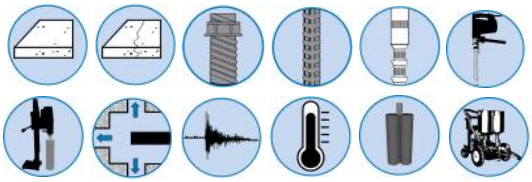
4070 Structural Adhesive

Data Sheet



Product Description

Xtreme 4070 is a code compliant, two-component, 1:1 mix ratio by volume, high performance epoxy anchoring system approved for use in cartridges and in bulk with threaded rod, CFRP anchoring, and reinforcing bar for cracked and un-cracked concrete conditions, and internally threaded inserts in un-cracked concrete in accordance with ACI 355.4, and ICC-ESR-3815 (when used with Fortress vertical wall straps for CMU block wall reinforcement). It has an extended application temperature range between 43 °F and 110 °F (6 °C and 43 °C) for structural applications per ICC-ES ESR-3815 and between 38 °F and 125 °F (3 °C and 52 °C) for transportation infrastructure applications to AASHTO M235 & ASTM C881.

General Usage & Applications

- Anchoring threaded rod and reinforcing bar (rebar), and CFRP anchors into cracked or un-cracked concrete using hammer drill or un-cracked concrete using core drill
- Near surface mount installation of CFRP crack repair stitches
- Suitable for dry, water saturated, water-filled & submerged (underwater) conditions using threaded rod or rebar
- Vertical down, horizontal, upwardly inclined and overhead installations

Advantages & Features

- ICC-ESR-3815 for vertical CMU block reinforcement with Fortress Carbon Fiber / Kevlar straps
- Building code compliant in cartridge and bulk dispensing systems, IBC/IRC: 2018, 2015, 2012 & 2009
- City of Los Angeles Code (LABC/LARC) compliant: 2017
- Florida Building Code (FBC) compliant: 2017 & 2014
- Abu Dhabi International Building Code (ADIBC) compliant: 2013
- ICC-ES AC308 and ACI 355.4 assessed for resisting short term loading conditions up to 205 °F (96 °C)
- UL Certified – Drinking Water System Components to NSF/ANSI 61 & Lead Free to NSF/ANSI 372
- LEED® EQc4.1 Credit: Low-Emitting materials; LEED (Leadership in Energy and Environmental Design) is the most widely used green building rating system in the world
- Suitable for core drilled installations in dry or water saturated concrete
- Multiple anchor types: threaded rod, rebar & internally threaded inserts
- OSHA Table 1 compliant drilling/cleaning method using Milwaukee Tool hollow vacuum bit system
- Qualified for Seismic Design Categories A through F
- Nationwide DOT approved or pending
- Made in the USA in accordance with CFR 49 section 50101
- Acceptable for use in USDA inspected facilities
- Compatible with ATC's free Pro Anchor Design software

Code Compliant:

ICC-ES ESR-3815 with Fortress Carbon Fiber'Kevlar Straps
IBC/IRC 2018, 2015, 2012, & 2009
City of Los Angelas 2017
Florida Building Code 2017 & 2014
Abu Dhabi International Building Code 2013
Drinking Water System Components NSF/ANSI 61 & 372
AASHTO M235 / ASTM C881-15
Type I, II, IV & V Grade 3 Class A, B, & C
Department of Transportation (DOT)
Approved of Pending Nationwide

Availability: Xtreme Epoxy and Fortress Stabilization products are available through approved contractors and distributors. Please contact Fortress for a distributor near you or visit www.FortressStabilization.com

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

Storage & Shelf Life: 24 months when stored in unopened containers in dry and dark conditions. Store between 40 °F (4 °C) and 95 °F (35 °C).

Installation & Estimation: Manufacturer's Printed Installation Instructions (MPII) are available within this Technical Data Sheet (TDS). Due to occasional updates and revisions, always verify the most current MPII usage. In order to achieve maximum results, proper installation is imperative. An estimating guide for product usage may be found at www.atcepoxy.com.

Clean-Up: Clean uncured materials from tools and equipment with mild solvents. Cured material can only be removed mechanically.

Limitations & Warnings:

- Do not thin with solvents, as this will prevent cure
- For anchoring applications, concrete should be a minimum of 21 days old prior to anchor installation per ACI 355.4
- Bulk versions of Xtreme 4070 adhesive cannot be mixed by hand and must only be mixed using an automatic proportioning plural component pump (see MPII / IC for details)

Safety: Please refer to the Safety Data Sheet (SDS) for Xtreme 4070. Call Fortress Stabilization for more information at 1-800-207-6204.

