

SikaTop® 111 PLUS

Two-component, polymer-modified, cementitious, screed mortar plus Sika FerroGard® 901 penetrating corrosion inhibitor

Description	SikaTop® 111 PLUS is a two-component, polymer-modified, portland cement-based, fast-setting, screed mortar. It is a high performance repair mortar for horizontal, vertical and overhead surfaces in form and pour applications. It offers the additional benefit of Sika FerroGard® 901, a penetrating corrosion inhibitor included in its formulation.
Where to Use	<ul style="list-style-type: none"> ■ On grade, above and below grade on concrete and mortar substrates. ■ On horizontal, vertical and overhead surfaces. ■ As a structural repair material for parking structures, industrial plants, walkways, bridges, tunnels, dams, floors, etc. ■ Approved for repairs over cathodic protection systems. ■ Free-flowing repair mortar for hard-to-reach areas. ■ Filler for voids and cavities.
Advantages	<ul style="list-style-type: none"> ■ Extremely low shrinkage proven by four industry standard test methods. ■ High compressive and flexural strengths. ■ Increased freeze/thaw durability and resistance to deicing salts. ■ Compatible with coefficient of thermal expansion of concrete - Passes ASTM C 884. ■ Increased density - improved carbon dioxide resistance (carbonation) without adversely affecting water vapor transmission (not a vapor barrier). ■ Enhanced with Sika FerroGard® 901, a penetrating corrosion inhibitor - reduces corrosion even in the adjacent concrete. ■ USDA certifiable for incidental food contact. ■ ANSI/NSF Standard 61 potable water compliant.
Coverage	0.5 cu. ft./ unit. Approximately 0.75 cu. ft./unit concrete (mixed mortar + 42 lbs. of 3/8" pea gravel)
Packaging	Component 'A' - 1-gal. plastic jug; 4/carton. Component 'B' - 61.5-lb. multi-wall bag.

Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life	One year in original, unopened packaging.		
Storage Conditions	Store dry at 40°-95°F. Condition material to 65°-75°F before using. Protect Component 'A' from freezing. If frozen, discard.		
Color	Concrete gray when mixed.		
Mixing Ratio	Plant-proportioned kit, mix entire unit.		
Application Time	Approximately 30 minutes.		
Finishing Time	50-120 minutes		

Note: All times start after adding Component 'B' to Component 'A' and are highly affected by temperature, relative humidity, substrate temperature, wind, sun and other job site conditions.

Density (wet mix)	ASTM C 138		136 lbs./ft ³ (2.18 kg./l)
Flexural Strength	ASTM C 293	28 days	1,400 psi
Split Tensile	ASTM C 496	28 days	600 psi
Bond Strength	ASTM C 882 (modified)	28 days	2,000 psi
Compressive Strength	ASTM C 109	1 day	2,500 psi
		7 days	5,500 psi
		28 days	6,500 psi
Shrinkage	ASTM C 157		
	(mod. ICRI 320.3R)		
Specimen Size 1" x 1" x 11-1/4"		28 days	<0.05%
Specimen Size 3" x 3" x 11-1/4"		28 days	0.022%
Ring Test (days)	ASTM C 1581		>70 days
Ring Test - Average Max Strain	ASTM C 1581		-16 µstrain
Ring Test - Average Stress Strain	ASTM C 1581		1.46 psi/day
Ring Test - Potential for Cracking	ASTM C 1581		Low
Baenzinger Block		90 days	No cracking
Freeze/Thaw Durability (300 cycles)	ASTM C 666		98%
Cl Permeability	ASTM C 1202		<500 Coulombs.
Direct Bond Strength	ASTM C 1583	28 days	>500 psi (substrate failure)
Modulus of Elasticity	ASTM C 531		3.00 x 10 ⁵ psi
Initial Set Time (min)	ASTM C 266		40-70
Final Set Time (min)	ASTM C 266		>90

