



PRODUCT DATA SHEET

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NON-METALLIC, NON-SHRINK GROUTING

SikaGrout®-277 Cable

ECONOMICAL, HIGHLY FLUID, ZERO-BLEED, SAND-FREE AND WASHOUT RESISTANT
CEMENTITIOUS GROUT

Description	SikaGrout®-277 Cable is a fluid, non-shrink, cementitious grout. It is non-metallic and contains no chlorides. It possess a unique, two-stage shrinkage compensating mechanism due to a special blend of shrinkage-reducing and plasticizing/water-reducing agents, SikaGrout®-277 Cable compensates for shrinkage in both the plastic and the hardened states.
Where to Use	<ul style="list-style-type: none"> Use to grouting anchors in tunnel support systems or re-bars anchoring. Use for grouting tight clearances where sanded grouts would not flow. For underwater injection work with tremie method or by pumping. Use for soil stabilization, cable bolting, rock tendons for anchoring piles or foundations forms.
Advantages	<ul style="list-style-type: none"> Does not contain aluminum powder nor any components which generate hydrogen gas, carbon dioxide or oxygen. Silica fume enhanced for low permeability. Non-metallic; will not stain or rust. Non-corrosive; does not contain chlorides. Zero bleed, even at high flow Excellent for pumping: Does not segregate, even at high flow. No build-up on equipment hopper. Superior freeze/thaw resistance. Meets CRD C 621 and ASTM C1107 (Grade C). Even with great fluidity, it can disperse water (thixotropic)

Technical Data

Packaging	25 kg (55 lb) multi-wall bag				
Colour	Concrete Grey				
Yield	Approx. 15.4 L (0.54 ft³) of fluid grout per bag.				
Shelf Life	9 months in original, unopened bag. Store dry between 4 and 35 °C (40 and 95 °F), ensuring that product is not exposed to rain, condensation or high humidity. For optimal results, condition material between 18 and 24 °C (65 and 75 °F) before using.				
Mix Ratio	Mix with clean potable water at rate of between 6 and 6.7 L (1.56 and 1.77 US gal.) per bag.				
Properties at 23 °C (73 °F) and 50 % R.H.					
Wet Density ASTM C138	Approx. 2020 kg/m³ (125 lb/ft³)				
Application time	60 minutes				
Fine Aggregate	Contains none (sand-free)				
Volume Change ASTM C1090					
24 hrs	0.0% shrinkage				
28 days	between 0 and + 0.2 % expansion				
Expansion ASTM C940	3 hrs between 0.0 and + 2.0 %				
Compressive Strength ASTM C942*, MPa (psi)					
1 day	20 (3000)				
3 days	34 (5000)				
7 days	45 (6500)				
28 days	55 (8000)				
*Compressive Strength ASTM C109, MPa (psi) (tested with Sikacem® Accelerator)					
Temperature	Dosage	24 hours	2 days	4 days	28 days
0 °C	1 bottle (150 mL)	-	8 (1200)	21 (3000)	30 (4400)
5 °C	1 bottle (150 mL)	6 (900)	11 (1600)	34 (5000)	50 (7300)
10 °C	1 bottle (150 mL)	10 (1500)	19 (2800)	39 (5700)	54 (7800)
23 °C	1 bottle (150 mL)	25 (3600)	34 (5000)	44 (6400)	55 (8000)
*All moulds, mixing tools and powder components were pre-conditioned to the test temperatures. Prepared test specimens were cast and then cured at the indicated test temperatures until the time of testing. Maximum liquid/solids ratio (water + Sikacem® Accelerator/SikaGrout®-277 Cable) = 0.27; [6.7 L (14.1 pints) of liquid per 25 kg (55 lb) bag of SikaGrout®-277 Cable].					
Initial Set ASTM C953	Approx. 4 hours				
Fluidity Test ASTM C939 Modified					
Immediately after mixing	7 - 20 sec				
30 min after mixing	7 - 20 sec (see Mixing section for clarification on flow testing)				
Bleeding ASTM C940 Modified per FL DOT Wick Induced Bleed Test					
4 hrs	0 %				
<i>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.</i>					

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 degreased with suitable solvent which will not inhibit grout bonding. Follow solvent manufacturer's instructions and warnings. Concrete must be sound and roughened to promote mechanical adhesion. Prior to placing, surface should be brought to a saturated, surface-dry (SSD) condition.

Mixing For best results use a colloidal mixer similar to ChemGrout CG-600 series or other type of high shear mixer at approximately 1800 rpm. Mix for approximately three (3) minutes after the addition of the last bag or until a homogeneous mix is achieved. Continue to agitate material in the holding hopper to achieve best flow. Alternately, for quantities less than 1 bag, such as when vacuum grouting voids, mechanically mix with high speed drill (2500 rpm) and a *Jiffy* paddle for a minimum of six (6) minutes. Method of mixing will significantly affect the material properties, particularly flow. At higher temperatures and/or with higher water amounts, the grout will behave more non thixotropically. Therefore, it may be more appropriate to measure the flow using the standard flow cone test (ASTM C939). The preferred efflux time is between 15 and 30 seconds under these conditions.
Add appropriate quantity of clean water. Add bag of material to mixing vessel. Start by using 6 L (12.6 pt) of water per 25 kg (55 lb) bag of material. Add additional water as needed [a total maximum of 6.75 L (14.3 pt) per 25 kg (55 lb) bag] in order to achieve the flow specified on the product data sheet. Ambient and material temperature should be as close as possible to 21°C (70°F). If higher, use cold water; if colder, use warm water.

Application Make sure all forming, mixing, placing, and clean up materials are on hand. The grout shall be used within 60 minutes from the start of mixing. When grouting ducts or critical elements, it is highly recommended that experienced, certified technicians complete the work.

Underwater applications (using the minimum permissible water for mixing): To place the grout underwater with minimum a minimum of loss, inject the grout through a tube of 2.5 to 5 cm (1 to 2 in) in diameter with the lower end of which is embedded in the grout already in place. The tube is then raised as the injection proceeds, taking care that the extremity always remains sufficiently embedded in the grout to prevent any material washout.

Clean Up In case of spill, wear protective equipment (chemical resistant gloves/goggles/clothing). Ventilate area. In the absence of adequate ventilation, use a properly fitted NIOSH respirator. Confine spill. Vacuum or scoop into an appropriate container. Dispose of in accordance with current applicable local, provincial and federal regulations.

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 to 18 to 29 °C (65 to 84 °F) prior to mixing and installation. Lower temperatures may result in slower strength development and longer cure times.
- Minimum ambient and substrate temperature 5 °C (40 °F) and rising at time of application, unless using Sikacem® Accelerator (refer to Technical Data section)
- Maximum ambient and substrate temperature is 38 °C (100 °F) at the time of placement
- Minimum application thickness: 3 mm (1/8 in).
- Maximum application thickness (neat): 25 mm (1/2 in) to 50 mm (2 in) variable thicknesses.
- 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.

Health and Safety Information For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the most recent SAFETY DATA SHEET containing physical, ecological, toxicological and other safety-related data.

KEEP OUT OF REACH OF CHILDREN
FOR INDUSTRIAL USE ONLY

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, within their shelflife. 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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