

SikaGrout® 428 FS

High performance, fast setting, non-shrink, cement grout

Construction

Description	SikaGrout® 428 FS is a non-shrink, non-metallic, cementitious precision grout powered by ViscoCrete technology. SikaGrout® 428 FS is designed to achieve high early strength and exceptional ultimate strengths at a fluid consistency. A structural, precision grout, SikaGrout® 428 FS can be placed from plastic to fluid over a temperature range of 40°-90°F and meets ASTM-C 1107, Grade C.
Where to Use	<ul style="list-style-type: none"> ■ For quick turnaround applications, when rate of strength gain is a significant consideration. ■ Grouting of railing posts, foundations, windmills, compressors, etc. ■ Non-shrink grouting of machinery and equipment, base plates, sole plates, precast panels, beams, columns and curtain walls. ■ Applications where a non-shrink grout is needed for maximum effective bearing area. ■ To transfer optimum load. ■ For grouting rebar, bolts, dowels and pins, etc.
Advantages	<ul style="list-style-type: none"> ■ Quick rate of strength gain. ■ Multiple fluidity with one material. ■ Outstanding performance in fluid state. ■ Excellent fluidity, sufficient time for placement. ■ Nonmetallic, will not stain or rust. ■ ASTM C-1107 (Grade C). ■ Shows positive expansion as per ASTM C-827.
Coverage	Approximately 0.50 cu. ft./bag
Packaging	65 lb. bag

Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life	One year in original, unopened bags.
Storage Conditions	Store dry at 35°-95°F (4°-35°C). Recommend conditioning material to 65°-75°F before using.
Color	Concrete gray

	40°F	73°F	90°F
Compressive Strength - ASTM C-109 Plastic @ 6.5 pts./bag			
5 hours	750	2,500	6,000
6 hours	1,000	3,500	7,000
1 day	4,000	7,000	9,000
3 days	5,500	9,500	11,000
7 days	7,500	12,000	12,000
28 days	11,000	13,000	13,000
Compressive Strength - ASTM C-109 Flowable @ 7.0 pts./bag			
5 hours	500	2,000	5,000
6 hours	750	3,000	5,500
1 day	3,500	7,000	7,000
3 days	5,000	9,000	9,500
7 days	7,000	11,000	11,000
28 days	10,500	12,500	12,500
Compressive Strength - ASTM C-109 Fluid @ 1 gal./bag			
5 hours	< 200	1,000	4,000
6 hours	< 500	3,000	6,000
1 day	3,250	7,500	8,000
3 days	6,000	8,500	8,500
7 days	7,500	10,000	10,000
28 days	10,000	12,000	12,000
Bond Strength - ASTM C-882			
1 day		1,800	
7 days		2,200	
28 days		2,500	
Splitting Tensile Strength - ASTM C-496			
	28 days	> 1,000 psi	

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Direct Tensile Bond-ACI 503	40°F	73°F	90°F
1 day	200	>400	>450
7 days	400	>500	>500
28 days	450	>550	>550
Flow	<45 sec	>30 sec	>30 sec
Effective Bearing Area	>95%	>95%	>95%
Initial Set		30 minutes	
Final Set		45-60 minutes	
Expansion			
1 day	Positive	Positive	Positive
7 days	Positive	Positive	Positive
28 days	Positive	Positive	Positive
Permeability			
ASTM C-1202, 28 days at 60 volts		<1,000	

How to Use

Surface Preparation

Remove all dirt, oil, grease, and other bond-inhibiting materials by mechanical means. Anchor bolts to be grouted must be de-greased with suitable solvent. Concrete must be sound and roughened to promote mechanical adhesion. Prior to pouring, surface should be brought to a SSD (saturated surface-dry) condition.

Forming: For pourable grout, construct forms to retain grout without leakage. Forms should be lined or coated with bond-breaker for easy removal. Forms should be sufficiently high to accommodate head of grout. Where grout-tight form is difficult to achieve, use SikaGrout® 428 FS in dry pack consistency.

Mixing

Mechanically mix with a low speed drill (400-600 rpm) for at least 3 minutes using a Sika mixing paddle or a jiffy paddle. SikaGrout® 428 FS can be mixed in an appropriately sized mortar mixer. Mixing should continue until a homogenous mixture is achieved. Do not over mix. Once all the powder is added the mix time should be approximately 3 minutes.

Product Extension: For deeper applications, SikaGrout® 428 FS (plastic and flowable consistencies only) may be extended with 30 lbs. of 3/8" pea gravel. The aggregate must be non-reactive (Reference ASTM C1260, C227 and C289), clean, well-graded, saturated surface dry, have low absorption and high density, and comply with ASTM C33 size number 8 per Table 2. Add the pea gravel after the water and SikaGrout® 428 FS.

Mixing Procedure: Make sure all forming, mixing, placing, and clean-up materials are on hand. Add approximately one gallon of clean water to achieve desired flow. Add bag of powder to mixing vessel. Mix to a uniform consistency, maximum of 3 minutes. Condition product to room temperatures. For warmer temperatures use cold water and for colder temperatures use warm water. Use only amount of water necessary to achieve homogeneous mixture. **DO NOT OVER WATER!**

Application

Within no more than 10 minutes after mixing, place grout into forms in normal manner to avoid air entrapment. Mixed grout in mass will result in faster than expected setting times. Plan jobs accordingly so that the grout can be placed right after mixing. Vibrate, ram grout as necessary to achieve flow or compaction. SikaGrout® 428 FS must be confined leaving minimum exposed surface. After grout has achieved final set, remove forms, trim or shape exposed grout shoulders to designed profile. Wet cure for a minimum of 3 days or apply a water based curing compound which complies with ASTM C-309 on exposed surfaces.

Limitations

- Minimum ambient and substrate temperature 40°F and rising at time of application.
- Minimum application thickness: 1/4 in.
- Typical max. application for neat grout is 2 in. For deeper pours, extending grout with recommended aggregate is advised. For extended applications, min. application thickness will be 1 in. and the max. would be 6 in.
- Do not use as a patching or overlay mortar or in unconfined areas.
- Material must be placed within 10 minutes of mixing.
- Warmer ambient and storage temperatures will result in reduced working time and can effect fluidity of the grout.
- As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts etc. with an appropriate epoxy such as Sikadur 32 Hi-Mod.
- For cold temperature start with 7/8 of a gallon and add remaining 1/8, only if needed for fluid consistency.
- Refer to ACI 306 Guidelines when there is a need to place this grout in cold & hot temperatures.



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Construction

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