

## Description

The Inject-TITE (FS) Fast-Set Formula is a high-strength, two-part adhesive anchoring system. The FS is solvent-free and allows for use in a wide range of applications like bonding threaded rod and reinforcing bar hardware into drilled holes in solid (or hollow) concrete base materials. It won't shrink or sag, eliminating expansion forces and avoiding unwanted forces in the joint. It can be applied in wet or damp holes and can be used in areas with seismic concerns and severe weather conditions.

## Key Features & Benefits

- ▶ Won't shrink, avoiding unwanted forces in member
- ▶ For both solid and hollow base materials
- ▶ Non-sag
- ▶ Low odor
- ▶ Solvent-free, allowing for greater flexibility in applications
- ▶ Eliminates expansion forces –Allows use close to a free edge
- ▶ Not sensitive to UV light after cure
- ▶ Moisture insensitive before, during and after cure
  - Allows use in wet or damp holes
- ▶ Resists tensile and shear loads due to earthquake and wind
  - Allows use in areas with seismic concerns
- ▶ Weather-resistant –Can be used in locations subject to severe exterior weather conditions
- ▶ 8.5 oz (250 ml) and 20.5 oz. (600 ml) containers available
- ▶ Certified to conform to NSF/ANSI Standard 61 by WQA
- ▶ Meets ASTM C-881 and AASHTO M-235

## Applications

- ▶ Foundation Anchors
- ▶ Bonding Threaded Rod & Reinforcing Bar

## Storage

The material should be stored at 40° -95°F (5°-35°C). Shelf life of properly stored, unopened containers is 24 months from date of manufacturer.



8.5 fl.oz. ECT8F



20.5 fl.oz. ECT22F

<b>Health</b>	<b>3</b>
<b>Flammable</b>	<b>1</b>
<b>Reactive</b>	<b>2</b>



## Specifications, Listings and Approvals

### Properties:

- ASTM C-881/ AASHTO M-235, Types I, II\*, IV, V\* Grade 3, Classes B & C\*
  - Mix ratio – 1 part A to 1 part B by volume
  - Mixed color – gray
  - Consistency – non-sag gel
  - Gel Time – 60 gm mass - 6-8 minutes at 75°F (28°C) Initial Cure – 2 hours
  - Compressive Strength – ASTM D-695: 11,050 psi (76 MPa) at 7 days
  - Concrete Bond Strength – ASTM C-882: 2,900 psi (19.9 MPa), at 2 days 3,730 psi (26 MPa) at 14 days
  - Compressive Modulus – ASTM D-695: 316,100 psi, (2,180 MPa) Water Absorption - ASTM D-570 - 0.8%
- \* Except for minimum gel time due to fast set

**VOC:** Inject-TITE Standard-Set Formula has a VOC content of 0 g/L. Compliant with all US VOC regulations including Federal EPA, OTC, LADCO, SCAQMD & CARB.

## Installation Data

### Instructions

1. Select the proper drill bit. Using only a solid carbide-tipped drill bit that meet the ANSI B212.15 standard and a hammer drill, proceed to drill the hole perpendicular to the surface and do not allow it to wobble or to ream out the hole. Always wear safety glasses. Follow the drill manufacturer's instructions.
2. **Cleanliness of all components is very important** to the successful use of any adhesive system. Using clean dry oil-free compressed air or a vacuum, remove the bulk of the dust and debris from the bottom of the hole. Next — Using a brush that is at least as big as the hole in diameter (stiff nylon or wire) or a combination of multiple brushes that are together more than the hole diameter, brush the hole top to bottom and back, being very careful to clean the entire bore all the way to the bottom of the hole. This must be done at least 3 times. The idea is to clear the concrete of dust allowing a good flow of adhesive into the porosity of the concrete. Using clean dry oil-free compressed air (air nozzle and plastic tube for extension to the bottom of the hole would work well for this) blow out from the bottom up the dust that is brushed off of the walls of the hole. Repeated brushings will not significantly affect hole diameter.