Construction



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How to Use

Substrate	Concrete, mortar, and masonry products.									
Surface Preparation	<p>Remove all deteriorated concrete, dirt, oil, grease and all bond inhibiting materials from surface. Be sure repair area is not less than 1/2 inch in depth. Preparation work should be done by high pressure water blast, scabblor, or other appropriate mechanical means to obtain an exposed aggregate surface with a minimum surface profile of $\pm 1/16$ inch (CSP-5); $\pm 1/8$ inch (CSP-6). Saturate surface with clean water. Substrate should be saturated surface dry (SSD) with no standing water during application.</p> <p>Reinforcing Steel: Steel reinforcement should be thoroughly prepared by mechanical cleaning to remove all traces of rust. Where corrosion has occurred due to the presence of chlorides, the steel should be high-pressure washed with clean water after mechanical cleaning. For priming of reinforcing steel use Sika® Armatec® 110 EpoCem (consult Product Data Sheet).</p> <p>Priming Concrete Substrate: Prime the prepared substrate with a brush or sprayed applied coat of Sika® Armatec® 110 EpoCem (consult Product Data Sheet). Alternately, a scrub coat of SikaTop® 111 PLUS can be applied prior to placement of the mortar. The repair mortar has to be applied into the wet scrub coat before it dries.</p>									
Mixing	<p>Pour approximately 7/8 of Component 'A' into the mixing container. Add Component 'B' (powder) while mixing continuously. Mix mechanically with a low speed drill (400-600 rpm) and mixing paddle or mortar mixer. Add remaining Component 'A' (liquid) to mix if a more loose consistency is desired. Mix to a uniform consistency, maximum 3 minutes. Thorough mixing and proper proportioning of the two components is necessary.</p> <p>For SikaTop 111 PLUS concrete: Pour all of Component 'A' into mixing container. Add all of Component 'B' while mixing, then introduce 3/8 inch coarse aggregate at desired quantity. Mix to uniform consistency, maximum 3 minutes. Addition rate is 42 lbs. per bag (approx. 3.0 to 3.5 gal. by loose volume). The aggregate must be non-reactive (reference ASTM C 1260, C 227 and C 289), clean, well-graded, saturated surface dry, have low absorption and high density, and comply with ASTM C 33 size number 8 per Table 2.</p> <p>Note: Variances in the quality of the aggregate will affect the physical properties of SikaTop 111 PLUS. The yield is increased to 0.75 cu. ft./unit with the addition of the aggregate (42 lbs.). Do not use limestone aggregate</p>									
Application	<p>Horizontal: Mortar or concrete must be scrubbed into the substrate, filling all pores and voids. After filling repair, screed the material. Allow mortar or concrete to set to desired stiffness, then finish with wood or sponge float for a smooth surface, or broom or burlap-drag for a rough finish.</p> <p>Form and pour or pump applications: Pre-wet surface to SSD. Vibrate form while pouring or pumping. Pump with a variable pressure pump. Continue pumping until a 3 to 5 psi increase in normal line pressure is evident then STOP pumping. Form should not deflect. Vent to be capped when steady flow is evident, and forms stripped when appropriate.</p>									
Tooling and Finishing	<p>As per ACI recommendations for portland cement concrete, curing is required. Moist cure with wet burlap and polyethylene, a fine mist of water or a water based* compatible curing compound (ASTM C 309 compliant). Curing compounds adversely affect the adhesion of following layers of mortar, leveling mortar or protective coatings. Moist curing should commence immediately after finishing. Protect newly applied material from direct sunlight, wind, rain and frost.</p> <p>*Pretesting of curing compound is recommended.</p>									
Limitations	<table border="1"> <thead> <tr> <th>Application thickness:</th> <th>Min.</th> <th>Max. inches one lift</th> </tr> </thead> <tbody> <tr> <td>Neat</td> <td>1/2 inch (12 mm)</td> <td>1 inch (25 mm)</td> </tr> <tr> <td>Extended</td> <td>1 inch (25 mm)</td> <td>6 inches (150 mm)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Minimum ambient and surface temperatures 45°F (7°C) and rising at time of application. Addition of coarse aggregates may result in variations of the physical properties of the mortar. Do not use solvent-based curing compound. 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. 	Application thickness:	Min.	Max. inches one lift	Neat	1/2 inch (12 mm)	1 inch (25 mm)	Extended	1 inch (25 mm)	6 inches (150 mm)
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Regional Information and Sales Centers. For the location of your nearest Sika sales office, contact your regional center.

Sika Corporation
201 Polito Avenue
Lyndhurst, NJ 07071
Phone: 800-933-7452
Fax: 201-933-6225

Sika Canada Inc.
601 Delmar Avenue
Pointe Claire
Quebec H9R 4A9
Phone: 514-697-2610
Fax: 514-697-3087

Sika Mexicana S.A. de C.V.
Carretera Libre Celaya Km. 8.5
Fracc. Industrial Balvanera
Corregidora, Querétaro
C.P. 76920
Phone: 52 442 2385800
Fax: 52 442 2250537



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