

# CONCRESlVE<sup>®</sup> 1450i

## High performance styrene free epoxyacrylate based fixing compound

### Description

CONCRESlVE<sup>®</sup> 1450i is a 2 component advanced pure epoxy fixing & anchoring mortar. Supplied in a self mixing cartridge CONCRESlVE<sup>®</sup> 1450i combines predictable high performance with safety & application convenience.

### Primary uses

Heavy duty & critical anchoring such as rebars & threaded anchor rods/bolts in rock & concrete and reinforcing dowel bars

Used in wet environment, at low to very low temperatures & wherever solvents or styrene are unacceptable

Used in high temperature applications

Anchoring with sleeves in hollow brick or concrete  
Specified fixing media for Watson Bowman Acme joints & neoprene ancillaries

### Advantages

- Solvent free
- Styrene free
- Non flammable (no methyl-methacrylate)
- Rapid curing – cures below 0°C (when freezing)
- Conforms with French norms NF P18-831 & NF P18-836 (for rebars)
- Suitable for wet environment
- Used in diamond drilled holes
- Virtually no wastage

### Packaging

Two-component cartridges: 400 ml side by side cartridges.

### \*Typical properties

Resin	Beige
Hardener	White or Black
Mixed product	Beige or grey thixotropic soft paste
Mixing ratio by volume	1:1

### Setting times

Temp	Working Time	Curing time
-5°	120 min	7 h
0°C	60 min	4 h
5°C	20 min	120 min
20°C	7 min	30 min
30°C	4 min	25 min
40°C	2 min	15 min

### Application procedures

1. Drill the correct size hole in the concrete base material.
2. Clean the whole thoroughly.
3. Fix the mixer nozzle to the front end of the resin cartridge.
4. Fit the resin cartridge into the special dispenser gun and apply the correct number of trigger pulls starting at the far side of the drilled hole.
5. Insert the rebar or threaded rod into the hole.
6. For threaded rods, apply the correct tightening torque only after the curing time specified for the resin.

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## Working Load in Concrete C35/45 – Steel Rod

Steel Rod 8.8	M8	M10	M12	M14	M16	M20
Ø of insert (mm)	8.0	10.0	12.0	14.0	16.0	20.0
Ø of hole D (mm)	10.0	12.0	14.0	16.0	20.0	25.0
Embedment depth (mm)	80.0	100.0	120.0	140.0	160.0	200.0
Ultimate Tensile Load value in kN	21.2	29.3	37.5	45.1	62.9	77.3
Ultimate Shear Load value in KN	14	18.3	31.2	35.0	43.5	71.3
Tensile Working Load value in kN	4.4	6.2	7.3	9.1	12.8	18.5
Shear Working Load value in KN	5.0	6.7	10.2	12.8	15.0	25.4
Tightening torque in Nm	12.0	26.0	44.0	75.0	85.0	115.0
Consumption Volume in number of trigger pulls	1	2	2	3	4	5

One 400ml cartridge has approximately 50 pulls on the trigger of the dispenser

## Post-installed Rebars

The test results per NF Norms P 18-831 & NF P 18-836 have confirmed that bonding between resin & the concrete is equal to the bonding a steel bar of HA quality (high adherence) in the concrete i.e. if the concrete is poured directly around the rebar, it is not more effective than using resin.

## Rebar HA Fe E 500

### Concrete C35/45

Re = 500 N/mm<sup>2</sup> (yield point)

Rm = 550 N/mm<sup>2</sup> (tensile strength)

Rebar Diameter (mm)	8.0	10.0	12.0	14.0	16.0	20.0	25	32	40
Drill bit diameter (mm)	10.0	14.0	16.0	18.0	20.0	25.0	30.0	40.0	48.0
Section (mm <sup>2</sup> )	50.3	78.5	113.0	154.0	201.0	314.0	490.0	803.0	1256.0
Ultimate Tensile Load (kN)	27.0	43	62.0	84.0	110.0	172.0	234.0	309.0	430.0
Maximum embedment depth									
Ultimate Shear Load (kN)	12.6	16.5	27.3	35.9	41.6	66.7	102.9	168.6	263.7
Maximum embedment depth									
Consumption Volume in number of trigger pulls on dispenser for minimum embedment	2	3	3	3	4	5	7	9	12

One 400ml cartridge has approximately 50 pulls on the trigger of the dispenser

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## Working Load in Concrete

### Resin CONCRESI<sup>®</sup> 1450i – rebar HA Fe E500

Ø of rebar (mm)	Ø of hole (mm)	Concrete C25/30				Concrete C35/45			
		Length of embedment (mm)		Tensile working load (kN)		Length of embedment (mm)		Tensile working load (kN)	
		L Min	L Max	F Min	F Max	L Min	L Max	F Min	F Max
8	10	80	285	4	16	80	222	5	16
10	14	100	357	7	25	100	277	9	25
12	16	120	428	10	36	120	333	12	36
14	18	140	510	13	50	140	396	17	50
16	20	160	580	17	65	160	451	23	65
20	25	200	728	28	102	200	566	36	102
25	30	250	805	45	146	250	683	53	146
32	40	320	910	66	193	320	803	80	193
40	48	400	1100	91	269	400	930	123	269

