hypalon tape over top of the crack or joint prior to applying the FCM membrane. This will allow for the elongation of the FCM material.

COATING APPLICATION

1. Clean and prepare the concrete substrate as specified above.

2. Apply an initial coat of the FCM 40 mixture by trowel or spray to a thickness of approximately 1.5 mm. Allow coating to dry for six hours.

3. Apply second coat at right angles to first coat to ensure even coverage. Second coat should bring total membrane thickness to 3 mm.

Note:

1. Under normal conditions, the FCM coating is applied to the positive side of the concrete surface subjected to hydrostatic pressure. However, when FCM 40 can only be applied to the negative side (against the pressure), a single coat of Xypex Concentrate should be applied to the concrete surface prior to the FCM coating. Xypex Concentrate should be applied as per manufacturer's specifications and cured for at least 14 days to allow for substantial crystallization growth. Following curing, the Concentrate coating should be acid etched with a 3% - 5% solution of muriatic acid to clean the surface and open the pore structure of the hardened Xypex coating. Flush surface thoroughly with clean water and allow to dry before applying the FCM membrane.

2. If concrete substrate is damp or porous, the FCM Primer slurry should be applied prior to the application of FCM 40.

CURING

Xypex FCM 40 does not require any special curing procedures. FCM 40 dries within 5 to 6 hours of application at 20ºC. Protect the membrane surface from rain or water until dry. Allow a minimum of 14 days of air-curing prior to immersing the surface in water.

TECHNICAL SERVICES

For more instructions, alternative application methods, or information concerning the compatibility of FCM 40 with other products or technologies, contact the Technical Department of Xypex Chemical Corporation or your local Xypex representative.

SAFE HANDLING INFORMATION

In liquid, powder, or mixed form, FCM 40 may cause significant skin and eye irritation. Directions for treating these problems are clearly detailed on all Xypex pails and packaging. The Manufacturer also maintains comprehensive and up-to-date Material Safety Data Sheets on all its products. Each sheet contains health and safety information for the protection of workers and customers. Contact the Manufacturer or your local Xypex representative to obtain copies of Material Safety Data Sheets prior to product storage or use.

WARRANTY

The Manufacturer warrants that the products manufactured by it shall be free from material defects and will be consistent with its normal high quality. Should any of the products be proven defective, the liability to the Manufacturer shall be limited to replacement of the product ex factory. The Manufacturer makes no warranty as to merchantability or fitness for a particular purpose and this warranty is in lieu of all other warranties expressed or implied. The user shall determine the suitability of the product for his intended use and assume all risks and liability in connection therewith.

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