IPA SYSTEMS

IPANOL ANCHORING GEL

General Purpose, Non-Sag, Injectable Anchoring Gel

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QUALITY PRODUCTS FOR THE CONCRETE /MASONRY REPAIR INDUSTRY

Description

Ipanol Anchoring Gel is a solvent free, 100% solids, two component, moisture insensitive, high modulus, structural anchoring gel. It's non-abrasive consistency provides a smooth paste adhesive that is excellent for pumps or automated pressure injection equipment.

Where to Use

Ipanol Anchoring Gel is ideal for mechanically grouting dowels, pins and bolts. Other applications include: Cap sealing and port setting. Grouting of large cracks as well as pressure injection. Bonding irregular surfaces and as a pick proof sealant.

Advantages

- Made in America
- Moisture insensitive before, during and after cure.
- Freeze thaw resistant.
- Easy to mix: 1:1 mixing ratio
- Low odor.
- Suitable for use in wet or damp holes.
- Fast setting and strength-producing adhesive
- Ideal for close to the edge and shallow applications
- For use in solid and hollow masonry

Packaging

8.45 oz (250 ml) single cartridges, with nozzles and extension: 12 per case
20 fl. Oz (600ml) dual cartridge with nozzles: 12 per case
Shelf Life: two year in unopened containers. Store in a cool dry place out of direct sunlight. Keep from freezing.
Store material at 40° - 95° (5° - 35°C) Precondition material to 73°F (23°C) before using.
For 70F°(21°C) and lower temperatures, condition cartridges slowly from 65°F to 85°F(18° to 30°C) for easier gunning.

Technical Data

Gel Time (60 g) :	6 - 8 minutes	
Cure time at 70°F (21°C)	2.5 hrs	
* Cure time will depend on temperature and mass of epoxy. Cap Seal must be fully cured prior to injection		
Tensile Strength:	D-638	8,200 psi
Elongation at break:	D-638	1.2%
Compressive Strength:	C-695	12,400 psi
Bond Strength: (2 day cure)	C-882	2,200
(14 day cure)	C-882	4,100 psi
Viscosity/ Consistency:	1/4" non-sag	
Absorption:	D-570	.12%
Linear Coefficient of Shrinkage	D-2566	.0014
Heat Deflection Temperature		130.4F° (54.7°C)

COMPLIANCES

Ipanol Anchoring Gel: ASTM-C-881: Types I, II*, IV, V*;Grade 3; Classes A, B, & C *Except Gel Time
V.O.C. Compliant
USDA specifications for use in food processing areas
ICC-ES Report ESR-2621 per AC308

Surface Prep

Substrate must be cleaned of any film, scale, loose material, oils, grease and any other foreign material that will prohibit bond. Surface preparation must be achieved by mechanical means and methods. Sandblasting and/or other approved mechanical methods.

Mixing

Ipanol Anchoring Gel is dispensed from cartridges eliminating mixing and measuring. Remove D plugs from small end of cartridge, insert cartridge into a suitable gun and purge the cartridge until a consistent distribution of the two components is achieved. Secure static mixer to cartridge by screwing the nozzle onto the cartridge. The static mixer tip has notches at the end. They me be cut back for even easier gunning. Extrude epoxy until a uniform grey color is achieved. Do not use epoxy with color streaks. Dispense under a constant uniform pressure. If dispensing is altered, re-establish a uniform grey color prior to continuing. When using a handgun, release pressure from gun by pressing thumb button at every pause in dispensing, otherwise, re-establish uniform grey color prior to continuing.

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QUALITY PRODUCTS FOR THE CONCRETE /MASONRY REPAIR INDUSTRY

Application

TO ANCHOR BOLTS, DOWELS, & PINS:
Step 1. Drill holes to proper diameter and length.
Step 2. Blow concrete dust from hole with oil-free compressed air from back forward.
Step 3. Clean holes with a nylon brush.
Step 3. Blow concrete dust from hole with oil-free compressed air from back forward.
Step 4. After uniform color is achieved, static mixer should be placed in back of hole. Start extruding epoxy while pulling static mixer out, filling hole 1/2 full. rotate the bolt slightly as it is inserted to the back of the hole. Refer to tables for annular space, embedment depth, and edge distances.

