



Planibond[®] AE

High-Strength, Nonsag Epoxy Anchoring Gel



DESCRIPTION

Planibond AE is a high-strength, two-part, nonsag, epoxy anchoring gel designed for a wide variety of bonding and repair applications. With VOC compliance and low odor, *Planibond AE* meets ASTM C881 requirements Types I, II, IV and V; and Grade 3, Classes B and C; as well as USDA specifications for food-processing areas. *Planibond AE* is moisture-tolerant and may be extended with graded sands. *Planibond AE* adheres to masonry, concrete, steel and other structural materials.

FEATURES AND BENEFITS

- Comes in dual cartridge for easy use
- Nonsag and high-strength
- Moisture-tolerant
- Suitable for use in severe freeze/thaw climates, and in environments subject to seismic activity
- May be extended with graded sands

INDUSTRY STANDARDS AND APPROVALS

ASTM C881: Types I, II, IV and V; Grade 3, Classes B and C

Passed ICBO-ES AC58 (Sec. 5.3.3) ASTM E1512 (Sec. 7.1 & 7.5) Elevated Temp Creep Test

USDA: Meets specifications for food-processing areas

<u>LEED (Version 3.0) Points Contribution</u>	<u>LEED Points</u>
MR Credit 5, Regional Materials*.....	Up to 2 points
IEQ Credit 4.1, Low-Emitting	
Materials – Adhesives & Sealants.....	1 point

** Using this MAPEI product may help contribute to LEED certification of projects in the categories shown above. Points are awarded based on contributions of all project materials.*

WHERE TO USE

For Professional Use

- Use on interior/exterior horizontal and vertical surfaces.
- Use for chemical horizontal anchoring of bolts, dowels and pins in concrete or masonry.
- Use to set injection ports for epoxy injection repairs, as well as cap sealing.
- Use as an adhesive to bond concrete or irregular surfaces, and for filling gaps or non-moving joints.
- Use as an adhesive to bond *Mapeband™ TPE*.

LIMITATIONS

Per National Transportation Safety Board (NTSB) safety recommendations, the use of adhesive anchors is prohibited in sustained overhead load anchoring applications.

- Remove water from wet or damp holes or joints with oil-free compressed air.
- Use on substrate between the temperatures of 40°F and 105°F (4°C and 41°C). Precondition cartridges to more than 70°F (21°C) before use. In cool weather (below 70°F [21°C]), precondition cartridges to 85°F (29°C) for easier application.
- No additional ingredients are required. Do not thin with solvents.
- Once cured, *Planibond AE* is a vapor barrier.



- Do not allow mixed epoxy to remain in static mixer for more than 5 minutes, or epoxy may gel and blockage may occur.
- Consult MAPEI's Technical Services regarding substrates and conditions not listed.

SUITABLE SUBSTRATES

- Properly prepared concrete at least 3 to 7 days old (depending on curing and drying conditions), stable and free of standing water
- Properly cured and prepared MAPEI repair mortars

SURFACE PREPARATION

- For anchoring, drill hole(s) to appropriate diameter and depth, typically 1/8" to 1/4" (3 to 6 mm) in diameter larger than the rod or bolt, and in depth 9 to 15 times the diameter of the rod or bolt.
- Use a nylon brush and oil-free compressed air to thoroughly clean the hole(s) of any dirt, dust and drilling residue from the base of the hole.
- When bonding to steel, ensure steel is cleaned and prepared to white metal finish.
- Concrete substrate and ambient temperatures must be between 40°F and 105°F (4°C to 41°C) before application. Precondition *Planibond AE* to application temperature for 24 hours before it is applied.

MIXING

- When mixing 2-gallon (7,57-L) kits, empty both Part A and Part B into a third container, carefully scraping the sides of the original containers to ensure all material is mixed together in a 1:1 ratio. Mix the material at a medium speed with an epoxy paddle, scraping the sides and bottom of the container to ensure all material is mixed to a uniform light gray color (after about 3 minutes). Divide mixed material into small containers to extend the gel time; material left in mass will gel quickly due to exotherm.
- *Planibond AE* is available in pre-filled cartridges that require application with correct static mixer and gun to ensure adequate mixing of two parts.

Note: Choose all appropriate safety equipment before use. Refer to Material Safety Data Sheet (MSDS) for more information.

PRODUCT APPLICATION

1A. To Anchor

1A.1 Holes must be properly cleaned before filling with *Planibond AE*.

1B. Application of Bulk Units by Pump

1B.1 Use an appropriate positive-displacement plural-component pump with designated MAPEI static mixer to dispense material. Fill hole half full. Rotate the dowel, pin or bolt slightly as it is inserted to the designated depth in the hole. Epoxy should fill the hole flush to the edge with no voids.

1C. Application Using Dual Cartridges

- 1C.1 Open cartridges after the preparatory work has been completed.
- 1C.2 Apply with a dual-cartridge dispensing gun. Remove plug from the end of the epoxy cartridge. Slide retaining nut over static mixer and screw nut onto cartridge until secure.
- 1C.3 Place cartridge in appropriate gun and extrude epoxy until a uniform, streak-free color is achieved.
- 1C.4 Dispense epoxy with uniform pressure. If pressure is altered or dispensing is paused, always ensure epoxy color remains consistent and streak-free before application.
- 1C.5 After uniform color is achieved, static mixer should be placed at bottom of hole. Start extruding epoxy while pulling static mixer out, filling hole half full. Rotate the dowel, pin or bolt slightly as it is inserted to the designated depth in the hole. Epoxy should fill the hole flush to the edge with no voids.

