

PRODUCT DATA SHEET

SikaCem®-900 Geo W

MULTI-APPLICATION HIGH STRENGTH GEOPOLYMER MATERIAL

PRODUCT DESCRIPTION

SikaCem®-900 Geo W is a one-component, pre-packaged, ultrafine, fiber-reinforced, high-strength, and shrinkage-compensated geopolymer-based wet-mix process shotcrete material formulated for a variety of applications, including hand patch applications.

USES

SikaCem®-900 Geo W can be used in the following applications, but no limited to:

- Structural material for relining and rehabilitation of sewers, pipes, culverts, inverts, tunnels, manholes, sediment basins, wet wells, water and wastewater treatment plants, and industrial plants
- Multiple wet-mix process application techniques including high velocity shotcrete, low velocity spraying, and centrifugal spin casting

- Repair and rehabilitation of general concrete structures
- Vertical, horizontal, and overhead applications
- Application by hand trowel
- On grade, above grade, and below grade on concrete and mortar

CHARACTERISTICS / ADVANTAGES

SikaCem®-900 Geo W provides the following characteristics and benefits:

- Ready-for-use, one-component material; just add water
- Increased resistance to acids and other highly caustic environments
- Superior workability and shooting pumpability
- Superior abrasion resistance over conventional Portland cement mortar
- High bond strength ensures superior adhesion
- Compatible with coefficient of thermal expansion of concrete
- Good freeze/thaw resistance
- High early strengths
- Very low shrinkage
- Fiber reinforced

APPROVALS / STANDARDS

UL listed for drinking water applications

PRODUCT INFORMATION

Packaging	Available in 65-lb (29.5-kg) bags, 1,000-lb (454-kg) bulk bags and 2,000-lb (908-kg) bulk bags.
Shelf Life	12 months in original, unopened packaging

Storage Conditions

Store in a dry, covered area, protected from the elements
 For optimum performance it is recommended to store the material between
 40°F - 95°F (5°C - 35°C)
 Protect from moisture. If damp, discard material.

TECHNICAL INFORMATION

Abrasion Resistance		ASTM C1138
	28 Days	0.039 kg (0.26%) mass loss 1.22 in ³ (0.28%) volume loss
Compressive Strength		ASTM C39 / C109
	24 hours	2,500 psi (17 MPa)
	7 days	5,500 psi (38 MPa)
	28 days	8,000 psi (55 MPa)
	3x6" cylinders	
Modulus of Elasticity in Compression		ASTM C469
	7 days	4.5 x 10 ⁶ psi (31 GPa)
Flexural Strength		ASTM C78
	7 days	900 psi (6.2 MPa)
	28 days	1,500 psi (10.3 MPa)
Shrinkage		ASTM C1090
	28 days	+ 0.02%
Chemical Resistance		ASTM C267
	Sulfuric Acid @ pH 1.0	Zero mass loss Zero volume loss
Sulfate Resistance		ASTM C1012
	12 months	< 0.05%
Microbiological Resistance		DIN 19573
	Sulfuric Acid @ pH 4.0	PASSED (Class XWW3)
	Sulfuric Acid @ pH 0.0	PASSED (Class XWW4)
Slant Shear Strength	Bond Strength	ASTM C882
	28 days	3,000 psi (20.5 MPa)
Freeze-Thaw Stability		ASTM C666
	300 Cycles	Zero mass loss
	No cracking or severe deterioration with light surface scaling	
Splitting tensile strength		ASTM C496
	7 days	600 psi (4.0 MPa)
	28 days	800 psi (5.5 MPa)
Rapid Chloride Permeability		ASTM C1202
	28 days	< 600 Coulombs