TO SET PORTS & CAPSEAL CRACKS: Dab a small amount of epoxy to the back of a port and carefully center port over the crack. A centering nail may be helpful. Do not apply so much epoxy to back of port that it could close off the hole. After setting port, carefully butter the shoulder of the port and extend epoxy to 1/2in / 1.28 cm on either side of the crack. Continue placement of epoxy by buttering crack between ports. To avoid leaks under pressure, the epoxy should be applied to approx. 1/4in / .64cm. thick. Do not place epoxy once it starts curing or getting hot or sticky, as this will compromise cap seal and cause leaking. Once epoxy is placed, it should not be disturbed during the curing process. Cure time depends on air temperature and mass of epoxy. Normally a minimum of 2 hrs is necessary for Ipanol; Anchoring Gel to fully cure at 73° ± 2°F / 23°C. Cap seal must be fully cured prior to injection.
TO BOND IRREGULAR SURFACES: Apply the mixed Ipanol Anchoring Gel to the prepared substrates. Work into the substrate for positive adhesion. Secure or clamp the bonded surfaces firmly into place until the epoxy has cured. Glue line should not exceed 1/8 in / .32 cm.

Limitations

- Minimum material, surface and ambient temperature must be 45°F and rising
- Minimum age of concrete must be 3 to 7 days, depending on curing and drying conditions
- Do not thin; solvents will prevent proper cure.
- Do not allow mixed epoxy to reside in static mixing head or mixer for more than 5 minutes or gelation and blockage may result.
- Ipanol Anchoring Gel is a vapor barrier after cure.

Caution

FOR INDUSTRIAL USE ONLY:
• Component A – Irritant
• Component B – Corrosive
• Product is a strong sensitizer. Use of safety goggles and chemical resistant gloves are recommended.
• Use of a NIOSH/MSHA organic vapor respirator recommended if ventilation is inadequate.
• Avoid breathing vapors.
• Avoid skin contact.

FIRST AID
EYE CONTACT: Flush immediately with water for at least 15 minutes.
Contact physician immediately.
RESPIRATORY PROBLEMS: Remove person to fresh air.
SKIN CONTACT: remove any contaminated clothing. Remove epoxy immediately with a dry cloth or paper towel.
Solvents should ***not*** be used as they carry the irritant into the skin. Wash skin thoroughly with soap and water.
CURED EPOXY RESINS ARE INNOCUOUS.

Clean-up

Uncured material can be removed with a citrus cleaner or other approved solvent. Collect with absorbent material. Flush area with water. Dispose of in accordance with local, state, and federal disposal regulations. Cured material can only be removed mechanically. **See MSDS for additional precautionary information and health hazard data.**

Warranty

This product is warranted and guaranteed to be of good quality. Manufacturer, as its sole and exclusive liability hereunder, will replace material if proved defective. This warranty and guarantee are expressly in lieu of all others, express or implied, including any implied warranty of merchantability or fitness for a particular purpose and may not be extended by representatives or any persons, written sales information, or drawing in any manner whatsoever. While the manufacturer recommends uses for the product based on tests believed reliable, no warranties, express or implied, or guarantee can be given as to particular methods of use or application, nor can performance be warranted, expressly or impliedly, or guaranteed under special conditions. Distributors, salesperson or company representatives are not authorized to extend or vary any warranties or guarantees beyond those outlined herein nor may the manufacturer's or seller's limitation of liability be waived or altered in any manner whatsoever.

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(A.) ALLOWABLE TENSION VALUES-THREADED ROD IN NORMAL WEIGHT CONCRETE*

