

CRACKBOND[®] POLYFLEX & POLYFLEX QUIKFIX

Hydrophilic Flexible Polyurethane Water Block Products



Product Description

CRACKBOND[®] POLYFLEX and **POLYFLEX QUIKFIX** products are flexible, hydrophilic polyurethanes designed to stop water infiltration in applications where high-volume water flow is a concern. The hydrophilic character of POLYFLEX products absorbs enough water to react and then acts as a membrane seal to stop any additional flow of liquid. The recommended application temperature range is between 55 °F - 90 °F (13 °C - 32 °C).

General Uses & Applications

- Municipal and utility facilities - precast manhole joints, brick manholes and sewer pipes
- Pedestrian and automotive tunnels - curtain injection, gel encapsulation and joint sealing
- Concrete dams and powerhouse galleys - curtain injection and gel encapsulation

Advantages & Features

CRACKBOND POLYFLEX

- WQA Certified - Drinking Water System Components (NSF/ANSI/CAN 61) Joining and Sealing
- Hydrophilic, capable of absorbing up to 800 % of its own mass which allows for use in large water inflow applications
- May be injected as a single component when sufficient water is present

CRACKBOND POLYFLEX QUIKFIX

- Available in cartridge
- Suitable for repairs in confined spaces where pump injection might not be practical.

Availability: Adhesives Technology Corp. (ATC) products are available online and through select distributors providing all your construction needs. Please contact ATC for a distributor near you or visit www.atcepoxy.com to search for a distributor by zip code.

Color: Light Brown

Storage & Shelf Life: 12 months when stored in unopened containers in dry conditions between 60 °F (16 °C) and 100 °F (38 °C).

Installation: Installation Instructions are available within this Technical Data Sheet (TDS). Due to occasional updates and revisions, always verify the most current usage. In order to achieve maximum results, proper installation is imperative.

Clean-Up: Always wear appropriate personal protective equipment such as safety glasses and gloves. Clean up spills by absorbing the grout into an inert material and then transferring the mixture into an open top drum. Allow drum to remain with an open top for 24 hours. Dispose of container according to state and local regulations.

Limitations & Warnings:

- Do not thin with solvents, as this will prevent cure
- Open containers of material should be used quickly to avoid moisture contamination
- Allow 24 hours prior to application of topcoat

Safety: Please refer to the Safety Data Sheet (SDS) for CRACKBOND products published on ATC's website or call for more information at 1-800-892-1880.

STANDARDS & APPROVALS

CRACKBOND POLYFLEX
WQA Certified - Drinking Water System Components
NSF/ANSI/CAN 61

Hydrophilic Flexible Polyurethane Water Block

Ordering Information

TABLE 1: CRACKBOND POLYFLEX Packaging

Package Size	5 Gallon (19 L) Bulk
Part #	B5G-CBPF
Dispensing Tool	Pump ¹
Injection Port	BIP-P
Pallet Qty.	36
Pallet Weight (lb.)	1,512



B5G-CBPF



BIP-P

1. Contact ATC for recommended bulk dispensing pump manufacturers.

Material Specifications

TABLE 2: CRACKBOND POLYFLEX performance to ASTM Standards^{1,2}

Property	ASTM Standard	Units	Uncured Product Results	Cured Product Results ³ Water : Grout Ratio			
				1:1	3:1	5:1	8:1
Gel Time	----	sec	----	110	100	90	100
Viscosity at 77 °F (25 °C)	D2196	cP	875 ± 150	----			
Tensile Strength	D638	psi (MPa)	----	431.1 (3.0)	261.0 (1.8)	163.9 (1.1)	145.0 (1.0)
Elongation		%	----	462.1	1,140	>1250	>1250
Die-C Tear	D624	pli	----	49	52	43	43.3

1. Results based on testing conducted on a representative lot(s) of product. Average results will vary according to the tolerances of the given property.

