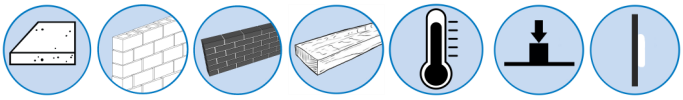
Repair Epoxy - Pro Formula

General Purpose

MIRACLE BOND®
REPAIR EPOXY



Product Description

MIRACLE BOND® REPAIR EPOXY is a multi-purpose, rapid cure, bonding and repair adhesive. Its specially formulated, non-sag property is ideal for bonding most materials and perfect for both overhead and vertical repairs, while still being easily dispensed from most dispensing guns. It has an application temperature range between 40 °F (4 °C) and 110 °F (43 °C).

General Uses & Applications

- Ideal bonding agent for most materials including concrete, brick, wood, stone, block and other substrates
- May be used as an adhesive or filler
- Capping paste and injection port adhesive for crack injection process
- Non-sag patching material for cracks and small spalls
- Ideal for overhead and vertical repairs
- Adhering replacement tile to surface of pool underwater by applying adhesive to dry tile and holding in place until initial tack

Advantages & Features

- Easily dispenses from most caulking guns
- Rapid initial hard cure at 3 hours and 75 °F (24 °C)
- Moisture insensitive system and may be used on damp surfaces

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 for online purchasing options or to search for a distributor by zip code.

Color & Ratio: Part A (Resin): White, Part B (Hardener): Dark Gray, Mixed: Gray, Mix Ratio: 1:1 by volume.

Storage & Shelf Life: For best results, store between 40 °F (4 °C) and 90 °F (32 °C). Shelf life is 24 months when stored in unopened containers in dry conditions.

Installation & Estimation: See Manufacturer's Printed Installation Instructions (MPII) available within this Technical Data Sheet (TDS). Due to occasional updates and revisions, always verify that you are using the most current version of the MPII. In order to achieve maximum results, proper installation is imperative. See Estimation Guide at www.atcepoxy.com.

Clean-Up: Always wear appropriate protective equipment such as safety glasses and gloves. Clean uncured materials from tools and equipment with mild solvent. Cured material may only be removed mechanically.

Limitations & Warnings:

- Product may discolor from UV exposure
- Once cured it may be coated or painted to meet desired appearance; see MPII
- New concrete should be a minimum of 28 days old prior to crack repair
- Do not thin with solvents, as this will prevent cure
- NOT intended for repairing cracks subject to movement; repairs should be made to the cracked member to eliminate the cause of the cracking prior to usage
- Product may sag when dispensing underwater into vertical cracks or spalls
- Adhesive in cartridge is fully dispensed when plunger reaches halfway

Safety: Please refer to the Safety Data Sheet (SDS) for MIRACLE BOND REPAIR EPOXY. Call ATC for more information at 1-800-892-1880.

Specification: The repair adhesive system shall be a two-component epoxy bonding adhesive. When cured 7 days and at a temperature of 75 °F (24 °C), the adhesive shall have a 7 day compressive strength of 12,720 psi (87.7 MPa) per ASTM D695. Adhesive shall be MIRACLE BOND REPAIR EPOXY from Adhesives Technology Corp., Pompano Beach, Florida.

ORDERING INFORMATION

TABLE 1: MIRACLE BOND REPAIR EPOXY Adhesive Packaging, Dispensing Tool and Mixing Nozzle[1]

Package Size	8.6 fl. oz. (254 ml) Cartridge
Part #	A9-MB
Recommended Mixing Nozzle	T12
Manual Dispensing Tool	TM9HD
Case Quantity	12
Pallet Qty.	1,116
Pallet Weight (lb.)	1,178

1. Each cartridge is packaged with one mixing nozzle.

A9-MB

TM9HD


T12

MATERIAL SPECIFICATION

TABLE 2: MIRACLE BOND REPAIR EPOXY performance to **ASTM C881-15**[1,2,3]

Property	Cure Time	ASTM Standard	Units	Sample Conditioning Temperature	
				40 °F (4 °C)	75 °F (24 °C)
Gel Time - 60 Gram Mass	----	C881	min	65	26
Consistency or Viscosity			----	Non-sag	
Tack Free Cure Time[4] (30 mil Thin Film)		C679	hr	>6	3
Compressive Yield Strength	7 day	D695	psi (MPa)	14,190 (97.8)	12,720 (87.7)
Compressive Modulus			psi (MPa)	936,400 (6,456)	698,400 (4,815)
Bond Strength Hardened to Hardened Concrete	2 day	C882	psi (MPa)	2,460 (17.0)	2,450 (16.9)
	14 day		psi (MPa)	2,490 (17.2)	2,910 (20.1)
Bond Strength Plastic to Hardened Concrete			psi (MPa)	1,780 (12.3)	
Heat Deflection	7 day	D648	°F °C	124 (51)	
Water Absorption	14 day	D570	%	0.32	
Linear Coefficient of Shrinkage	48 hr	D2566		0.00015	

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. Full cure is listed above to obtain the given properties for each product characteristic.
3. Results may vary due to environmental factors such as temperature, moisture and type of substrate.
4. Property not referenced in ASTM C881.