Specification: Anchoring adhesive shall be a two component, 1:1 ratio by volume, epoxy anchoring system supplied in pre-measured cartridges or bulk. Adhesive must meet the requirements of ICC-ES AC308, ACI 355.4 and ASTM C881 specification for Type I, II, IV and V, Grade 3 Class A, B & C. Adhesive must have a compressive yield strength of 14,480 psi (99.8 MPa) at 75 °F (24 °C) after a 7 day cure per ASTM D695. Adhesive shall be Xtreme 4070 adhesive from Fortress Stabilization Systems, Holland, Michigan Anchors shall be installed per the Manufacturer's Printed Installation Instructions (MPII) for ULTRABOND HS-1CC anchoring system.

Revision 4.5

4070 Structural Adhesive

MATERIAL SPECIFICATION

TABLE 4: Xtreme 4070 performance to **ASTM C881-15** [1,2,3]

Property	Cure Time	ASTM Standard	Units	Sample Conditioning Temperature				
				Class A	Class B	Optional	Optional	Class C
				38 °F (3 °C)	50 °F (10 °C)	75 °F (24 °C)	110 °F (43 °C)	125 °F (52 °C)
Gel Time - 60 Gram Mass	----	C881	min	14	13	10	2[4]	2[4]
Consistency or Viscosity	----	C881	----	Non-sag				
Compressive Yield Strength	7 day	D695	psi (MPa)	12,980 (89.5)	13,280 (91.6)	14,480 (99.8)	14,500 (100.0)	13,430 (92.6)
Compressive Modulus	7 day	D695	psi (MPa)	534,900 (3,688)	506,100 (3,489)	475,900 (3,281)	599,600 (4,134)	585,600 (4,038)
Bond Strength Hardened to Hardened Concrete	2 day	C882	psi (MPa)	2,700 (18.6)	2,770 (19.1)	2,780 (19.2)	3,150 (21.7)	2,050 (14.1)
Bond Strength Hardened to Hardened Concrete	14 day	C882	psi (MPa)	2,860 (19.7)	2,950 (20.3)	3,110 (21.4)	3,050 (21.0)	2,080 (14.3)
Bond Strength Fresh to Hardened Concrete	14 day	C882	psi (MPa)	2,730 (18.8)				
Tensile Strength[5]	7 day	D638	psi (MPa)	6,780 (46.7)				
Tensile Elongation[5]	7 day	D638	%	1.0				
Heat Deflection Temperature	7 day	D648	°F (°C)	148 (64)				
Water Absorption	14 day	D570	%	0.02				
Linear Coefficient of Shrinkage	----	D2566	%	0.0003				

1. Product testing results based on representative lot(s). Average results will vary according to the tolerances of the given property.
2. Full cure time 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. Gel time may be lower than the minimum required for ASTM C881.
5. Optional testing for ASTM C881 Grade 3.

TABLE 5: Xtreme 4070 NSF/ANSI Certifications [1]

ANSI Certification	Description	Application	Water Contact Temperature	Anchor Sizes Installed in Concrete
NSF 61	Drinking Water System Components - Health Effects	Joining and Sealing Materials	Commercial Hot 180 ± 4 °F (82 ± 2 °C)	Threaded Rod and Rebar ≤ 1 1/4 in. Diameter
NSF 372[2]	Lead Free, U.S. Safe Drinking Water Act			

1. Xtreme 4070 is certified as a joining and sealing material. Mix Ratio: Part A (Resin): Part B (Hardener) = 1:1 by volume. Application method: Dispensing mixing nozzle system. Final Cure Time: 24 hours at 75 °F (24 °C).
2. Xtreme 4070 is certified to NSF/ANSI 372 and conforms to the lead content requirements for "lead free" plumbing as defined by California, Louisiana, Maryland and Vermont state law, and the U.S. Safe Drinking Water Act.

TABLE 6: Xtreme 4070 **Cure Schedule** [1, 2, 3]

Base Material Temperature °F (°C)	Working Time min	Full Cure Time hr
43 (6)	45	144
50 (10)	35	72
75 (24)	16	7
90 (32)	12	4
110 (43)	3	2

1. Working and full cure times are approximate, may be linearly interpolated between listed temperatures and are based on cartridge/nozzle system performance.
2. Application Temperature: Substrate and ambient air temperature should be between 43 - 110 °F (6 - 43 °C) for applications requiring IBC/IRC code compliance.
3. 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.