2. Results may vary due to environmental factors such as temperature and type of substrate.

3. Values generated while simulating field conditions with fully cured product applied under pressure.

TABLE 3: CRACKBOND POLYFLEX NSF/ANSI/CAN 61 Certification^{1,2}

ANSI Certification	Description	Application	Water Contact Temperature	Surface Area to Volume Ratio
NSF 61	Drinking Water System Components - Health Effects	Joining and Sealing Materials	Cold 73 °F (23 °C)	0.001 cm ² /L

1. Certified as product type Joining and Sealing Material when used in a 1:1 mixture with water, cold end use temperature 73 °F (23 °C) at a maximum field SA/V ratio of 0.001 cm²/L.

2. Certification pertains to 5 gallon configuration only.

Hydrophilic Flexible Polyurethane Water Block

TABLE 4: CRACKBOND POLYFLEX Temperature Effects on Viscosity^{1,2}

Temperature °F (°C)	Viscosity cP
55 (13)	1,500
77 (25)	875
85 (29)	750

1. Results based on testing conducted on a representative lot(s) of product. Average results will vary according to the tolerances of the given property.
2. Temperature of the chemical affects viscosity (liquid thickness) of the material. Table 4 illustrates the approximate viscosity levels of POLYFLEX when exposed to various temperatures during the time of injection.

TABLE 5: CRACKBOND POLYFLEX Temperature Effects on Reaction Times^{1,2,3}

Temperature °F (°C)	Reactivity Time Water : Grout Ratio		
	1:1	5:1	10:1
70 (21)	110 sec	90 sec	110 sec
80 (27)	85 sec	65 sec	70 sec
90 (32)	65 sec	55 sec	60 sec

1. Results based on testing conducted on a representative lot(s) of product. Average results will vary according to the tolerances of the given property.
2. Results may vary due to environmental factors such as temperature and type of substrate.
3. Temperature influences the reaction (working) time; hotter materials will decrease and colder temperatures will increase the reaction time. Table 5 illustrates the effects at different ratios.

Hydrophilic Flexible Polyurethane Water Block

Ordering Information

TABLE 6: CRACKBOND POLYFLEX QUIKFIX Packaging

Package Size	22 fl. oz. (627 ml) Cartridge
Part #	A22-CBPFQF
Recommended Mixing Nozzle	T38XL
Dispensing Tool	TM22HD
Injection Port	CIP-P
Case Qty.	12
Pallet Qty.	432
Pallet Weight (lb.)	760



A22-CBPFQF



CIP-P



TM22HD

Material Specifications

TABLE 7: CRACKBOND POLYFLEX QUIKFIX performance to ASTM Standards^{1,2}

Property	ASTM Standard	Units	Result
Gel Time ³	----	sec	110
Viscosity ⁴ at 77 °F (25 °C)	D2196	cP	850 ± 50
Tensile Strength ³	D638	psi (MPa)	431 (3.0)
Elongation ³		%	462
Die-C Tear ³	D624	pli	49.0
Physical Form ³	----	----	Resilient Foam

1. Results based on testing conducted on a representative lot(s) of product. Average results will vary according to the tolerances of the given property.

2. Results may vary due to environmental factors such as temperature and type of substrate.

3. Values generated while simulating field conditions with fully cured product applied under pressure.

4. Property results based on uncured product.

Hydrophilic Flexible Polyurethane Water Block

**TABLE 8: CRACKBOND POLYFLEX QUIKFIX
Temperature Effects on Viscosity^{1,2}**

Temperature °F (°C)	Viscosity cP
50 (10)	1,960
70 (21)	950
77 (25)	850
90 (32)	750

1. Results based on testing conducted on a representative lot(s) of product. Average results will vary according to the tolerances of the given property.
2. Temperature of the chemical affects viscosity (liquid thickness) of the material. Table 8 illustrates the approximate viscosity levels of POLYFLEX QUIKFIX when exposed to various temperatures during the time of injection.

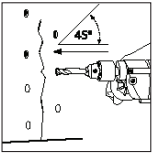
**TABLE 9: CRACKBOND POLYFLEX QUIKFIX
Temperature Effects on Reactions Times^{1,2}**

Temperature °F (°C)	Reactivity Time
50 (10)	3 min
70 (21)	110 sec
90 (32)	65 sec

1. Results based on testing conducted on a representative lot(s) of product. Average results will vary according to the tolerances of the given property.
2. Temperature influences the reaction (working) time; hotter materials will decrease and colder temperatures will increase the reaction time.

