

# Superstick #590

**HI-MOD GEL**  
**MOISTURE- INSENSITIVE**  
**DAMP CURE FORMULATION**

FOR PROFESSIONAL USE ONLY



**Product Description:** ForTec 590 HI-MOD GEL is a 100% solids, solvent-free, two-component **MOISTURE INSENSITIVE** epoxy structural adhesive system. It has a unique **HI-MODULUS OF ELASTICITY**. When mixed with salt-free kiln-dried silica aggregate, 590 will produce a sag-resistant mortar for both vertical and overhead patching of interior surfaces. ForTec 590's gel-like consistency is an excellent structural adhesive for bonding of mating or non-mating surfaces. 590 Gel is recommended to grout anchor bolts, to seal cracks, and to set injection ports prior to injection grouting.

**NOT FOR SALE TO OR USE BY THE GENERAL PUBLIC**

**ADVANTAGES:**

- Easy mixing ratio of 1 to 1 for the two components
- Gel-like consistency
- Non-abrasive formula permits application with automated equipment
- Insensitive to moisture before, during and after cure
- Provides excellent adhesion to most structural materials
- Fast setting; provides high early strength within 24 hours.
- Low Temperature cures as low as 40°F\*\*

**PHYSICAL PROPERTIES**

**Compressive Yield Strength**

ASTM-D-695 PSI(Mpa)	40°F(4°C)*	75°F(24°C)*	90°F(32°C)*
24 Hours	-----	5800(40)	7000(48)
3 Days	5000(34)	10,000(69)	9600(66)
7 Days	9000(62)	10,500(72)	9600(66)

**Tensile Properties ASTM-D-638 Cure 7 Days @ 70°F, Post Cure 48 Hrs @ 140°F**

Tensile Strength PSI (Mpa)	9600(62)
Elongation at Break	.85%
Modulus of Elasticity PSI (Mpa)	4.4 x 10 <sup>5</sup> (3034)
<b>Flexural Properties 14 Days ASTM-D-790</b>	
Flexural Strength PSI(Mpa)	5800(40)
Tangent Modulus of Elasticity in Bending PSI (Mpa)	7.2 x 10 <sup>5</sup> (4964)

\*INDICATES TEMPERATURE FOR CURING & TESTING

**Type:** Moisture Insensitive & Low Temperature Cure  
 Hi-Modulus Epoxy Gel

**Mixing Ratio:** 1 "A" to 1 "B" by Volume

**Color:** Part A Resin White  
 Part B Hardener Black  
 Ad-Mix Light Grey

Not an aesthetic product. Color may alter due to variations in lighting and/or UV exposure

**Viscosity:** Ad-Mix ASTM-D-2393 Gel

**Pot Life:** Neat Approx. 30 Minutes

**Tack Free Time:**

40°F (4°C)*	75°F (24°C)*	90°F (32°C)*
14-16 hrs	2-4 hrs	1-1½ hrs

Bond Strength, PSI, (Mpa)	ASTM-C-882	
2 Days (moist cure) Hardened concrete to hardened concrete or steel		1800 min(12)
14 Days (moist cure) Plastic concrete to hardened concrete or steel		1600 min(11)
Water Absorption 24 Hrs %	ASTM-D-570	.5% maximum
Heat Deflection Temp. 7 days	ASTM-D-648	124°F (51°C)
Linear Coeff. of Shrinkage on Cure	ASTM-D-2566	003 maximum

**PACKAGING:** Available in 2 gallon units and 600 ml ratio tube kits (36 in<sup>3</sup>). Available in larger units on request.

**COVERAGE:** 1 Gallon of ForTec#590 HI MOD GEL yields 231 cubic inches of epoxy adhesive. When mixed with 1 gallon of dry loose aggregate, yield will be approximately 350 cubic inches. Each 600ml Tube Kit will cove 40-42 cu. in.