For different concrete strengths, multiply the working loads by a factor which is  $\mu = \text{working load} \times \{1 + (\text{Actual concrete strength} - 40) / 50\}$

### Reduction factors for edge distance $\delta_1$

Edge distance in terms of embedment depth L	0.6L	0.7L	0.8L	0.9L	1.0L	1.1L	1.2L
$\delta_1$	0.48	0.55	0.65	0.7	0.8	0.9	1.0

### Reduction factors for anchor spacing (rebar spacing) $\delta_2$

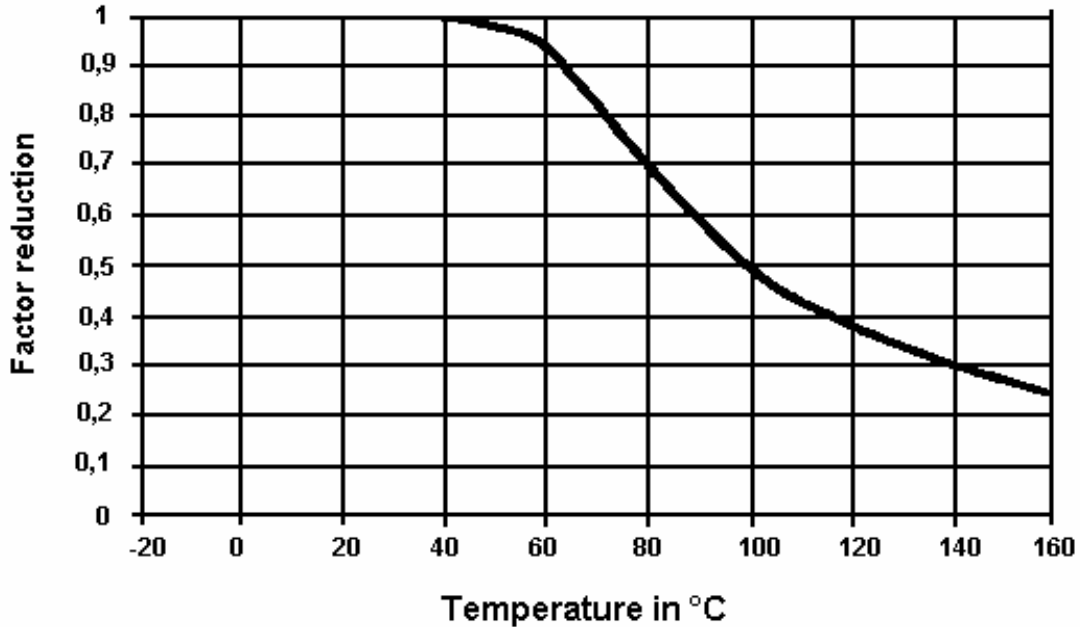
Anchor (rebar) spacing in terms of embedment depth L	0.5L	0.6L	0.7L	0.8L	0.9L
$\delta_2$	0.8	0.85	0.9	0.95	1.0

Effective working load =  $\delta_1 \times \delta_2 \times$  recommended working load from the table

Reduction factors are applicable to all sizes since they are expressed in terms of embedment depth which varies from size to size.

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## Effects of Temperature on CONCRESI<sup>®</sup> 1450i



Reduction factor to be applied on the working load beyond 40°C. **CONCRESI<sup>®</sup> 1450i** has proved to be fully effective even when tested at 150°C.

**CONCRESI<sup>®</sup> 1450i** is in conformity to the European Norm EN 10080 and has European Technical Approval ETAG 001 Part 5.

## Chemical resistance of CONCRESI<sup>®</sup> 1450i

Products	Long term immersion	Temporary immersion	Short term immersion
Fresh water	✓		
Sea water	✓		
Hot water < à 60°C	✓		
Petrol	✓		
Jet fuel (kerosene)	✓		
Gasoil	✓		
Methanol		✓	
Ketone		✓	
Soda (50%)		✓	
Chlorhydric acid (20°C)		✓	
Sulfuric acid (20°C)			✓
Citric acid	✓		
Chlorinated water			
White spirit		✓	

Tests have been made to evaluate chemical resistance of anchors using **CONCRESI<sup>®</sup> 1450i**.

The conclusions show that anchoring can be in contact with the above listed aggressive liquids without losing its original properties. Once fully cured the resin is completely free of any toxic risk to the environment & or in contact with drinking water.



The Chemical Company

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## Safety precautions

As with all chemical products, care should be taken during use & storage to avoid contact with eyes, mouth, skin & foodstuffs. Treat splashes to eyes & skin immediately. If accidentally ingested, seek medical attention. Reseal containers after use. Use in well ventilated areas & avoid inhalation.

## Storage

Store under cover out of direct sunlight & protect from extremes of temperature. In tropical climates the product must be stored in an air-conditioned environment. Shelf life for this product is 12 months from date of manufacture when stored as above.

## Note

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local BASF representative.

BASF reserves the right to have the true cause of any difficulty determined by accepted test methods.

## Quality and care

All products originating from BASF's Dubai, UAE facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and OHSAS 18001.

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\* Properties listed are based on laboratory controlled tests.

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