Finally — take the brush and repeat the brushing/blowing procedure until no visible dust or debris is blown out of the hole. **Repeat no less than two more times.**

**If you do not follow these cleaning procedures,** you could significantly reduce or eliminate the holding capacity of this anchoring system.

3. For 8.5 oz. cartridges: Remove screw-top lid / cap and end plug from cartridge. Screw static mixing nozzle onto cartridge. Place assembled cartridge into the dispensing tool. For 20.5 oz. cartridges: Remove D-shaped plug from cartridge. Slide retaining nut over static mixer. Secure static mixer to cartridge by screwing retaining nut onto cartridge. Place assembled cartridge into the dispensing tool.
4. Make sure that adhesive is properly mixed (**uniform gray color**) when coming out of the end of the static mixing nozzle before filling any hole. This verification should be done on a piece of disposable material and not in the hole. Run a bead and check it to be sure.
5. **In Concrete:** Starting at the **BOTTOM** of the hole to avoid air pockets, inject Inject-TITE adhesive into the hole until it's 1/2 full while pulling static mixer out using constant uniform pressure.

**In Masonry:** Insert nylon or stainless steel screen into hole. Starting from the **BOTTOM** of the screen, inject Inject-TITE adhesive into the screen until it's 1/2 full while pulling static mixer out using constant uniform pressure.

**NOTE:** For both Concrete and Masonry: Dispense under constant uniform pressure. If dispensing is altered, re-establish uniform color prior to continuing. When using a hand dispensing tool, release pressure from tool by pressing thumb button at every pause in dispensing. Re-establish uniform color prior to continuing. Do not use adhesive with color streaks.

6. Slowly push anchor into the hole, rotating in a clockwise motion. See appropriate chart for minimum and full cure times. Anchors are to be undisturbed during the minimum cure time.

**NOTE: Always wear safety glasses.** Follow drill manufacturer's instructions. Use only solid carbide-tipped drill bits meeting ANSI B212.15 diameter standards.

**Important Information**

**Limitations**

- FOR INDUSTRIAL USE ONLY.
- Concrete or masonry surface must be frost free.
- Do not thin. Solvents will prevent proper cure.
- Minimum age of concrete must be 3 – 7 days, depending on curing and drying conditions.
- NTSB safety recommendations **prohibit** the use of adhesive anchors in sustained overhead load anchoring applications.

**Cautions**

- Irritant to skin and eyes. Avoid skin contact.
- Use of safety goggles and chemical-resistant gloves is recommended.
- Avoid breathing vapors. Use of a NIOSH/MSHA organic vapor respirator recommended if ventilation is inadequate. Fast-Set is a vapor barrier after cure.

**Skin Contact**

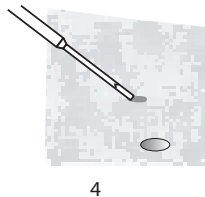
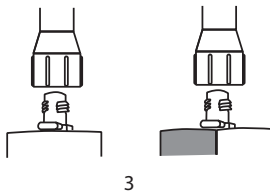
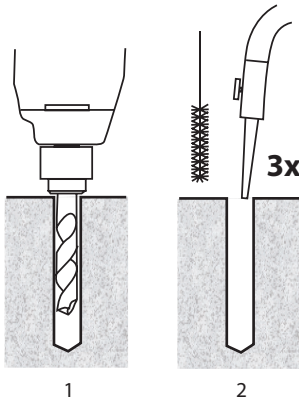
- Remove any contaminated clothing.
- Remove product immediately with a dry cloth or paper towel.
- Wash skin thoroughly with soap and water. Solvents should not be used as they carry irritant into the skin.

**Eye Contact**

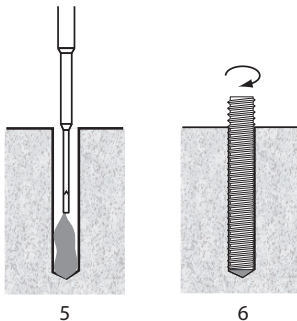
- Flush immediately with water for at least 15 minutes. Contact physician immediately. Respiratory Problems
- Remove person to fresh air.