**\*CAUTION:**

- Maximum glue line 1/8 of an inch when doweling
- Maximum epoxy mortar thickness is 1½ per lift.
- **Epoxy mortar** is for interior use only.
- Do not thin. Solvents will prevent proper cure.
- Material is a vapor barrier after cure.
- Not for sealing cracks under hydrostatic pressure.
- Minimum age of concrete must be 21-28 days prior to application of mortar or sealer on slabs.
- Test for moisture vapor transmission prior to application of mortar or sealing slabs. Moisture passing through the substrate by pressure during application and curing of epoxy can cause bond failure.
- Due to many variables in bonding to damp or wet surfaces, be certain to test application under the same conditions as full-scale work.

**TEMPERATURES:** Will cure at temperatures as low as 40° F., providing the temperature will be 40° F. and rising during the next 72 hours. Epoxy materials and aggregate should be stored at least 24 hours prior to use at 60° F., or higher. Epoxies stored below 60° F., will cause the epoxy to thicken substantially, making it difficult to properly blend the two materials and obtain a proper mating of resin and hardener.

**Protect from inclement weather and freezing.** If product temperature falls below 50° F. it is recommended that a product temperature of 70°F. be obtained prior to using.

**Store dry at 40°F - 95°F. Condition to 65°F - 85°F before using.**

ForTec 590 HI-MOD conforms to ASTM-C-881, Type I and IV, Grade 3, Class B and C, AASHTO-M235-91

## HOW TO USE

### **SURFACE PREPARATION:**

All surfaces must be structurally sound, clean, and free of dirt, dust, oil, grease, or any contaminant that would adversely affect the bond. Surfaces may be dry or damp, but free of standing water.

On new concrete do not use a curing compound. If curing compounds have been used they must be removed. Sandblast or other approved mechanical methods are recommended.

**STEEL:** Sandblast to white metal finish.

**OLD CONCRETE:** All loose particles or soft, weak sections must be removed. Asphaltic or oil contaminants should be removed with detergents or other cleaning materials. Surfaces should be thoroughly flushed with plenty of clean water. Surfaces then should be treated with 15% to 20% solution of muriatic acid. Mix the acid with water, approximately 1 part of acid to 3 to 5 parts of water, as required. *Follow Safety Precautions when using acids.* Pour on the surface in an even manner and thoroughly scrub until bubbling ceases. Thoroughly rinse with plenty of clean water. If chemical means or cleaning does not properly prepare the surface, then other means such as sandblasting, mechanical scarification, and vacuuming should be utilized.

### **MIXING:**

Pre-mix each component separately; place in a clean container 1 part by volume of Component A (Resin) and then add 1 part of Component B (Hardener). Container should have a flat wall and flat bottom.

The importance of thorough mixing/blending cannot be overemphasized. Stir and blend thoroughly. Scrape bottom and sides to make sure both components are blended and mated, usually 2½ to 3 minutes. If you are mixing correctly, bubbles will be whipped into the mixture. Do not be concerned; this is a sign that you are mixing well. A uniform gray product will result. Streaks in the product indicate incorrect mixing. Improper mixing can result in soft or sticky spots.

It is recommended, to eliminate problems of improper mixing, that you use two mixing containers. Mix thoroughly in one container. After you feel it is thoroughly mixed, scrape all the material from one container to the second container. After material has been placed in the second container, thoroughly mix for an additional 1 to 1½ minutes.

With this double type of mixing, any material that might not have been thoroughly mixed from the sides or the bottom of the first container will be easily placed in the center of the mix in the second container and thus will receive thorough mixing at that time. Mix only that quantity that can be used within its working time.

### **APPLICATION:**

**For a Structural Adhesive** - Apply the neat mixed ForTec HI-MOD GEL to mating or non-mating prepared substrates. Thoroughly work into the substrate for positive adhesion. Secure the bonded unit firmly into place until the adhesive has cured. Glue line should not exceed ⅛ of an inch.