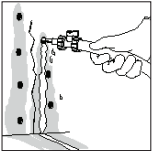
Hydrophilic Flexible Polyurethane Water Block

CRACKBOND POLYFLEX QUIKFIX Installation Instructions



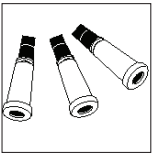
Drill

Drill a series of staggered holes along the full length of the leaking crack. Space the holes 4 to 6 inches apart starting at the bottom. For best results, insert the drill at a 45 degree angle toward the crack.



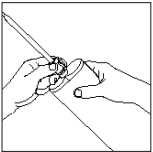
Flush

Attach the valve and nozzle supplied with the kit to a garden hose. A pump sprayer may also be used to supply water. Starting at the bottom, flush each hole while adjusting the water to a low-pressure stream using just enough water to flush the debris from each hole and to wet the entire crack.



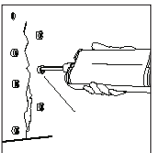
Injection Port Installation

Press the CIP-P injection port into the first hole and tap firmly using a hammer to ensure the tip is fully inserted. Continue inserting the injection ports until all of the holes are filled.



Cartridge Preparation

Shake cartridge well prior to pry-off closure removal and installing nozzle. Remove outer and inner cap on outlet port. Attach applicator nozzle with threaded retaining nut. Place the cartridge in the dispensing gun.



Application

Working from the bottom to the top, insert the nozzle into the first injection port hole and squeeze the cartridge gun three to four times. Depending on the size of the leaking crack, one cartridge will treat approximately 8 feet.



Clean-up and Finish

With a flat-bladed tool, remove excess grout on the exterior of the crack. For exposed walls that require a smooth appearance, remove injection ports with pliers. Patch any holes using a putty knife, with the CRACKBOND JET PATCH or similar patching material.

Hydrophilic Flexible Polyurethane Water Block

CRACKBOND POLYFLEX Installation Instructions

Job site preparation depends on the type of injection method that is selected. Three methods of injection are described below along with the site preparation.

Crack Injection

Prepare the work site by drilling holes at approximately 45 degree angles to intersect the application site at about half the depth of the fissure. Holes are typically drilled on opposing sides of the application site in an alternating pattern. The spacing is dependent on the crack size. Flush drill waste from holes to ensure a strong bond prior to installing the BIP-P injection ports. Securely install injection ports in the pre-drilled holes and clean the application site of extraneous and loose materials. **POLYFLEX** may be injected directly into the construction joints of manholes at a 1:1 ratio with water.

Gel Encapsulation

Gel encapsulation is used for below-grade applications where it is advantageous to use **POLYFLEX** as a seal membrane wrap on the outside surface of a structure. Holes are drilled completely through the structure to allow injection to take place from the inside. The pattern and spacing of holes may vary depending on each repair project. Injection ports are installed and injection begins in one corner. Continue injecting in each injection port until the grout penetrates the surrounding drill holes.

Activated Oakum Technique

A method to help reduce or eliminate heavy water inflow in wide cracks or joints is called the activated oakum technique. The process is started by saturating oakum rope or industrial absorbent towels in the grout and then soaking the rope or towels in water. The grout will begin reacting once dipped in the water. Place the saturated pieces into the leaking crack or joint. Push deeply into the crevice using a blunt instrument. Once the water infiltration has been substantially reduced, drill holes and proceed with either the encapsulation or the crack injection method as mentioned above.

Application Method

This product can be injected as a single component when sufficient water is present. It is recommended in certain situations to inject water as a second component by means of a mixing/metering machine. The components are pumped into the injection ports generally beginning with the lowest. Continue introducing grout into the ports until the material reaches the next highest port, then move to the next injection port and continue. It is recommended to move back and repeat injection on previous ports until each port refuses to take more material. It is important to apply a sufficient amount of **POLYFLEX** to allow a satisfactory ratio to be obtained for maximum effectiveness. Visual inspection of injection material penetrating the surrounding drill holes will determine the consistency of the reacted material. Once the injected material has cured at the application site, clean the site. Water blasting is a recommended technique for cleaning the concrete.