

PRODUCT DATA SHEET

SikaQuick®-2500

VERY RAPID HARDENING CONCRETE REPAIR MORTAR

DESCRIPTION

SikaQuick®-2500 is a 1- part, cementitious, very rapid hardening, early strength gain concrete repair material.

USES

- On, above and below grade on concrete
- Highway overlays and repairs
- Structural repair material for concrete roadways, parking structures, bridges, dams and ramps
- Full depth patching repairs
- Economical patching material for horizontal repairs of concrete and mortar

CHARACTERISTICS / ADVANTAGES

- Very rapid hardening as defined by ASTM C-928
- Epoxy coatings can be applied as early as 4 h
- Freeze / thaw resistant
- Easy to mix and apply - labor-saving
- Not gypsum-based
- High early strength
- Fast-setting
- Open to foot traffic in 45 minutes
- Open to vehicle traffic in 1 hour (+73 °F / +23 °C)
- Not a vapour barrier

PRODUCT INFORMATION

Chemical Base	Cement, selected aggregates and special additives
Packaging	50 lb bag (~22,7 kg)
Appearance / Colour	Grey powder
Shelf Life	12 months from date of production
Storage Conditions	Product must be stored in original, unopened and undamaged sealed packaging in dry conditions at temperatures between 40 °F and 95 °F (~4 °C and +35 °C). Always refer to packaging.

TECHNICAL INFORMATION

Compressive Strength	Time	Compressive Strength	(ASTM C-109)
	1 hour	~2500 psi (~17 MPa)	
2 hour	~4000 psi (~27 MPa)		
1 day	~5700 psi (~39 MPa)		
7 days	~7500 psi (~51 MPa)		
28 days	~8500 psi (~58 MPa)		

These values were measured at +73 °F (+23 °C) / 50% r.h. w/c = 0,12

Modulus of Elasticity in Compression	~4,6×10 ⁶ psi (~32 GPa) after 28 days at +73 °F (+23 °C) / 50 % r.h.	(ASTM C-469)								
Tensile Strength in Flexure	<table border="1"> <thead> <tr> <th>Time</th> <th>Tensile strength in Flexure</th> </tr> </thead> <tbody> <tr> <td>1 day</td> <td>~800 psi (~5,5 MPa)</td> </tr> <tr> <td>7 days</td> <td>~1000 psi (~6,9 MPa)</td> </tr> <tr> <td>28 days</td> <td>~1100 psi (~7,6 MPa)</td> </tr> </tbody> </table> <p>These values were measured at +73 °F (+23 °C) / 50% r.h. w/c = 0,12</p>	Time	Tensile strength in Flexure	1 day	~800 psi (~5,5 MPa)	7 days	~1000 psi (~6,9 MPa)	28 days	~1100 psi (~7,6 MPa)	(ASTM C-78)
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Time	Splitting Strength									
1 day	~300 psi (~2,0 MPa)									
7 days	~500 psi (~3,4 MPa)									
28 days	~600 psi (~4,1 MPa)									
Tensile Adhesion Strength	~300 psi (~2,0 MPa) (substrate failure) after 28 days at +23 °C / 50 % r.h.	(ACI 503)								
Shear Adhesion Strength	<table border="1"> <thead> <tr> <th>Time</th> <th>Shear Adhesion Strength</th> </tr> </thead> <tbody> <tr> <td>1 day</td> <td>~1800 psi (~12 MPa)</td> </tr> <tr> <td>7 days</td> <td>~2500 psi (~17 MPa)</td> </tr> <tr> <td>28 days</td> <td>~2700 psi (~21 MPa)</td> </tr> </tbody> </table> <p>These values were measured at +73 °F / 50 % r.h. (+23 °C, 50 % r.h.) w/c = 0,12</p>	Time	Shear Adhesion Strength	1 day	~1800 psi (~12 MPa)	7 days	~2500 psi (~17 MPa)	28 days	~2700 psi (~21 MPa)	(ASTM C-882 modified)
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1 day	~1800 psi (~12 MPa)									
7 days	~2500 psi (~17 MPa)									
28 days	~2700 psi (~21 MPa)									
Shrinkage	~0,06 % after 28 days at +73 °F (+23 °C) / 50 % r.h.	(ASTM C-596)								
Abrasion Resistance	~0,026 inches (~0,66 mm) of wear at 1 hour with a 28 day mortar at +73 °F (+23 °C) / 50 % r.h. w/c = 0,12	(ASTM C-779)								
Freeze thaw resistance	~98 % after 28 days at +73 °F (+23 °C) / 50 % r.h. w/c = 0,12	(ASTM C-666)								
Freeze Thaw De-icing Salt Resistance	~0,080 lb/ft ² (~1,3 MPa) after 50 cycles at +73 °F (+23 °C) / 50 % r.h.	(ASTM C-672)								
Chloride Ion Diffusion Resistance	< 500 Coulombs after 28 days at +73 °F (+23 °C) / 50 % r.h.	(ASTM C-1202)								

