

PRODUCT DATA SHEET

SikaGrout®-212 HP

High-performance, non-shrink, silica fume-modified cementitious grout



PRODUCT DESCRIPTION

SikaGrout®-212 HP is a high-performance, non-shrink, fluid, cementitious grout formulated with silica fume and a unique two-stage mechanism, compensating for shrinkage in both the plastic and the hardened states. It is non-metallic, contains no chlorides and it may be placed at various consistencies ranging from dry to fluid by simply adjusting the quantity of mix water.

WHERE TO USE

- On grade, above and below grade, interior and exterior applications, especially where the grout is required to resist increased exposure to freeze/thaw, the presence of salts or other such aggressors
- Structural grouting of machine base plates, paper presses, column base plates, anchor bolts, bearing plates, and bridge seats
- On grouting projects where the consistency of the grout needs to be adjustable to allow for accelerated strength development requirements, for example wind turbine grouting.

CHARACTERISTICS / ADVANTAGES

- Pre-blended for easy application and maximum field control. Just add water, mix and place
- Versatile, can be applied in any consistency from dry, plastic or fluid by varying water content

- Reducing water content accelerates strength development and ultimate compressive strength values
- Non-corrosive, does not contain chlorides
- Formulated with inert, non-reactive aggregates to eliminate potential Alkali-Aggregate Reactivity (AAR)
- Excellent pumpability, does not segregate, even in fluid state. No build-up on equipment hopper
- Low heat development
- Superior freeze/thaw resistance

ENVIRONMENTAL INFORMATION

- Contributes towards satisfying MR Credit - Building Product Disclosure and Optimization – Environmental Product Declarations (Option 1): EPD Type III - Product Specific (ISO 14025-2006 and ISO 21930-2017 compliant)

APPROVALS / CERTIFICATES

- Meets ASTM C1107, Grade C type grouts
- Meets H. A. Simons grout specification 1S-05-01 for grout types 1, 2a, 2b, 2c, 3, 4, 5 and 6
- Ministère des Transports et de la Mobilité durable (MTMD) acceptance
- Product qualified by The Road Authority (TRA)
- Ministry of Transport Ontario (MTO) approval for use in grouting bridge bearings as well as anchor bars. (Reports MI-110, MI-120 respectively)
- Product recognized by the British Columbia Ministry of Transportation (BC MoT)

PRODUCT INFORMATION

Packaging	25 kg (55 lb) bag			
Appearance / Colour	Concrete grey			
Shelf Life	12 months in original, unopened bag			
Storage Conditions	Store dry, ensuring that product is not exposed to rain, condensation or high humidity. For best results, condition product at 18 to 29 °C (65 to 84 °F) before using.			
Height	Height change at 23 °C (73 °F) and 50 % R.H		ASTM C827	
	1.4 %			
Compressive Strength	MPa (psi) @ 4.4 L (1.16 US gal.) / bag		CAN/CSA A23.2-1B	
	1 day	25 (3625)		
	3 days	42 (6094)		
	7 days	50 (7255)		
	28 days	62 (8996)		
	With Sikacem® Accelerator * (1 bottle) – MPa (psi)		ASTM C109	
	0 °C (32 °F)	10 °C (50 °F)		23 °C (73 °F)
24 hours	5 (725)	25 (3668)		38 (5511)
2 days	16 (2363)	38 (5511)		46 (6631)
3 days	30 (4350)	47 (6827)		51 (7440)
28 days	42 (6090)	50 (7250)		65 (9425)
*Fluid consistency compressive strengths are given as minimum guidelines. Pourable and dry pack consistencies will easily exceed these values. 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. Lid should be clamped on mold at all time. Liquid/solids ratio (water + Sikacem® Accelerator/SikaGrout®-212 HP) = 0.176; [4.4 L (1.16 US gal.) of liquid per 25 kg (55 lb) bag of SikaGrout®-212 HP].				
Effective Bearing Area	Plate Void Test			(H.A. Simons/Levelton Method)
	0.2 %			
Pull-Off Strength	Bond to steel (lane and best method) at 23 °C (73 °F) and 50 % R.H > 0.2 MPa (29 psi)			
Electrical Resistivity	14 days	6220 Ohm-cm	(H.A. Simons/Levelton Method)	
Flow Rate	At 23 °C (73 °F) and 50 % R.H < 30 sec		CAN/CSA A23.2-1B	
Chloride Ion Ingress	Rapid Chloride Permeability		ASTM C1202	
	28 days	1045 (Mtl) Coulombs		
		1770 (Edm) Coulombs		

Expansion

Plastic expansion at 23 °C (73 °F) and 50 % R.H

0.8 %

CAN/CSA A23.2-1B

Hardened expansion at 23 °C (73 °F) and 50 % R.H

0.04 %

ASTM C1090

Mixing Ratio

4.4 L (1.16 US gal.) water/bag

Yield

Approx. 13 L (0.46 ft³) of fluid grout per bag

Porosity Test

Absorption, boiled 9.3 %

ASTM C642

Setting Time

Final Set Time at 23 °C (73 °F) and 50 % R.H

Approx. 7 h

ASTM C191

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.

