



Construction

SikaGrout® 212

Non-Shrink, Cementitious Grout

Description SikaGrout® 212 is a non-shrink, cementitious grout with a unique two-stage shrinkage compensating mechanism, compensating for shrinkage in both the plastic and the hardened states. It is non-metallic, contains no chlorides and may be placed at various consistencies ranging from dry pack to fluid by simply adjusting the quantity of mixing water. A sulphate resistant grade, SikaGrout® 212 SR, and a silica fume modified grade, SikaGrout® 212 HP, are also available (see separate Product Data Sheets).

Where to Use

- On grade, above and below grade, interior and exterior applications.
- Structural grouting of column base plates, machine base plates, anchor bolts, bearing plates, bridge seats, precast wall panels.

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 pack to fluid.
- 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 at high flow; no build-up on equipment hopper.
- Low heat development.
- Superior freeze/thaw resistance.
- Ministry of Transport Ontario approval for use in grouting bridge bearings as well as anchor bars. (Reports MI-110, MI-120 respectively).
- Meets Ontario Hydro specification M-690-87 for pumping through grout pump and hoses for a distance of up to 60 m (196 ft).
- Ministère des Transports du Québec acceptance for grouting anchor bolts and reinforcing dowels in concrete.
- Approved by the Alberta Ministry of Transportation
- Meets H. A. Simons grout specification 1S-05.01 for grout types 1, 2a, 2b, 2c, 3 and 4.
- Meets ASTM C1107 for Grade C type grouts.

Technical Data

Packaging 25 kg (55 lb) bag
Colour Concrete Grey
Yield Approx. 13 L (0.46 ft³) per bag of fluid grout
Shelf Life 12 months in original, unopened packaging. Store dry. For best results, condition product at 18 to 29°C (65 to 84°F) before using.
 4.6 L (1.21 US gal.) water/bag max.

Mix Ratio

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

SikaGrout® 212 (tested at water/solids ratio of 0.18 by weight)

Aggregate grading ASTM C136 100% passing 2.5 mm (3/32 in)
 Flow cone CAN/CSA A23.2-1B 25 - 35 sec
 Set time ASTM C 403 Initial 5 hrs
 Final 6 hrs 30 min

Compressive Strength, MPa (psi)

CAN/CSA A23.2-1B* W/S = 0.18
 [4.6 L (1.21 US gal.)/bag]
 1 day 26 (3770)
 3 days 42 (6095)
 7 days 48 (6965)
 28 days 56 (8125)

* Fluid consistency compressive strengths are given as minimum guidelines. Pourable and dry pack consistencies will easily exceed these values.

***Compressive Strength ASTM C109, MPa (psi)**

(SikaGrout® 212 tested with Sikacem® Accelerator)

Temperature	Dosage	24 hrs	2 days	3 days	28 days
0°C (32°F)	1 bottle (150 mL)	2 (290)	13 (1932)	24 (3550)	41 (5946)
10°C (50°F)	1 bottle (150 mL)	18 (2624)	33 (4855)	40 (5756)	48 (6960)
23°C (73°F)	1 bottle (150 mL)	37 (5366)	42 (6070)	45 (6461)	56 (8125)

*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.

Liquid/solids ratio (water + Sikacem® Accelerator/SikaGrout® 212) = 0.18; [4.6 L (1.21 US gal.) of liquid per 25 kg (55 lb) bag of SikaGrout® 212].

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Freeze/thaw durability ASTM C666, Procedure A
 Relative dynamic modulus 101.9%
 Durability factor 101
 No significant change to specimen

Anchor Bolt Grouting Applications

Water/solids ratio 0.166
 Mix water 4.15 L (1.1 US gal.)

Pull-Out Results [38 mm (1.5 in) diameter hole]

Hole depth, mm (in)	Load failure, kN (lbf)	Comments
125 (5)	78.6 (17 670)	Concrete block split in half
190 (7.5)	108.2 (24 324)	Concrete block split in half
250 (10)	126.4 (28 416)	Concrete block split in half

(Data based on results obtained from pull tests on 15 M, epoxy coated rebars grouted into 30 MPa (4350 psi), 80 ± 10 mm slump, 6 ± 1% air entrained concrete block)





How to Use 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 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. 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 constructed in a workmanlike manner 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 (300 - 450 rpm) and mixing paddle or in a grout mixer. The size of the mixer should be appropriate to the volume of grout required. Use a minimum amount of water consistent with placeability requirements. After all dry product has been added to the water, continue mixing for 3 minutes. 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. The aggregate must be non-reactive (reference ASTM C1260, C227, and C289), clean, well graded, saturated surface dry, have low absorption, high density and comply with ASTM C33, size number 8 per table 2. **Note:** Variances in aggregate may result in different strengths.

Application

The prepared grout 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. Grout having been prepared but not placed within 1 hour after preparation shall be discarded. Prepared grout shall be agitated until use. Several hours after placement of grout (depending on ambient temperatures) forms may be removed and exposed grout shoulders may be trimmed or shaped to desired finish.

Curing

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, misting with water, or approved water-based curing compound, such as Sika® Florseal® WB 18 & 25. 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.

Limitations

- Maintain wet grout, ambient and substrate temperatures between 5 - 32°C (41 - 89°F) for a period of 72 hours after placing, unless using Sikacem® Accelerator in mix (refer to Technical Data section).
- SikaGrout® 212 must be protected from freezing during setting.
- 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. Please contact Sika Canada Technical Services.
- 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 1 hour prior to grouting. Holes must be in saturated surface dry (SSD) condition at time of grouting.
- Do not use as a patching or overlay mortar or in unconfined areas.

Caution

Contains cement and silica sand which may in certain cases, cause skin and eye irritation. Avoid breathing dust. Use only with adequate ventilation. In confined areas, use of a NIOSH/MSHA approved respirator is recommended. Consult product label for additional information.

First Aid

In case of skin contact, wash with soap and water. For eye contact, flush immediately with plenty of water for at least 15 minutes. Contact a physician. For respiratory problems, transport victim to fresh air. Remove contaminated clothing and wash before re-use.

For more information, consult Sika Material Safety Data Sheet.

**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 shelf life. 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 proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users should always refer to the most recent issue of the Product Data Sheet for the product concerned, copies of which will be supplied on request or can be accessed in the Internet under www.sika.ca.

Distributed By:



Multicrete Systems Inc.

360-555 Hervo Street • Winnipeg, Manitoba R3T 3L6 CANADA •

Phone: 204-262-5900 Fax: 204-262-5909 •

www.MULTICRETESYSTEMS.com