APPLICATION INFORMATION

Mixing Ratio	~5 – 5,5 pints (~2,3–2,6 l) of water per 50 lb (~22,7 kg) bag										
Fresh Mortar Density	~3718 lbs/yd ³ (~2'200 kg/m ³)										
Yield	~0,43 ft ³ (~0,012 m ³). When extended with 25–30 lbs (11,5–13,5 kg) of 3/8 in (~10 mm) gravel, yield is approximately 0,60 ft ³ (~0,017 m ³)										
Layer Thickness	<table border="1"> <thead> <tr> <th></th> <th>Minimum</th> <th>Maximum</th> </tr> </thead> <tbody> <tr> <td>Mortar</td> <td>1/4 in (~6,0 mm)</td> <td>1 in (~25 mm)</td> </tr> <tr> <td>Extended with aggregate</td> <td>1 in (~25 mm)</td> <td>6 in (~150 mm)</td> </tr> </tbody> </table>		Minimum	Maximum	Mortar	1/4 in (~6,0 mm)	1 in (~25 mm)	Extended with aggregate	1 in (~25 mm)	6 in (~150 mm)	
	Minimum	Maximum									
Mortar	1/4 in (~6,0 mm)	1 in (~25 mm)									
Extended with aggregate	1 in (~25 mm)	6 in (~150 mm)									
Ambient Air Temperature	+45 °F (+7 °C) min.										
Substrate Temperature	+45 °F (+7 °C) min.										
Pot Life	~15 minutes at +73 °F (+23 °C)										
Initial Set Time	~12–24 minutes at +73 °F (+23 °C) / 50 % r.h.	(ASTM C-266)									
Final Set Time	~20–40 minutes at +73 °F (+23 °C) / 50 % r.h.	(ASTM C-266)									

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY / PRE-TREATMENT

Concrete

Surface must be clean and sound. Remove all deteriorated concrete, dirt, oil, grease, and other bond-inhibiting materials from the area to be repaired. Be sure repair area is not less than 1/4 in (~6,0 mm) deep. Preparation work should be done by appropriate mechanical techniques. Obtain an exposed aggregate surface with a minimum surface profile of $\pm 1/8$ in (~3,0 mm) (CSP-6) on clean, sound concrete. To ensure optimum repair results, the effectiveness of decontamination and preparation should be assessed by a pull-off test. Saw cutting of edges is recommended. Saturate surface to be repaired with clean water. Substrate should be saturated surface dry (SSD) prior to application.

Steel reinforcement

Rust, scale, mortar, concrete, dust and other loose and deleterious material which reduces bond or contributes to corrosion shall be removed. Surfaces shall be prepared using abrasive blast cleaning techniques or high pressure water-blasting to achieve a bright metal finish.