**Cleanup**

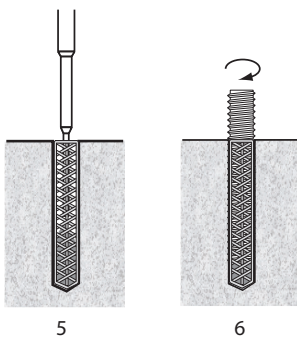
- Collect with absorbent materials. Flush area with water. Dispose of in accordance with local disposal regulations. Uncured material can be removed with Unitex Citrus Cleaner or Xylene. Cured material can only be removed mechanically.



**Concrete**



**Masonry**



## Estimating Guide

### Number of Holes Per Cartridge - Solid Concrete\*

Bolt Dia. (in.)	3/8		1/2		5/8		3/4		7/8		
Hole Size (in.)	7/16		9/16		3/4		7/8		1		
Cartridge Size	8.5 oz.	20.5 oz.	8.5 oz.	20.5 oz.	8.5 oz.	20.5 oz.	8.5 oz.	20.5 oz.	8.5 oz.	20.5 oz.	
Embedment Depth (in.)	3	49	128	35	91	14	47	14	37	12	31
	4	37	96	26	68	11	35	11	28	9	24
	5	30	77	21	55	9	28	9	23	7	19
	6	25	64	18	46	7	24	7	19	6	16
	7	21	5	15	39	6	20	6	16	5	12
	8	19	48	13	34	5	18	5	14	5	12
9	17	43	11	29	5	16	5	13	4	11	

\*The number of anchoring installations is based upon calculations of hole volumes using ANSI tolerance carbide tipped drill bits, the nominal areas of the reinforcing bars and the stress areas of the threaded rods. These estimates do not account for waste.

## Cure Times

Minimum Substrate Temp.	Gel Time	Cure Time	Minimum Cure Time
40°F (5°C)	55 min	48 hrs	24 hrs
65°F (18°C)	15 min	36 hrs	8 hrs
70°F (21°C)	9 min	24 hrs	2.5 hrs
80°F (27°C)	7 min.	12 hrs	2 hrs
100°F (38°C)	3 min	6 hrs	1 hrs

### NOTES:

1. Cure Time is time required before epoxy reaches ultimate strength. Minimum Cure Time is minimum time required before the design or allowable load may be applied.
2. Anchors are to be undisturbed during the minimum cure time.
3. Gel time = time limit for installation and positioning for anchor element.

## Resistance to Chemicals

Chemical	Chemical Tested	Resistant	Not Resistant
Alkalinize	Concrete Drilling Mud (10%) pH=12.6	*	
Base Material	Concrete Drilling Mud (10%) pH=13.2	*	
Concrete	Concrete Potash Solution (10%) pH=14.0	*	
Acid†	Acetic Acid (10%)		*
Acid†	Nitric Acid (10%)		*
Acid†	Hydrochloric Acid (10%) 3mo.		*
Acid†	Sulfuric Acid (10%)		*
Solvents	Benzyl Alcohol		*
Solvents	Ethanol		*
Solvents	Ethyl Acetate		*
Solvents	Methyl Ethyl Ketone (MEK)		*
Solvents	Trichlorethylene		*
Solvents	Xylene (mixture)	*	

Chemical	Chemical Tested	Resistant	Not Resistant
Chemicals Used on Jobsites	Concrete Plasticizer	*	
Chemicals Used on Jobsites	Diesel Oil	*	
Chemicals Used on Jobsites	Oil	*	
Chemicals Used on Jobsites	Petrol/gasoline	*	
Chemicals Used on Jobsites	Forming Oil (oil for form work)	*	
Environmental Chemicals	Salt Water	*	
Environmental Chemicals	De-mineralized water	*	
Environmental Chemicals	Salt spray tests	*	
Environmental Chemicals	SO2	*	
Environmental Chemicals	Environment/Weather	*	

† Concrete was dissolved by acid.