APPLICATION INFORMATION

Mixing Ratio	8.0 - 8.5 pints per 65-lb bag (3.79 - 4.02 L per bag) 15.4 - 16.3 gallons per 1,000-lb bulk bag (58.2 - 62 L per bulk bag) 30.8 - 32.7 gallons per 2,000-lb bulk bag (116 - 124 L per bulk bag)	
Coverage	0.53 ft ³ (0.015 m ³) per 65-lb bag 0.30 yd ³ (0.465 m ³) per 1,000-lb bulk bag 0.60 yd ³ (0.465 m ³) per 2,000-lb bulk bag Yield figures do not include allowance for surface profile and porosity or material waste	
Ambient Air Temperature	40 °F - 95 °F (4 °C - 35 °C)	
Substrate Temperature	40 °F - 95 °F (4 °C - 35 °C)	
Set Time	Initial	75 - 110 min (ASTM C266)
	Final	< 180 min (ASTM C266)
Fresh mortar density	136.4 lb/ft ³ (2,184 kg/m ³)	

BASIS OF PRODUCT DATA

Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

ENVIRONMENTAL, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using any products. In case of an emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

APPLICATION INSTRUCTIONS

Apply in accordance with the ACI 506 "Guide to Shotcrete" publication.

- Performance of in-place shotcrete relies heavily upon application techniques.
- The shotcrete material, equipment and key personnel should be pre-qualified prior to project start-up to ensure optimum quality of in-place shotcrete.

For other applications, contact your local Sika STM Technical Representative for more information.

OPTIMUM PERFORMANCE

- Product should not be applied when ambient, substrate, and material temperatures are below 40 °F (5 °C) or above 95 °F (35 °C).
- For adverse temperatures, follow ACI recommendations for Cold/Hot Weather Concreting.

SURFACE PREPARATION

- Surfaces must be clean and sound. Remove all deteriorated concrete, dirt, dust, oil, grease, contaminants and other bond-inhibiting materials from the area to be repaired.
- To ensure optimum repair results, the effectiveness of decontamination and substrate preparation can be assessed by a Pull-Off test (i.e Tensile Adhesion test per ASTM C1583).
- Saw cut the perimeter edges of the repair area.
- Remove any and all protruding material i.e brick, concrete, mortar, etc.
- Ensure that any and all leaks are stopped prior to application.

MIXING

- Place 75% of required water into mixer and slowly introduce entire bag of SikaCem®-900 Geo W while the mixer is running.
- Allow SikaCem®-900 Geo W to mix for a minimum of three minutes.
- Slowly add balance of required water until desired slump has been obtained, not exceeding maximum recommended volume of water.
- Maximum recommended volume of water is 8.5 pints (4.02-liters) per 65-lb bag, 16.3-gallons (62-liters) per 1,000-lb bulk bag and 32.7-gallons (124-liters) per 2,000-lb bulk bag.
- Continue mixing and stop only after material has reached a consistent, homogeneous mix.

APPLICATION

- At the time of application, surfaces should be SSD but hold no standing water
- Apply SikaCem®-900 Geo W by wet shotcrete or troweling for repairing vertical or overhead surfaces
- After application, allow it to stiffen for about 10 minutes before removing bumpy areas with a trowel
- If applying multiple layers, allow the material to reach initial set. This will take anywhere from 45 minutes to several hours, depending on mix consistency, mix and ambient temperature, wind conditions and humidity
- Begin and finish a given patch on the same day.

OTHER RESTRICTIONS

See Legal Disclaimer.

LEGAL DISCLAIMER

- KEEP CONTAINER TIGHTLY CLOSED
- KEEP OUT OF REACH OF CHILDREN
- NOT FOR INTERNAL CONSUMPTION
- FOR INDUSTRIAL USE ONLY
- FOR PROFESSIONAL USE ONLY

Prior to each use of any product of Sika Corporation, its subsidiaries or affiliates ("SIKA"), the user must always read and follow the warnings and instructions on the product's most current product label, Product Data Sheet and Safety Data Sheet which are available at usa.sika.com or by calling SIKA's Technical Service Department at 1-800-933-7452. Nothing contained in any SIKA literature or materials relieves the user of the obligation to read and follow the warnings and instructions for each SIKA product as set forth in the current product label, Product Data Sheet and Safety Data Sheet prior to use of the SIKA product.

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