MIXING

For best results, condition material to +65 – 75 °F (~+18 – 24 °C) before mixing and using. Mechanically mix in an appropriately sized mortar mixer. Wet down all tools and mixer to be used.

Water addition

Start with 5 pints (~2,40 l) of water added to the mixing vessel. Add 1 bag of SikaQuick®-2500 while continuing to mix. Add up to another 1/2 pint (~0,24 l) of water to achieve desired consistency. Do not over water.

SikaLatex® R addition

Pour 5 pints (~2,40 l) of SikaLatex® R into the mixing container. Slowly add powder, mix and adjust as above.

Diluted SikaLatex® R addition

SikaLatex® R may be diluted up to 5:1 (water: SikaLatex® R) where requirements for minimal polymer modification is required. Pour 5 pints (~2,40 l) of the mixture into the mixing container. Slowly add powder, mix and adjust as above. For application greater than 1 in (~25 mm) (in depth, add 3/8 in (~10 mm) coarse aggregate. 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.

Note: Variances in aggregate may result in different strengths. The addition rate is 25–30 lbs (11,3–13,6 kgs) of aggregate per bag of SikaQuick®-2500 (25–30 lbs (11,3–13,6 kg) of 3/8 in (~10 mm) aggregate is approximately 2,0–2,4 gallons (~7,6–9 l) by loose volume of aggregate). Do not exceed a slump of 7 in (~180 mm). This may cause excessive bleeding and retardation and will reduce the strength and performance of the material.

APPLICATION

Reinforcement Corrosion Protection / Primer Coating

Where a reinforcement coating is required, apply to the whole exposed circumference, SikaTop® Armatec®-110 EpoCem®. (Refer to Product Data Sheet). The repair mortar must be applied onto coating 'wet' on 'wet'.

Concrete Bonding Primer

Prime the prepared substrate with a scrub coat of SikaQuick®-2500 by firmly scraping the scrub coat over the substrate surface to form a thin layer and fill any pores or cavities in the surface. Ensure the whole surface to be repaired is covered by the scrub coat. The repair mortar has to be applied onto primer 'wet' on 'wet'

Repair Mortar

The repair mortar shall be applied onto the wet scrub coat between the minimum and maximum layer thicknesses without the formation of voids. Where layers are to be built up, to prevent sagging or slumping, each layer should be allowed to stiffen before applying subsequent layers "wet on wet".

After filling repair, screed off excess. To control setting times, cold water should be used in hot weather and hot water used in cold weather.

Finishing

Finishing should be carried out to the required surface texture using a suitable float as soon as the mortar has started to stiffen.

Note: Mixing, placing, and finishing should not exceed 15 minutes maximum.

CURING TREATMENT

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 curing compound meeting ASTM C-309. Moist cure should commence immediately after finishing. If necessary, protect newly applied material from rain. To prevent from freezing, cover with insulating material.

CLEANING OF TOOLS

Clean all tools and application equipment with water immediately after use. Hardened material can only be mechanically removed.

LIMITATIONS

- Apply only to sound, prepared substrate.
- Avoid application in direct sun and/or strong winds.
- Do not feather edge.
- Do not exceed 7 in (~180 mm) slump when extended.
- Use only potable water.
- Variations in aggregates may produce differences in strengths from the typical values stated in Product Data Sheet.
- As with all cement based materials, avoid contact with aluminium to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminium bars, rails, posts, etc. with an appropriate epoxy such as Sikadur® Hi-Mod 32.
- Do not use SikaTop® Armatec®-110 EpoCem® as a

bonding agent with SikaQuick®-2500.

- For early application of epoxy coatings. On site testing is recommended for verification. Consult coatings manufacturer for advice.

BASIS OF PRODUCT DATA

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the declared data for this product may vary from country to country. Please consult the local Product Data Sheet for the exact product data.

ECOLOGY

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

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 written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. 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.

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