ANCHOR DIAMTER	BIT DIAMETER	EMBEDMENT	ALLOWABLE BOND STRENGTH (lbf) CONCRETE STRENGTH (f'c				ALLOWABLE STEEL STRENGTH (lbf)		
(in)	(in)	(in)	2000psi	2500psi	4000psi	5500psi	A36/A307	A193 B7	F593a/593e
3/8	7/16	3 3/8	1635	1825	2065	2300	2110	4550	3630
3/8	7/16	5 5/8	2455	2745	2840	2935	2110	4550	3630
1/2	9/16	4 ½	2360	2635	2935	3230	3750	8100	6470
1/2	9/16	7 ½	3280	3665	4255	4840	3750	8100	6470
5/8	3/4	5 5/8	3310	3700	4720	5735	5870	12655	10130
5/8	3/4	9 3/8	4820	5390	6565	7740	5870	12655	10130
3/4	7/8	6 ¾	5005	5595	6470	7340	8460	18220	12400
3/4	7/8	11 ¼	6780	7580	8585	9590	8460	18220	12400
7/8	1	7 7/8	9675	10820	10820	10820	11500	24800	16860
1	1 1/8	9	12440	13915	13915	13915	15020	32400	22020
1 1/4	1 3/8	11 ¼	17405	19465	19465	19465	23480	50610	34420

- The tabulated shear and tension values are for anchors installed in normal weight concrete having reached the designated ultimate compressive strength at the time of installation.
- Spacing and edge distance shall be in accordance with appropriate table.
- Allowable load must be the lesser of the allowable steel strength and that allowable bond strength. Typically, allowable bond strength is equal to the ultimate bond strength divided by the safety factor of 4.

(B.) ALLOWABLE SHEAR VALUES-THREADED ROD IN 2500 PSI CONCRETE

ANCHOR DIAMTER	BIT DIAMETER	EMBEDMENT	ALLOWABLE BOND STRENGTH	ALLOWABLE STEEL STRENGTH (lbf)		
(in)	(in)	(in)	(lbf)	A36/A307	A193 B7	F593a/593e
3/8	7/16	3 3/8	1185	710	2345	1870
1/2	9/16	4 ½	2175	1270	4170	3330
5/8	3/4	5 5/8	3550	1985	6520	5220
3/4	7/8	6 3/4	5290	2860	9390	6390
7/8	1	7 7/8	7355	3895	12780	86
1	1 1/8	9	9645	5085	16690	22020
1 1/4	1 3/8	11 ¼	15575	7950	26070	34420

- Allowable loads may be increased by 33-1/3% for short term loading due to earthquakes or wind.
- Ipanol Anchoring Gel is recognized for installation in water-filled or moist holes, for use in locations subject to severe exterior weathering conditions and for resisting tension and shear loads due to earthquake and wind.

(C.) SHEAR AND TENSION VALUES-REINFORCING STEEL*

ANCHOR DIAMTER	BIT DIAMETER	EMBEDMENT	TENSION ALLOWABLE BOND STRENGTH (lbf) CONCRETE STRENGTH (f'c)				ALLOWABLE BOND SHEAR STRENGTH	ALLOWABLE STEEL STRENGTH TENSION OR SHEAR (lbf)	
(in)	(in)	(in)	2000 psi	2500 psi	4000 psi	5500 psi	(LBF)	GRADE 40	GRADE 60
#3	1/2	3 3/8	1580	1770	2260	2755	1925	2200	2640
#4	5/8	4 ½	2750	3075	3680	4290	3425	4000	4800
#5	3/4	5 5/8	3575	4000	4700	5405	4370	6200	7440
#6	1	6 3/4	8725	9755	9755	9755	7735	8800	10560
#7	1 1/8	7 7/8	8210	9185	9185	9185	10510	12000	14400
#8	1 1/4	9	9535	10665	10665	10665	13740	15600	18720

Adhesive anchors experience a reduction in tensile and shear capacity with increased ambient temperatures. The load factors noted in table A or B (ER-5000) must be applied to the values noted in the tables shown when the anchors are installed in a location in which the ambient temperatures may exceed 70°F(21°C).