### **NEAT BINDER**

**For Interior Applications** - To prepare an epoxy mortar add from 1 to 1½ parts by loose volume of 20/30 sieve, salt-free, kiln dried aggregate to 1 volume of the mixed HI-MOD GEL. Mix until uniform in consistency. Amount added may be varied depending on desired consistency. Place the prepared mortar in the void, working the material into the prepared substrate, filling cavities. Strike off level. Do not apply epoxy mortar at thickness greater than 1½ inches per lift.

**To Seal Cracks For Injection Grouting** - Place the neat material over the cracks to be pressure injected and around each entry port. Allow sufficient time to set before pressure injecting.

**To Anchor Bolts, Dowels, and Pins** - ForTec 590 may be used neat, or with larger bolts add approximately 1 to 1½ parts of 20/30 sieve, salt-free, kiln-dried aggregate to 1 volume of mixed ForTec 590.

This product is recommended to anchor bolts in vertical and horizontal applications.

Due to the non-sag consistency, it is important that a long nozzle be used to force the epoxy to the bottom of the bolt hole to avoid air entrapment. The angular space around the bolt should not exceed ¼ inch. Depth of embedment is normally 15 times the bolt diameter.

**Do Not Thin ForTec 590 HI-MOD GEL** -- Solvents will prevent proper cure.

**Note** - For bonding fresh plastic Portland - cement to hardened concrete, use ForTec 580 HI-MOD.

**CAUTION - For professional use only; not for sale to or use by the general public.** ForTec's epoxies contain alkaline amines. Strong sensitizer; MAY CAUSE SKIN SENSITIZATION or allergic response ranging from a mild wheezing to a severe asthmatic type attack. Avoid contact with skin or eyes. IN CASE OF CONTACT immediately wash skin with soap and water. Flush eyes with water and obtain medical attention. Wear protective clothing, goggles, and barrier cream on all exposed skin

**LIMITED WARRANTY NOTICE:** Every reasonable effort is made to apply ForTec exacting standards both in the manufacture of our products and in the information which we issue concerning these products and their use. We warrant our products to be of good quality and will replace or, at our election, refund the purchase price of any products proved defective. Satisfactory results depend not only upon quality products, but also upon many factors beyond our control. Therefore, except for such replacement or refund, ForTec MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, RESPECTING ITS PRODUCTS, and ForTec shall have no other liability with respect thereto. ForTec excludes any warranty for discoloration or change in visual appearance of the product due to accumulation of or streaking of dirt or other airborne materials deposited on the surface from the atmosphere. ForTec does not warrant the colorfastness of any product. Any claim regarding product defect must be received in writing within one (1) year from the date of shipment. No claim will be considered without such written notice or after the specified time interval. User shall determine the suitability of the products for the intended use and assume risks and liability in connection therewith. Any authorized change in the printed recommendations concerning the use of our products must bear the signature of the ForTec Technical Manager.

This information and all further technical advice are based on ForTec 's present knowledge and experience. However, ForTec assumes no liability for providing such information and advice including the extent to which such information and advice may relate to existing third party intellectual property rights, especially patent rights. In particular, ForTec disclaims all CONDITIONS AND WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY. ForTec SHALL NOT BE RESPONSIBLE FOR CONSEQUENTIAL, INDIRECT OR INCIDENTAL DAMAGES (INCLUDING LOSS OF PROFITS) OF ANY KIND. ForTec reserves the right to make any changes according to technological progress or further developments. It is the customer's responsibility and obligation to carefully inspect and test any incoming goods. Performance of the product(s) described herein should be verified by testing and carried out by qualified experts. It is the sole responsibility of the customer to carry out and arrange for such testing. Reference to trade names used by other companies is neither a recommendation, nor an endorsement of any product and does not imply that similar products could not be used.

**Fortec Stabilization, Inc.**

184 W. 64th Street

Holland, MI 49423

Phone: 1-800-207-6204

Fax: 734-424-9498

email: [solutions@fortecstabilization.com](mailto:solutions@fortecstabilization.com)