LIMITATIONS

- Minimum application thickness (neat, without additional aggregate): 25 mm (1 in)
- Maximum application thickness (neat, without additional aggregate): 150 mm (6 in). Thicker applications are possible with the addition of suitable aggregate (see Mixing section). Contact Sika Canada
- Extending with aggregates will reduce compressive and flexural strengths. Dimensions and grading of aggregates will influence effect on physical properties; pre-testing is recommended
- For best results, condition product at temperatures between 18 °C and 29 °C (65 °F and 84 °F) prior to mixing and installation. Lower temperatures may result in slower strength development and longer cure times
- Maintain wet grout, ambient and substrate temperatures between 5 °C and 32 °C (41 °F and 89 °F) for a period of 72 hours after initial placement unless using Sikacem® Accelerator (refer to Technical Data section). Protect the grout from freezing during the application and setting
- Storage is particularly important, it is essential to protect material from exposure to rain, condensation and high humidity as moisture may penetrate packaging, causing lumps
- For anchor bolt/dowel grouting, hole diameter should be 25 mm (1 in) greater than bar diameter
- Anchor bolt/bar holes should be pre-dampened for a period of one (1) hour prior to grouting. Holes must be in saturated surface dry (SSD) condition at time of grouting: ensure no excess water is left in anchor/bolt holes
- Do not use as a patching or overlay mortar or in unconfined areas
- Use only potable water

ENVIRONMENT, HEALTH & SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

All grease, oil laitance, ice or snow and foreign deposits shall be removed from all surfaces with which the grout will come in contact. The concrete foundation shall be roughened to the extent that it does not present a smooth surface, which would impede the bond of the grout to the foundation. All dust and loose particles shall be removed by sandblasting, high pressure waterblasting or any other suitable means. Concrete foundations less than 28 days old shall be kept wet for at least 12 hours, and older foundations for a minimum of 24 hours before placing grout (SSD condition). All free-standing water shall be removed from concrete surfaces prior to grouting. All items to be grouted into place shall be properly positioned and anchored prior to grouting except for anchor bolts and dowels, which may be placed into the fresh grout if job conditions permit and at the discretion of the engineer in charge. For grouting of base plates the formwork used to contain the grout shall be properly constructed and caulked to prevent leakage of grout. Provisions shall be made at the high points for air to be vented as it is displaced by grout.

MIXING

Mix using a heavy duty low-speed drill/mixer (300–450 rpm) and mixing paddle (*Jiffy* or *Exomixer*®/spiral type) or using a grout mixer. In a clean pail or mixer, add only the necessary amount of water for the required consistency without exceeding 4.4 L (9.3 pt) of water per bag. Add the bag content and mix for three (3) minutes until a uniform consistency is achieved.

Product Data Sheet

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August 2026, Version 01.02

020201010010000052

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Notes: For application greater than 150 mm (6 in) in thickness, add up to 12 kg (26.5 lb) of 10 mm (3/8 in) coarse aggregate (as per ASTM C33, Table 2, size number 8). The aggregate must be non-reactive, clean, well graded, saturated surface dry (SSD), have low absorption, high density and comply with ASTM C33

APPLICATION

Important: Make sure not to use the grout in unconfined areas.

The prepared SikaGrout®-212 HP may be pumped or transported to the forms in buckets or wheelbarrows and deposited without delay. External vibration and agitation of the grout in the forms is permitted. The prepared grout shall be agitated until used. Grout having been prepared but not placed within 45 minutes after mixing shall be discarded. After initial set, exposed grout may be trimmed or shaped to desired finish

Forming: Forms should be left as long as possible but not removed before 24 hours at 23 °C (73 °F)

Dry pack application: Refer to the Sika Cementitious Grouting Method Statement.

CURING TREATMENT

To achieve performance consistent with Technical Data, curing is required and must be provided as per ACI 308 recommendations for cement concrete. Execute curing by recognized methods such as wet burlap covered with white polyethylene film, misting with water, or approved water-based curing compound, such as Sika® Florseal WB-18 & -25. Alternatively, the use of Sika® UltraCure DOT™ or NCF™ wet curing blankets is strongly recommended. Curing must commence immediately after placing and finishing. Protect freshly applied product from direct sunlight, strong winds, rain and freezing.

CLEAN UP

Clean all tools and equipment after use with water. Once hardened, the product can only be removed mechanically. Wash soiled hands and skin thoroughly in hot soapy water or use Sika® Cleaning Wipes-120.

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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SikaGrout-212HP-en-CA-(08-2026)-1-2.pdf