(D.) SHEAR AND TENSION VALUES-SMOOTH DOWELS*

ANCHOR DIAMTER	BIT DIAMETER	EMBEDMENT	ALLOWABLE BOND STRENGTH (lbf)		ALLOWABLE STEEL STRENGTH (lbf)	
			TENSION	SHEAR	TENSION	SHEAR
(in)	(in)	(in)	3000 psi	2500 psi	3000 psi	2500 psi
1/2	9/16	4 1/2	1510	2140	3750	1930
5/8	3/4	5 5/8	1690	3285	5880	3030
3/4	7/8	6 3/4	3000	4730	8460	4360
7/8	1	7 7/8	3555	6430	11500	5930
1	1 1/8	9	5820	8400	15020	7740

*** The listed values are the minimum distances required to obtain the load values in the tables D = anchor diameter. When adjacent anchors are different sizes or embedments, use the largest value for D. The listed values are the minimum distances at which the anchor can be installed when load values are adjusted in accordance with reduction factor. 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.**

(D.) ALLOWABLE ANCHOR SPACING AND EDGE DISTANCE*

		FULL ANCHOR CAPACITY CRITICAL DISTANCE (Ccr)	REDUCED ANCHOR CAPACITY DISTANCE (Cmin)	REDUCTION FACTOR
SPACE BETWEEN ANCHORS		24D	8 D	.90
EDGE DISTANCE:	TENSION LOADS	12 D	SEE FOLLOWING CHART	SEE FOLLOWING CHART
	SHEAR LOADS- THREADED ROD	12 D	4 D	.21
	SHEAR LOADS- SMOOTH DOWELS	12 D	4 D	.21
	SHEAR LOADS-REBAR	16 D	4 D	.15

***Note: The information provided in the charts marked (*) is based on the most recent test results in accordance with the published ICC Evaluation Report ER-5000.**

(E.) MINIMUM EDGE DISTANCE FOR TENSION LOADS

STUD SIZE (INCHES)	MINIMUM EDGE DISTANCE (Cmin)	REDUCTION FACTOR
3/8	1-1/2	.70
1/2	1-3/4	.66
5/8	1-3/4	.70
3/4	1-3/4	.70
7/8	3-1/2	.70
1	4	.70
1-1/4	5	.70

CURE TIME

MINIMUM SUBSTRATE TEMP.	CURE TIME	MINIMUM CURE TIME
40°F (5°C)	48 HRS	24 HRS
65°F (18°C)	36HRS	8 HRS
70°F (21°C)	24 HRS	2.5 HRS
80°F (27°C)	12 HRS	2 HRS
100°F (38°C)	6 HRS	1 HRS

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. Anchors are to be undisturbed during the minimum cure time.

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ESTIMATING GUIDE- NUMBER OF HOLES / CARTRIDGE OF 20 FL. OZ (600ML)

		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
THREADED ROD IN CONCRETE		HOLE DEPTH (IN)																		
ROD SIZE (IN)	HOLE SIZE (IN)																			
3/8	7/16	192	128	96	77	64	55	48	43	39	35	32	30	28	26	24	23	22	21	20
1/2	9/16	136	91	68	55	46	39	34	29	28	25	23	21	19	18	17	16	15	15	14
5/8	3/4	70	47	35	28	24	20	18	16	14	13	12	11	10	10	9	9	8	8	7
3/4	7/8	56	37	28	23	19	16	14	13	11	10	10	9	8	8	7	7	7	6	6
7/8	1	47	31	24	19	16	12	12	11	10	9	8	8	7	7	6	6	6	5	5
1	1 1/8	38	26	19	16	13	11	10	9	8	7	7	6	6	5	5	5	5	4	4
1 1/8	1 1/4	34	23	17	14	12	10	9	8	7	7	6	6	5	5	5	4	4	4	4
1 1/4	1 3/8	29	20	15	12	10	9	8	7	6	6	5	5	5	4	4	4	4	3	3
1 1/2	1 5/8	23	16	12	10	8	7	6	5	5	5	4	4	4	3	3	3	3	3	3
REBAR IN CONCRETE																				
ROD SIZE (IN)	HOLE SIZE (IN)																			
#3	1/2	163	109	82	66	55	47	41	37	33	30	28	26	24	22	21	20	19	18	17
#4	5/8	127	85	64	51	43	37	32	29	26	24	22	20	19	17	16	15	15	14	13
#5	3/4	103	69	52	41	35	30	26	23	21	19	17	16	15	14	13	12	12	11	11
#6	7/8	82	55	41	32	28	24	21	19	17	15	14	13	12	11	11	10	10	9	9
#7	1	72	48	36	29	24	21	18	16	15	13	12	11	11	10	9	9	8	8	8
#8	1 1/8	62	41	31	25	21	18	16	14	13	12	11	10	9	9	8	8	7	7	7
#9	1 3/8	31	21	16	13	11	9	8	7	7	6	6	5	5	4	4	4	4	4	3
#10	1 1/2	30	20	15	12	10	9	8	7	6	6	5	5	5	4	4	4	4	4	3
SMOOTH DOWEL IN CONCRETE																				
ROD SIZE (IN)	HOLE SIZE (IN)																			
3/4	7/8	83	56	42	34	28	24	21	19	17	15	14	13	12	11	11	10	10	9	9
7/8	1	72	48	36	29	24	21	18	16	15	13	12	11	11	10	9	9	8	8	8
1	1 1/8	61	41	31	25	21	18	16	14	12	11	10	10	9	8	8	8	7	7	6
1 1/4	1 3/8	50	33	25	20	17	14	13	11	10	9	9	8	7	7	7	6	6	6	5
1 1/2	1 5/8	42	28	21	17	14	12	11	10	9	8	7	7	6	6	6	5	5	4	4