TABLE 3: MIRACLE BOND REPAIR EPOXY **CURE SCHEDULE**[1,2,3,4]

Ambient Temperature °F (°C)	Working Time
40 (4)	90 min
75 (24)	45 min
110 (43)	20 min

1. Application Temperature: Substrate and ambient air temperature should be from 40 - 110 °F (4 - 43 °C).
2. When ambient or base material temperature falls below 70 °F (21 °C), condition the adhesive to 70 - 75 °F (21 - 24 °C) prior to use.
3. Working time is based on dispensability of the undisturbed nozzle life on the cartridge.
4. Cure time is mass and temperature dependent. At 1/4 in. thickness, this product cures to a hard consistency in 3 hours at 75 °F (24 °C). Product will cure slower in thinner film and/or colder temperatures and will cure faster in a larger mass and/or elevated temperatures.

INSTALLATION INSTRUCTIONS (MPII)

Surface Preparation

Surface preparation will be dependent upon the application for the product. Old concrete must be clean and profiled or textured. New concrete should be a minimum of 28 days old. Prepare the surface by rough-grinding, scarifying, bush hammering or by using other equipment that will give a roughened profile. A roughened surface is imperative for good adhesion. Always be sure the bonding surfaces are prepared in advance before starting a new cartridge or mixing product. If at all possible, schedule dispensing to consume an entire cartridge at one time with no interruption of epoxy flow.

Cartridge Preparation

CAUTION: Check the expiration date on the cartridge to ensure it is not expired. **Do not use expired product!** Remove the protective cap from the adhesive cartridge and insert the cartridge into the recommended dispensing tool. Before attaching mixing nozzle, balance the cartridge by dispensing a small amount of material until both components are flowing evenly. For a cleaner environment, hand mix the two components and let cure prior to disposal in accordance with federal, state and local regulations.

Screw on the proper Adhesives Technology mixing nozzle to the cartridge (see Table 1) after properly balancing the cartridge. Do not modify mixing nozzle. Confirm that internal mixing element is in place prior to dispensing adhesive. Take note of the air and base material temperatures and review the working time (see Table 3) prior to starting the injection process.

Dispense the initial amount of material from the mixing nozzle onto a disposable surface until the product is a uniform gray color with no streaks, as adhesive must be properly mixed in order to perform as published. Dispose of the initial amount of adhesive according to federal, state and local regulations prior to use. **CAUTION:** When changing cartridges, never re-use nozzles. A new nozzle should be used with each new cartridge and steps 1 - 3 should be repeated accordingly.

Mixing Without Nozzle

Remove the protective cap from the adhesive cartridge and insert the cartridge into the recommended dispensing tool. Begin to dispense product through the opening until both products dispense equally and discard this small amount. Dispense equal parts of both part A and part B onto a flat surface. Mix both components together using a putty knife or similar flat tool until a consistent gray color is achieved with no streaks.

Spall Repair Preparation

- **WARNING**: **Use MIRACLE BOND REPAIR EPOXY for SMALL SPALL REPAIRS ONLY;** A deeper or larger mass than recommended will generate excessive heat and may result in smoking, cracking and the material rising; **NOTE**: For larger spalls use slower curing CRACKBOND EPOXY REPAIR PASTE
- Always keep nozzle submerged in the adhesive while filling the spall to avoid entrapping air into the repair
- For MIRACLE BOND REPAIR EPOXY, the spall should be ground to a maximum 1 in. (25 mm) depth and width no greater than 5 in. (127 mm) for repairs placed at 77 °F (25 °C) - spall size may need to be reduced at elevated temperatures
- Avoid a feathered edge by cutting around the spall into sound concrete with a grinder or circular saw using a diamond or concrete abrasive blade so the entire depth of the spall is consistent (Wear proper protective equipment - PPE)
- For patching concrete or wood surfaces, fill the void with MIRACLE BOND REPAIR EPOXY to just above the surface level and trowel flush
- For a textured finish, sand or aggregate may be applied to the product immediately after application; Brush or blow off extra sand or aggregate after product cures
- Product may be mechanically sanded after full cure wearing proper PPE - see Safety Data Sheet

Capping Ports for Structural Crack Repair

- Place and secure injection ports, or port bases, with the MIRACLE BOND REPAIR EPOXY capping paste taking care not to leave any pinholes, noting that the port spacing should be approximately 6 - 12 in. (152 – 305 mm) apart
- **NOTE: Do not allow the epoxy to block the passage between the port and the crack face**
- Place additional MIRACLE BOND REPAIR EPOXY between the ports making sure the entire crack is sealed off anywhere it is visible and accessible and make sure the ports are securely fastened to the concrete so they will not leak when injected under pressure
- Allow the MIRACLE BOND REPAIR EPOXY to cure before injecting the crack with an ATC crack injection adhesive such as CRACKBOND LR-321

Painting or Coating

Before placing a topcoat on MIRACLE BOND REPAIR EPOXY, it is recommended to check with the coating manufacturer for compatibility with epoxy based products. Sanding before coating will help with adhesion. Use of solvent based coatings should be avoided. Coating in a small test area is recommended prior to completing entire project.