Planibond Hi-Mod Gel

High-Modulus, Non-Sag, Structural Epoxy Adhesive

FOR PROFESSIONAL USE ONLY

DESCRIPTION

Planibond® Hi-Mod Gel is a high-modulus, high-strength, moisture-tolerant, low-VOC, two-part, non-sag, structural epoxy adhesive designed for a wide variety of bonding and repair applications.

FEATURES AND BENEFITS

- 1:1 mixing ratio
- 100%-solids, solvent-free product with low-VOC content
- Non-sag, high-modulus and high-strength
- Moisture-tolerant
- Suitable for use as a pick-proof security sealant
- May be extended with graded sands
- Cures to a light gray color that is similar to concrete color

INDUSTRY STANDARDS AND APPROVALS

- ASTM C881: Types I, II, IV and V; Grade 3; Classes A, B and C
- AASHTO M235: Types I, II, IV and V; Grade 3; Classes A, B and C
- USDA: Meets specifications for food-processing areas

WHERE TO USE

- Use as a cap seal for pressure-injection epoxy grouting.

- Use as a binder for interior vertical and overhead repairs.
- Use as a structural adhesive on concrete, wood and metal.
- Use as a pick-proof security sealant in correctional facilities.
- Use for grouting dowels, anchors and threaded rods.

Consult MAPEI's Technical Services Department for installation recommendations regarding substrates and conditions not listed.

SURFACE PREPARATION

- Before application, thoroughly clean the surface of any substance that could act as a bond breaker, including dirt, paint, tar, asphalt, wax, oil, grease, latex compounds, sealers, curing compounds, form release agents, laitance, loose toppings, foreign substances and adhesive residue.
- Clean steel mechanically to remove any corrosion or coating (to a near white metal finish) before application of *Planibond Hi-Mod Gel*.
- Mechanically clean and prepare concrete substrates by engineer-approved mechanical methods to obtain an ICRI concrete surface profile (CSP) of ≥ 3.
- Concrete substrate and ambient room temperatures must be between 50°F and 95°F (10°C and 35°C) before application. Temperatures must be maintained within this range for at least 72 hours after the installation of *Planibond Hi-Mod Gel*.
- Substrates must be dry or damp. Do not apply *Planibond Hi-Mod Gel* on standing water.

MIXING

Before product use, take appropriate safety precautions. Refer to the Safety Data Sheet for details.

- Premix the Part A epoxy resin and Part B curing agent independently before mixing together.
- When mixing *Planibond Hi-Mod Gel*, empty Part A and Part B into a third container, carefully scraping the sides of the original containers to ensure that all material is mixed together in a 1-to-1 ratio. Mix the material at a medium speed (400 to 600 rpm) with an epoxy paddle, scraping the sides and bottom of the mixing container to ensure that all material is mixed to a uniform, light gray color (after about 3 minutes). Divide the mixed material into small containers to extend the gel time, because material left in mass will gel quickly due to its exothermic properties.

PRODUCT APPLICATION

Read all installation instructions thoroughly before installation.

<u>For setting injection ports and sealing caps/cracks</u>

1. Apply a small amount of properly mixed epoxy to the back of a port and carefully center the port over the crack, taking caution to not seal the injection port.
2. After setting the port, apply additional *Planibond Hi-Mod Gel* to the shoulders of the port and extend epoxy to 1/2" (12 mm) on both sides of the crack, covering the crack between ports with epoxy applied to about 1/4" (6 mm) thick.

<u>For use as a patching mortar or grout</u>

- For repairing voids greater than 1/4" (6 mm), *Planibond Hi-Mod Gel* may be blended with clean, dried, graded silica sand to the desired gel-sand ratio, up to a maximum 1:1 ratio by volume.

For use as a structural adhesive / bonding agent

1. Use a margin trowel to apply *Planibond Hi-Mod Gel* by margin trowel to each surface to be bonded, at an application thickness of 1/16" to 1/8" (1.5 to 3 mm).
2. Apply fresh concrete within 45 minutes of placement. The bond line of *Planibond Hi-Mod Gel* should not be greater than 1/8" (3 mm) thick when bonded.
3. Remove any excess.

CLEANUP

- Clean equipment before *Planibond Hi-Mod Gel* cures to a hardened state using an appropriate solvent. Cured material can only be removed mechanically.