**Performance Data**

**Ultimate Loads (lbs.) - Threaded Rod in Stone Aggregate**

Rod Dia. (in.)	Drill Bit Dia. (in.)	Embed. Depth (in.)	Tension			Shear A-36 Rod
			2,500 psi	4,000 psi	5,500 psi	
3/8	7/16	3-3/8	7300	8250	9200	4500
	9/16	3-3/8	9560	•	•	•
	7/16	5- 5/8	10980	11360	11740	4500
1/2	9/16	4-1/2	10540	11730	12920	7720
	11/16	4-1/2	14640	•	•	•
	9/16	7-1/2	14660	17010	19360	7720
5/8	3/4	5-5/8	14800	18870	22940	12000
	7/8	5-5/8	23340	•	•	•
	3/4	9-3/8	21560	26260	30960	12000
3/4	7/8	6-3/4	22380	25870	29360	17440
	1	6-3/4	29850	34340	38360	•
	7/8	11-1/4	30320	34340	38360	17440
7/8	1	7-7/8	43280	•	•	23600
1	1-1/8	9	55650	•	•	26000
1-1/4	1-3/8	11-1/4	77860	•	•	48000

**Ultimate Loads (lbs.) - Reinforced Bar in Normal-Weight Concrete**

Rebar Size	Drill Bit Dia. (in.)	Embed. Depth (in.)	Tension		
			2,500 psi	4,000 psi	5,500 psi
#4	1/2	3-3/8	7080	9050	11020
#5	5/8	4-1/2	12300	14730	17160
#6	3/4	5-5/8	16000	18810	21620
#8	1	6-3/4	39035	•	•
#9	1-1/8	7-7/8	36740	•	•
#10	1-1/4	9	42670	•	•

**Ultimate Loads (lbs.) - Threaded Rod in Grout-Filled Block**

Rod Dia. (in.)	Drill Bit Dia. (in.)	Embed. Depth (in.)	Tension	Shear
3/8	1/2	3-1/2	1500	3000
1/2	5/8	4	2500	4000
5/8	3/4	4-1/2	3000	5000
3/4	7/8	6	4000	6000

\*Allowable load capacities are calculated using an applied safety factor of 4:1

**Warning:** NTSB safety recommendations prohibit the use of adhesive anchors in sustained overhead load anchoring applications

## Edge Distance & Spacing

### Allowable Spacing & Edge Distance

	Distance for Full Anchor Capacity (Critical Distance)	Distance for Reduced Anchor Capacity (Minimum Distance)	Reduction Factor
Spacing Between Anchors	24D	8D	0.9
Edge Distance – Tension Loads	12D	See below	See below
Edge Distance – Shear Loads Threaded Rod	12D	4D	.21
Edge Distance – Shear Loads Rebar	16D	4D	.15

### Minimum Edge Dist. for Tension Loads

#### Normal-Weight Concrete

Stud Size (in.)	Minimum Edge Distance (in)	Reduction Factor
3/8	1-1/2	0.7
1/2	1-3/4	0.7
5/8	1-3/4	0.7
3/4	1-3/4	0.7
7/8	3-1/2	0.7
1	4	0.7
1-1/4	5	0.7

#### NOTES:

1. The listed values are the minimum distances required to obtain the load values in the tables above. D = anchor diameter. When adjacent anchors are different sizes or embedments, use the largest value for D.
2. The listed values are the minimum distances at which the anchor can be installed when load values are adjusted in accordance with reduction factor.
3. Load values in the table are multiplied by the reduction factor when anchors are installed at the minimum spacing listed. Use linear interpolation for spacing between critical and minimum distances. Multiple reduction factors for more than one spacing or edge distance are calculated separately and multiplied.

**Order Information**



Inject-TITE FS Fast-Set Formula			
Catalog No.	Description	Box Quantity	Carton Quantity
ECT8F	8.5 fl. oz. (250 ml) Cartridge	1	12
ECT22F	20.5 fl. oz. (600 ml) Cartridge	1	12

\* Each adhesive tube is supplied with one nozzle

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