



PRODUCT DATA SHEET

SikaGrout[®]-428 FS CA

FAST-SETTING AND HIGH-STRENGTH, CEMENTITIOUS PRECISION GROUT

PRODUCT DESCRIPTION

SikaGrout[®]-428 FS CA is a cementitious, non-shrink and chloride-free precision grout powered by ViscoCrete[®] technology. The grout is designed to achieve high early, and exceptional ultimate strengths. As a precision and structural grout, it can be placed at a minimal temperature of +10 °C (+50 °F) and provides a substantial bearing area.

WHERE TO USE

- For quick turnaround applications, where rate of strength-gain is an important consideration.
- Grouting of foundations for compressors and similar pieces of equipment.
- Non-shrink grouting of machinery and equipment, base plates, sole plates, precast panels, beams, columns and wind turbines.
- Grouting to achieve maximum effective bearing area and optimum transfer of load.
- For grouting rebar, bolts, dowels and pins where cement material is appropriate.

CHARACTERISTICS / ADVANTAGES

- Meets ASTM C1107 requirements
- Will not stain or rust.
- Excellent fluidity with sufficient time for placing.
- Achieves compressive strength in just 12 hours at +23 °C (+73 °F).
- Exceeds compressive strength of 30 MPa concrete at 24 hours at +23 °C (+73 °F).
- Provides significant bearing area for transfer of load.

PRODUCT INFORMATION

CSC MasterFormat [®]	03 62 13 NON-METALLIC, NON-SHRINK GROUTING
Packaging	25 kg (55 lb) bag
Shelf Life	12 months in original, unopened packaging.
Storage Conditions	Store dry at temperatures between +4 and +35 °C (+40 and +95 °F) ensuring that product is not exposed to rain, condensation or high humidity. For best results, condition product between +18 and +24 °C (between +65 and +75 °F)
Appearance / Colour	Concrete grey

TECHNICAL INFORMATION

Compressive Strength	Compressive Strength at +23 °C (+73 °F)		
	8 hours	9 MPa (1305 psi)	
	12 hours	14 MPa (2030 psi)	
	16 hours	21 MPa (3045 psi)	
	18 hours	29 MPa (4205 psi)	
	1 day	40 MPa (5801 psi)	
	3 days	62 MPa (8992 psi)	
	7 days	66 MPa (9572 psi)	
	28 days	80 MPa (11 603 psi)	
	Compressive Strength at +10 °C (+50 °F)		
	24 hours	12 MPa (1740 psi)	
	48 hours	30 MPa (4351 psi)	
	7 days	36 MPa (5221 psi)	
	28 days	63 MPa (9137 psi)	
Tensile Strength in Flexure	72 hours	4.2 MPa (609 psi)	(ASTM C78-02 - Modified)
	7 days	5.9 MPa (855 psi)	
	28 days	6.5 MPa (942 psi)	
	56 days	9.1 MPa (1319 psi)	
Pull-Off Strength	7 days	2.2 MPa (319 psi) - Exceeds concrete substrate	(ASTM C1583)
	28 days	2.4 MPa (348 psi) - Exceeds concrete substrate	
Chloride Ion Diffusion Resistance	< 150 Coulombs (at 28 days)		(ASTM C1202)
Chemical Resistance	Consult Sika Canada		
Freeze thaw resistance	Relative dynamic modulus	100% (after 310 cycles)	(ASTM C666)
	Durability factor	103	
	Change in weight	10 g (0.14%)	
Freeze Thaw De-icing Salt Resistance	No scaling observed after 50 cycles (exposure to 4 % calcium chloride solution)		(ASTM C672-92)

APPLICATION INFORMATION

Yield	12 L (0.43 ft ³) approx. flowable grout per bag	
Layer Thickness	Minimum application thickness	Maximum application thickness
	13 mm (1/2 in)	127 mm (5 in)
For applications exceeding the prescribed maximum thickness, contact Sika Canada.		
Ambient Air Temperature	Minimum +10 °C (+50 °F)	
Mixing Ratio	3.0 - 3.2 L (0.79 - 0.84 US gal.)* per bag of 25 kg (55 lb) (flowable consistency) * Refer to Mixing instructions for consistency adjustments	
Substrate Temperature	Minimum +10 °C (+50 °F)	
Pot Life	10 minutes (extendable to 25 minutes - see Mixing Section)	

Setting Time**Initial Set Time**

2 to 3 hours

Final Set Time

4 to 5 hours

Application Time

10 minutes (extendable to 25 minutes - see Mixing Section)

BASIS OF PRODUCT DATA

Product properties are typically averages, obtained under laboratory conditions. Reasonable variations can be expected on-site due to local factors, including environment, preparation, application, curing and test methods. Properties tested at +23 °C (+73 °F) and 50 % R.H. unless stated otherwise.

