



FCM 80

FLEXIBLE CEMENTITIOUS MEMBRANE

Concrete Waterproofing

Description

Xypex FCM 80 is specifically designed for repairing cracks subject to movement, sealing construction joints, restoring deteriorated concrete, and waterproofing concrete structures. FCM 80 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 components are mixed just prior to application.

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
- Effective when subjected to thermal contraction and expansion

Packaging

The Xypex FCM 80 is packaged in a carton as a unit (kit), which includes the liquid component (4 litre bottle) and the powder component (10 kg pail). For larger projects, customized packaging is available; contact the manufacturer for details.

Coverage

When mixed, one unit will cover an estimated 2.6 m² at a two-coat application thickness of 3 mm.

Storage

FCM materials must be stored dry at a minimum temperature of 7°C. Shelf life is six months when stored under proper conditions.

Properties

Solids Content (liquid component – EN ISO 3251)	
Solids Content (%)	54
Viscosity (liquid component – EN ISO 3219)	
Dynamic Viscosity (MPa)	50 - 155
Glass Transition Temperature (liquid component)	
Tg	-49°C
Liquid Water Permeability (EN 1062-1 Table 5)	
Water Transmissibility	Class W ₃ – Low (<0.1 kg / (m ² ·hr ^{0.5})
Tensile Properties (ASTM D 412) – 28 day old; lab cured	
Elongation @ break (%)	60 - 100%
Tensile Strength (MPa/psi)	1.0 / 145
Bond Strength (EN 1542) – 28 day old; lab cured	
Bond Strength (MPa/psi)	0.80 / 116
Cold Bend Test (in house procedure)	
Resistance to cracking (using 9.5 mm mandrel @ -16°C)	pass (no crack)

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 preferred substrate moisture condition is dry, but may be “saturated surface dry”.

MIXING

Mix by weight: 1 part FCM 80 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.

REPAIR OF HAIRLINE CRACKS AND FAULTY CONSTRUCTION JOINTS – NEGATIVE SIDE APPLICATION No Water Flow

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

2. Sawcut a 25 mm groove along crack length to a depth of approximately 40 mm. Avoid contact with reinforcing steel.

3. Pressure wash cracks to remove loose material.
4. Mix 3 parts Xypex Concentrate and 1 part Patch'n Plug with 1 part water by volume to a stiff mortar consistency and pack tightly into groove. Air cure minimum of 40 minutes.
5. Trowel-apply first coat of FCM 80 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 of FCM 80 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.

Against a Flow of Water

1. Follow the same preparation procedures as above (i.e. cleaning, saw cutting, power washing).
2. Mix 3 parts Xypex Patch'n Plug and 1 part Concentrate with 1 part water by volume (note: this is the reverse of the ratio above) to a stiff mortar consistency and pack tightly into groove. Air cure minimum 40 minutes.
3. Trowel-apply first coat of FCM 80 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 of FCM 80 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.

COATING APPLICATION – POSITIVE SIDE

1. Clean and prepare the concrete substrate as specified above.
2. Apply an initial coat of the FCM 80 mixture by trowel or spray to a thickness of approximately 1.5 mm. Allow coating to dry for minimum of six hours and maximum of 24 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:

- i. For optimum performance, the FCM coating should be applied to the positive side of a concrete surface subjected to hydrostatic pressure.
- ii. The ambient temperature for applying FCM should be between 10°C and 30°C.
- iii. FCM can be applied directly over cracks up to 1.5 mm width and the FCM will withstand crack movement up to 1.5 mm.
- iv. If significant crack movement is anticipated, a "bond-breaker" is recommended. Simply place 19.1 mm wide Scotch Linerless Rubber Splicing Tape 130C over the top of the crack or joint prior to applying the FCM membrane. This will allow for further elongation of the FCM material.

v. Overall waterproofing system details such as penetrations, perimeters, upturns, drainage, protection systems, etc. are the responsibility of the designer and / or users.

Curing

Xypex FCM 80 does not require any special curing procedures other than maintaining coating above 10°C for a period of 24 hours after application. The FCM dries within 5 to 6 hours of application at 20°C. Protect the membrane surface from rain or water until dry. Air cure minimum 14 days prior to immersing the membrane in water.

Technical Services

For more instructions, alternative application methods, or information concerning the compatibility of FCM 80 with other products or technologies, contact the Technical Services Department of Xypex Chemical Corporation or your local Xypex Technical Services Representative. In view of the many factors that may affect the application of FCM 80, the information contained in this data sheet does not relieve the applicator or user from carrying out their own investigations or tests.

Safe Handling Information

In liquid, powder or mixed form, FCM 80 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 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 Technical Services Representative to obtain copies of 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.