LIMITATIONS

- Remove water from wet or damp holes or joints with oil-free compressed air.
- Use on substrates with temperatures between 50°F and 95°F (10°C and 35°C). In hot weather, precondition *Planibond Hi-Mod Gel* to 73°F (23°C) before use. In cool weather (below 73°F or 23°C), precondition *Planibond Hi-Mod Gel* to 85°F (29°C) for easier application.
- Do not thin with solvents.
- If using bulk-dispensing equipment, do not allow mixed epoxy to remain in a static mixer for more than 5 minutes, or the epoxy may gel and blockage may occur.
- Do not place the epoxy once it starts curing or gets hot or sticky, and do not disturb it while it cures.
- If used in exterior applications, *Planibond Hi-Mod Gel* will discolor due to UV light.
- Do not allow the film thickness to exceed 1/8" (3 mm) when *Planibond Hi-Mod Gel* is used as a bonding agent.

Product Performance Properties

as tested under ASTM C881-13

Laboratory Tests	Results
Consistency (ASTM C881) – Grade 3	
Class A, B and C	Non-sag (0.0 in.)
Gel time (ASTM C881) – 60-gram sample	
Class A	> 200 minutes
Class B	> 150 minutes
Class C	> 30 minutes
Compressive yield strength (ASTM D695) at 7 days	
Class A	10,054 psi (69.3 MPa)
Class B	10,861 psi (74.9 MPa)
Class C	11,320 psi (78.1 MPa)
Compressive modulus (ASTM D695) at 7 days	
Class A	285,360 psi (1 968 MPa)
Class B	290,690 psi (2 005 MPa)

Class C	346,370 psi (2 389 MPa)
Hardened to hardened concrete bond strength (ASTM C882) – moist cured for 2 days	
Class A	1,688 psi (11.6 MPa)
Class B	2,162 psi (14.9 MPa)
Class C	2,826 psi (19.5 MPa)
Hardened to hardened concrete bond strength (ASTM C882) – moist cured for 14 days	
Class A	2,832 psi (19.5 MPa)
Class B	2,727 psi (18.8 MPa)
Class C	3,072 psi (21.2 MPa)
Plastic to hardened concrete bond strength (ASTM C882) – moist cured for 14 days	
Class A, B and C	2,653 psi (18.3 MPa)
Absorption (ASTM D570) at 73°F (23°C) for 14 days	
Class A, B and C	0.20%
Tensile strength (ASTM D638) at 7 days	
Class A	1,974 psi (13.6 MPa)
Class B	1,977 psi (13.6 MPa)
Class C	2,123 psi (14.6 MPa)
Elongation at break (ASTM D638) at 7 days	
Class A, B and C	0.20%
Linear coefficient of shrinkage (ASTM D2566) at 73°F (23°C)	
Class A, B and C	0.000 in./in.
Heat deflection temperature (ASTM D648) at 73°F (23°C) for 7 days	
Class A, B and C	139°F (59°C)
VOC content (SCAQMD Rule 1168)	< 50 g per L
Typical VOC content per SCAQMD Rule 1168 testing methods	5 g per L

Shelf Life and Application Properties

Shelf life	2 years in original, unopened container at 73°F (23°C). Store at 50°F to 90°F (10°C to 32°C).

Protect containers from freezing in transit and storage. Provide for heated storage on site and deliver all materials at least 24 hours before work begins.

Packaging

Size/Color
Pail, Part A: 0.5 U.S. gal. (1.89 L), dark gray
Pail, Part B: 0.5 U.S. gal. (1.89 L), white
Pail, Part A: 1.5 U.S. gals. (5.68 L), dark gray
Pail, Part B: 1.5 U.S. gals. (5.68 L), white

CSI Division Classifications

Maintenance of Concrete	03 01 00
Epoxy Grouting	03 63 00

Approximate Coverage*

Mixture Amount	Yield
1 U.S. gal. (3.79 L)	231 cu. in. (3 785 cm^3)
3 U.S. gals. (11.4 L)	693 cu. in. (11 356 cm^3)

ADDITIONAL INFORMATION

Refer to the Safety Data Sheet (SDS) for specific data related to health and safety as well as product handling.

For information on MAPEI's commitment to sustainability and transparency, as well as how MAPEI products may contribute to green building standards and certification systems, contact sustainability_USA@mapei.com (USA) or sustainability-durabilite@mapei.com (Canada).

WARNING

The test results shown in the TECHNICAL DATA table were obtained in compliance with test methods and curing cycles, if applicable, defined in the industry standards referenced on the Technical Data Sheet. Please note that the use of test procedures or methods other than those indicated in the table could lead to different values and that, in such cases, any liability of our company is excluded.

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