FURTHER INFORMATION**Change in height (ASTM C1090):**

between 0 and 0.2 % (between 24 hours and 28 days)

LIMITATIONS

- Important: protect stored material from exposure to rain, condensation and high humidity as moisture may penetrate packaging, causing lumps.
- For best results, condition product between +18 and +29 °C (between +65 and +84 °F) prior to mixing and installation. Lower temperatures may result in slower strength development and longer cure times.
- Not suitable for use as a patching or overlay mortar or in unconfined locations.
- Concrete surfaces must be thoroughly pre-soaked and SSD at the time of grouting, unless using a bonding agent.
- Working time: Grout must be poured and placed within 10 minutes of the beginning of mixing.
- Warmer ambient and storage temperatures will result in reduced working time and can affect fluidity of the grout.
- SikaGrout®-428 FS CA being a cement-based material, should be protected against 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.

ENVIRONMENT, HEALTH & SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

Product Data Sheet

SikaGrout®-428 FS CA

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APPLICATION INSTRUCTIONS**NOTES ON INSTALLATION****Formwork**

Where using formwork to contain the grout, it shall be constructed in a workmanlike manner and to the satisfaction of the engineer. It should be sufficiently high to accommodate a head of grout and provisions shall be made at the high points for air to be vented as it is displaced by grout. Forms should be caulked with a Sikaflex® sealant or sealed with SikaBoom® low expansion foam to prevent leakage and lined or coated with a release agent or bond inhibiting material for ease of removal.

Note: concrete should be roughened and free from all dirt, oil, grease, and other contaminants either before the formwork is placed into position or where possible after, and 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, the concrete surface should be brought to a SSD (saturated surface-dry) condition before grouting.

Set-Up

Ensure all formwork is properly secured, mixing and placing equipment is functioning and clean-up materials are on hand before proceeding to prepare the grout. Also ensure that sufficient manpower, in the form of trained or experienced personnel are available to avoid interruptions in the grouting process. All temporary works and equipment must be clean in order to prevent contamination of the grout or prevent mixing and placing being delayed. Condition product to room temperature. For warmer temperatures, use cold mixing water and for colder temperatures, use warm mixing water taking into consideration the works to be undertaken, the time required for mixing and that for placing before final setting occurs.

SURFACE PREPARATION

All grease, oil laitance, ice, snow, loose friable material, foreign deposits or any bond inhibiting materials shall be removed from all surfaces with which the grout will come into contact. Concrete shall be roughened with appropriate mechanical means to the extent that it does not present a smooth surface, which would impede the bond of the grout. All dust and loose particles shall be removed by sandblasting, high pressure water-blasting or other suitable means.

Concrete less than 28 days old shall be kept wet for at least 12 hours, and older concrete for a minimum of 24 hours before placing grout. All free-standing water shall be removed from concrete surfaces but the concrete kept to an SSD (saturated surface dry condition) at the time of grouting.

All items to be grouted into place, such as anchor bolts, dowels and pins, shall be degreased with a suitable solvent and properly positioned and anchored prior to grouting. Such items being placed into the fresh grout, where job conditions permit and at the discretion of the engineer in charge, must also be degreased accordingly.

MIXING

Add 3 L (0.79 US gal.) of water to a mixing vessel (appropriately sized to the volume of grout required) and progressively pour all the content of the bag (proceed over a period of 1 minute). Mix at medium-speed (400 - 600 rpm) with a heavyduty drill fitted with a Mud Mixer type paddle, or in a grout mixer. After all dry product has been added to the water, continue mixing for at least three (3) minutes until an homogenous consistency is achieved. Do not over mix and ensure to minimize air entrapment during the process.

Note: If required, 200 mL of additional water may be added to the mix once it has reached an homogeneous consistency

The product will start to gel approximately ten (10) minutes after initial mixing. If the product has not been placed within the initial 10 minutes, it may be remixed for 30 seconds to make the product flowable again. This process may be repeated to extend product workability up to a maximum of 25 minutes after completion of the initial mixing.

APPLICATION

Within no more than ten (10) minutes after the beginning of mixing, the prepared grout must be pumped or transported (in buckets or wheelbarrows) and placed in the normal manner. This will assist working time and also further avoid the entrapment of air. Grout having been prepared but not placed within ten (10) minutes shall be discarded (where the conditions and consistency of the grout dictate). Grout mixed in mass will result in faster than expected setting times. Plan jobs accordingly so that the grout can be placed right after mixing.

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Where necessary and dependent upon consistency being used, ram or 'chain' the grout or externally vibrate the formwork to achieve the required flow and compaction. The grout must be confined, leaving the minimum exposed surface so as to contain the material and avoid uncontrolled expansion. After the grout has achieved final set, formwork can be removed and exposed surfaces trimmed or shaped to the desired profile.

CURING TREATMENT

As per ACI 308 recommendations for cement concrete, curing is required. To achieve performance consistent with Technical Data, curing must be provided by recognized curing methods, such as wet burlap covered with white polyethylene film. Curing must commence immediately after placing and finishing. Protect freshly applied grout from direct sunlight, wind rain and frost.

CLEAN UP

Clean all tools and equipment immediately after use with water. Once hardened, material can only be removed manually or mechanically. Wash soiled hands and skin thoroughly in hot soapy water or use Sika® Hand Cleaner towels.

LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for exact product data and uses.

LEGAL NOTES

The information, and in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any recommendations, or from any other advice offered. The information contained herein does not relieve the user of the products from testing them for the intended application and purpose. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request or may be downloaded from our website at: www.sika.ca

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