ESTIMATING GUIDE- NUMBER OF HOLES / CARTRIDGE OF 8. 45 FL. OZ (250 ML)

		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
THREADED ROD IN CONCRETE		HOLE DEPTH (IN)																		
ROD SIZE (IN)	HOLE SIZE (IN)																			
3/8	7/16	74	49	37	30	25	21	19	17	15	14	12	12	11	10	9	9	9	8	8
1/2	9/16	53	35	26	21	18	15	13	11	11	10	9	8	7	7	6	6	6	6	5
5/8	3/4	27	18	14	11	9	8	7	6	5	5	5	4	4	4	3	3	3	3	3
3/4	7/8	22	14	11	9	7	6	5	5	4	4	4	3	3	3	3	3	2	2	2
7/8	1	18	12	9	7	6	5	5	4	4	3	3	3	3	3	2	2	2	2	2
1	1 1/8	15	10	7	6	5	4	4	3	3	3	3	2	2	2	2	2	2	2	2
1 1/8	1 1/4	13	9	7	5	5	4	3	3	3	3	2	2	2	2	2	2	2	2	2
1 1/4	1 3/8	11	8	6	5	4	3	3	3	2	2	2	2	2	2	2	2	2	1	1
1 1/2	1 5/8	9	8	5	4	3	3	2	2	2	2	2	2	2	1	1	1	1	1	1
REBAR IN CONCRETE																				
ROD SIZE (IN)	HOLE SIZE (IN)																			
#3	1/2	63	42	32	26	21	18	16	14	13	12	11	10	9	9	8	8	7	7	7
#4	5/8	49	33	25	20	17	14	12	11	10	9	9	8	7	7	6	6	6	5	5
#5	3/4	40	27	20	16	14	12	10	9	8	7	7	6	6	5	5	5	5	4	4
#6	7/8	32	21	16	12	11	9	8	7	7	6	5	5	5	4	4	4	4	3	3
#7	1	28	19	14	11	9	8	7	6	6	5	5	4	4	4	3	3	3	3	3
#8	1 1/8	24	16	12	10	8	7	6	5	5	5	4	4	3	3	3	3	3	3	3
#9	1 3/8	12	8	6	5	4	3	3	3	3	2	2	2	2	2	2	2	2	2	1
#10	1 1/2	12	8	6	5	4	3	3	3	2	2	2	2	2	2	2	2	2	2	1
SMOOTH DOWEL IN CONCRETE																				
ROD SIZE (IN)	HOLE SIZE (IN)																			
3/4	7/8	32	22	15	13	11	9	8	7	7	6	5	5	5	4	4	4	4	3	3
7/8	1	28	19	14	11	9	8	7	6	6	5	5	4	4	4	3	3	3	3	3
1	1 1/8	24	16	12	10	8	7	6	5	5	4	4	4	3	3	3	3	3	3	2
1 1/4	1 3/8	19	13	10	8	7	5	5	4	4	3	3	3	3	3	3	2	2	2	2
1 1/2	1 5/8	16	11	8	7	5	5	4	4	3	3	3	3	2	2	2	2	2	2	2

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