2. To Set Injection Ports and Seal Caps/Cracks

- 2.1 Apply a small amount of uniformly dispensed epoxy to the back of a port and carefully center port over the crack, but do not seal injection port.
- 2.2 After setting port, apply additional *Planibond AE* to the shoulders of the port and extend epoxy to 1/2" (12 mm) on either side of the crack, covering the crack between ports with epoxy applied to about 1/4" (6 mm) thick.
- 2.3 Do not place epoxy once it starts curing or gets hot or sticky, or disturb it while curing.

3. To Bond Surfaces, Including *Mapeband TPE*

- 3.1 Ensure concrete is at least 28 days old, properly prepared and mechanically cleaned, with all weak material removed per ASTM D4258.
- 3.2 Apply the mixed *Planibond AE* to the prepared surfaces. Work it into the substrate for positive adhesion. Secure or clamp the bonded surfaces firmly into place until *Planibond AE* has cured. *Planibond AE* thickness (glue line) should not exceed 1/8" (3 mm). Surfaces must be bonded while the *Planibond AE* is still tacky. Once cured, fill gaps with *Planibond AE*.
- 3.3 For instructions on securing to concrete substrates, see Technical Data Sheet for *Mapeband TPE*.

4. To Use as a Patching Mortar or Grout

For repairing voids greater than 1/4" (6 mm), *Planibond AE* may be blended with clean, dried, graded silica sand to the desired gel-sand ratio. Graded sand may be combined as follows: 2 parts 16 to 20 mesh, to 1 part 80 to 100 mesh. As an alternate, 30-mesh silica sand represents a good general grade.

CLEANUP

- Clean equipment before *Planibond AE* cures to a hardened state using an appropriate solvent or cleaning material. Cured material can only be removed mechanically.

Product Performance Properties

Laboratory Tests	Results
Gel time (ASTM C881)	35 minutes
VOCs (Rule #1168 of California's SCAQMD)	0 g/L
Bond strength, 2-day cure (ASTM C882)	> 2,500 psi (17,2 MPa)
Bond strength, 14-day cure (ASTM C882)	> 4,500 psi (31,0 MPa)
Absorption (ASTM D570)	0.10%
Linear coefficient of shrinkage (ASTM D2566)	0.0007
Compressive strength (ASTM D695)	10,270 psi (70,8 MPa)
Compressive modulus (ASTM D695)	> 275,000 psi (1 897 MPa)
% elongation at break (ASTM D638)	> 2.5%
Shear strength (ASTM D732)	> 3,400 psi (23,4 MPa)
Flexural strength (ASTM D790)	> 5,300 psi (36,6 MPa)
Shrinkage (ASTM C884)	Pass
Thermal compatibility (ASTM C884)	Pass

CSI Division Classifications

Maintenance of Concrete	03 01 00
Epoxy grouting	03 63 00

Shelf Life and Application Properties

Shelf life	2 years in original unopened container. Store at 50°F to 90°F (10°C to 32°C).
Gel time	30 minutes

Packaging

Product Code	Size/Color
40474	Cartridges: 20.3 U.S. oz. (600 mL) Part A: White Part B: Gray
40453	Kit: 2 U.S. gals. (7,57 L)

Approximate Product Yield

Size	Yield
20.3 U.S. oz. (600 mL) cartridge	37 cu. in. (606 cm ³)
1 U.S. gal. (3,79 L)	231 cu. in. (3 785 cm ³)

Estimating Guide for Number of Holes per 20.3 U.S. oz. (600 mL)

Rebar in Concrete:		Hole Depth										
Rebar Size	Hole Diameter	3" (7,5 cm)	4" (10 cm)	5" (12,5 cm)	6" (15 cm)	8" (20 cm)	10" (25 cm)	12" (30 cm)	14" (36 cm)	16" (41 cm)	18" (46 cm)	20" (51 cm)
No. 4	5/8" (16 mm)	85	64	51	43	32	26	22	19	16	15	13
No. 6	7/8" (22 mm)	55	41	32	28	21	17	14	12	11	10	9
No. 8	1-1/8" (2,9 cm)	41	31	25	21	16	13	11	9	8	7	7
No. 10	1-1/2" (3,8 cm)	20	15	12	10	8	6	5	5	4	4	3

Cure Times for Adhesive Anchors*

Minimum Substrate Temperature	Cure Time	Minimum Cure Time
65°F (18°C)	48 hours	24 hours
70°F (21°C)	36 hours	12 hours
80°F (26°C)	24 hours	6 hours
100°F (38°C)	12 hours	4 hours

* "Cure time" is the time required before epoxy reaches ultimate strength. "Minimum cure time" is the minimum time required before the design load or allowable load may be applied. Anchors should be undisturbed during the minimum cure time.

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RELATED DOCUMENTS

Guide for Selection of Polymer Adhesives with Concrete	ACI 503.5R-92
Epoxy Anchoring and Adhesive Applications	RGC0109*

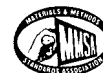
* At www.mapei.com.

Refer to MAPEI's MSDS for specific data related to VOCs, health and safety, and handling of product.

STATEMENT OF RESPONSIBILITY

Before using, user shall determine the suitability of the product for its intended use and user alone assumes all risks and liability whatsoever in connection therewith. **ANY CLAIM SHALL BE DEEMED WAIVED UNLESS MADE IN WRITING TO US WITHIN FIFTEEN (15) DAYS FROM DATE IT WAS, OR REASONABLY SHOULD HAVE BEEN, DISCOVERED.**

We proudly support the following industry organizations:



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For the most current **BEST-BACKED™** product data and warranty information, visit www.mapei.com.

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