

**PRODUCT DESCRIPTION.....**

USP CIA-EA is a high strength, 2-component, 100% solids, and moisture insensitive structural adhesive. It is ideally suited for a wide range of applications including anchoring and doweling into concrete and masonry substrates. CIA-EA is composed of a special proprietary blend of solvent free epoxy acrylate resins and is backed by extensive research and testing. It is formulated to achieve fast cure times even at low temperatures while maintaining excellent flowability.

**GENERAL USES.....**

CIA-EA is ideally suited for a wide range of applications requiring strength and durability including:

- High-strength anchoring of threaded rod, reinforcing bar, and bolts into concrete and masonry.
- Anchoring for steel bracing and seismic reinforcement projects.
- Attachments for support brackets and vibrating equipment.
- Hollow brick and block anchoring with screen tubes.
- Water and wastewater treatment plant projects.
- Tilt-up wall braces and expansion joint anchors.
- Environmental and worker conscience projects.
- Damp, wet, and underwater applications.
- Anchoring for transportation projects.
- Cold temperature applications.

**FEATURES.....**

- Styrene, solvent, cement and water free.
- Moisture insensitive; can be used underwater.
- No VOC's, non-toxic, non-flammable, non-shrink, and odorless.
- Fast curing and flowable adhesive even at very low temperatures.
- Wide temperature application range: 5°F (-15°C) to 104°F (40°C).
- Economical and labor saving, no setting tools required.
- Pre-packaged in easy to use and reliable systems.
- Excellent chemical resistance properties.
- High strength, aggressive bonding formulation.
- Very high ultimate load values.

**MATERIAL STORAGE.....**

Store material on pallets or shelves in a warehouse in temperatures above 40°F and below 77° F.

**SHELF LIFE.....** 1 year in properly stored, unopened containers. Store away from heat or direct sunlight.

**VISCOSITY.....** Thixotropic soft paste when mixed.

**COLOR.....**

Component (Resin)	Beige
Component (Hardener)	White
Mixed	Beige

**PRODUCT CURING SCHEDULE.....**

Temperature °F	Working Time	Setting Time
5°	12 hr	36 hr
23°	2.5 hr	12 hr
32°	45 mn	6 hr
41°	20 mn	2 hr
50°	15 mn	70 mn
68°	5 mn	30 mn
86°	3 mn	25 mn
95°	2 mn	20 mn

Working time is the period of time after mixing that the material can be used and the anchor readjusted without the risk of reducing the ultimate performance.

Setting time is the length of time that is needed to pass until a design load can be applied to the anchor. During this time the anchor should not be disturbed.

The material will harden and cure at temperatures as low as 5°F (-15°C). Pressure necessary to dispense the product will increase slightly if cartridges are left to cool below the freezing point.

**ENGINEERING DATA AND TECHNICAL SPECIFICATIONS.....**

Rod/Bar Diameter (in.)	Diameter of Hole (in.)	4000 psi Concrete			6500 psi Concrete		
		Embedment Depth (in.)	Allowable Load (lbs.)	Ultimate Load (lbs.)	Length of Embedment	Allowable Load (lbs.)	Ultimate Load (lbs.)
3/8	1/2	4	1,526	6,105	4	2,498	9,990
		11-1/2	4,856	19,425	7	4,856	19,425
1/2	5/8	4-3/4	2,359	9,435	4-3/4	3,469	13,875
		14	6,944	44,400	8-3/4	6,944	44,400
5/8	3/4	6-1/4	3,885	24,864	6-1/4	6,244	24,975
		20	12,071	48,285	12-1/2	11,794	47,175
3/4	1	8	5,411	21,645	8	9,713	38,850
		27-1/2	18,731	74,925	15-3/4	18,731	74,925
1	1-1/4	9-3/4	8,048	32,190	9-3/4	12,488	49,950
		24-1/2	20,119	80,475	23	29,138	116,550
1-1/4	1-1/2	12-1/2	12,765	51,060	12-1/2	20,119	80,475
		31-1/2	31,913	127,650	30-1/2	48,563	194,250

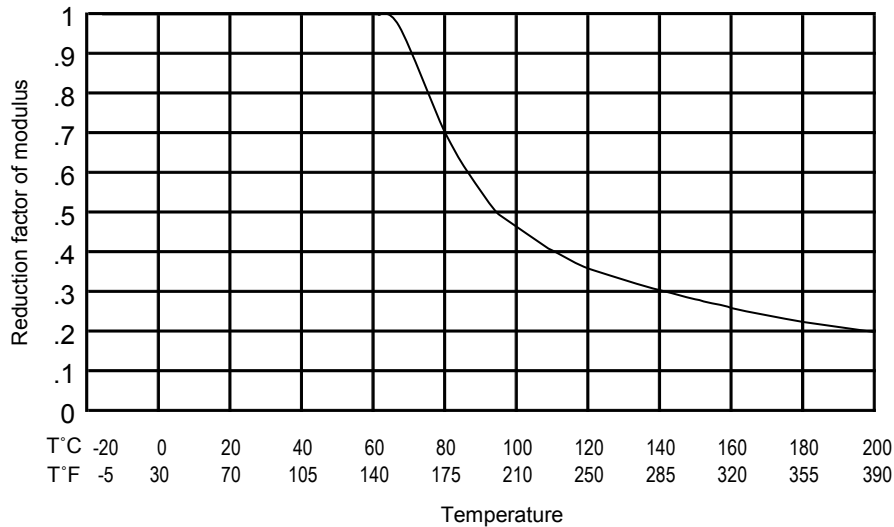
Load values are listed for 4000 psi and 6500 psi concrete. Tabulated ultimate loads are maximum loads based on bond strength. Ultimate bond strength values must not be greater than that of the chosen steel strength. In such a case, the ultimate load used must be the lesser of the two.

General industry practice for adhesive anchors is to apply a safety factor of 4:1 to obtain design loads. A column has been provided above listing allowable values. It is, however, the responsibility of the user to apply the correct factor of safety for the particular application.

**SUGGESTED SPECIFICATIONS.....**

Anchoring injection system shall be CIA-EA as manufactured by USP Structural Connectors in Rancho Cucamonga, CA.

**EFFECTS OF TEMPERATURE ON CIA-EA.....**



### HEAT STABILITY.....

Tests have been made to evaluate temperature resistance of anchors using CIA-EA systems. Engineers and designers need to be aware of the stability of the adhesive in case of a fire event within a building: Results are extremely positive.

When subjected to high temperature such as 280° F for 24 hours, anchors show no creeping under a static load exceeding 1.5 tons (3300 lbs.). Tests were performed in a block of solid material with a steel rod with a diameter of 12mm (0.5 in) inserted 12mm (0.5 in). A special spring loading system was utilized to apply a constant load. Once the specimen had cooled down, the subsequent testing and extraction of the rod revealed that full strength was regained.

The conclusion drawn from the testing illustrated that in case of a fire, the anchor will last longer than that of the structure itself and that such anchoring can withstand excessive heat during a long period of time and still retain its original properties.

### CHEMICAL RESISTANCE OF CIA-EA.....

Tests have been made to evaluate chemical resistance of anchors using the CIA-EA systems. Conclusions are such anchoring can withstand contact with the following aggressive liquids without losing its original properties.

Products	Long Term Immersion	Temporary Immersion	Short Term Immersion
Fresh Water	X		
Sea Water	X		
Hot Water (140°F)	X		
Petrol	X		
Jet Fuel (Kerosene)	X		
Gasoline	X		
Methanol		X	
Ketone		X	
Soda (50%)		X	
Chlorhydric Acid (20%)		X	
Sulfuric Acid (5%)			X
Citric Acid (30%)		X	
Chlorinated Water	X		
White Spirit		X	

### HEALTH & SAFETY.....

CIA-EA has been formulated with special attention to reduce all problems involved with handling of resins: CIA-EA does not contain any Organic Volatile Compounds (VOC's) which is inclusive of styrenes, reactive solvents, etc. The material is not considered flammable. CIA-EA is not toxic as it uses low activity molecules. The material is only classified as an "irritant" to skin and eyes. For further details, please consult the MSDS.

### PRECAUTIONS.....

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Always use and wear protective clothing, gloves, and safety glasses when handling this and any other chemical product. Read warning notes on product packages and refer to Material Safety Data Sheet (MSDS) prior to use.

**WARRANTY.....**

United Steel Products Company warrants its products to be free from defects in material and workmanship. Said products are further warranted as to adequacy of design, provided products are used in strict accordance with United Steel Products Company's current published design limits and are installed in a workmanlike manner. (Said warranties do not apply in the event products are cut, notched, welded, drilled or in any way altered). No warranty applies if deterioration occurs due to environmental conditions. United Steel Products Company's obligations under this warranty shall be limited to the replacement or repair of those products demonstrated to be defective. Such remedy shall constitute Customer's sole and exclusive remedy and Customer hereby agrees that no other remedy (including, but not limited to claims for INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES, OR ANY CAUSE, LOSS, ACTION, CLAIM OR DAMAGE, INCLUDING LOSS OF TIME, WHATSOEVER, OR INJURY TO PERSON OR PROPERTY OR ANY OTHER CONSEQUENTIAL DAMAGE OR INCIDENTAL OR ECONOMIC LOSS) shall be available to Customer whether said claims be asserted on the basis of warranty, negligence, strict liability or otherwise. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL SUCH OTHER WARRANTIES BEING HEREBY EXPRESSLY EXCLUDED.