



## PRODUCT DATA SHEET

# SikaQuick® Set-45

(formerly MEmaco T 545)

Very rapid-setting, chemical action mortar

### PRODUCT DESCRIPTION

SikaQuick® Set-45 is a one-component magnesium phosphate-based mortar for ambient and substrate temperatures below 29 °C (85 °F) .

### WHERE TO USE

- Interior and exterior
- Horizontal and formed vertical or overhead repairs
- Applications requiring high early-strength gain
- Structural concrete repairs
- Partial and full-depth repairs
- Cold temperature repairs
- Grouting applications such as anchor bolts, rebars, dowel rods, and precast applications

### Substrates

- Concrete

### CHARACTERISTICS / ADVANTAGES

- Single component material, just add water and mix
- Reaches 13.8 MPa (2000 psi) compressive strength in 1 hour to rapidly return repairs to service
- Takes rubber tire traffic in 45 minutes
- Wide temperature use ranges from below-freezing to hot weather exposures
- Very low drying shrinkage for improved bond to concrete for repair and anchoring applications
- Resistant to freeze/thaw cycles and deicing chemicals so it is usable in most environments
- Air cure only, no wet curing compounds required
- Coefficient of thermal expansion similar to Portland cement concrete for more permanent repairs
- Higher sulfate resistance than conventional mortars

## TECHNICAL INFORMATION

<b>Compressive Strength</b>	<b>Time</b>	<b>Plain Concrete at 22 °C (72 °F)</b>	<b>SikaQuick® Set-45 at 22 °C (72 °F)</b>	<b>SikaQuick® Set-45 at 2 °C (36 °F)</b>	(ASTM C109, modified)
	1 hour	-	13.8 MPa (2000 psi)	-	
	3 hours	-	34.5 MPa (5000 psi)	-	
	6 hours	-	34.5 MPa (5000 psi)	8.3 MPa (1200 psi)	
	1 day	3.5 MPa (500 psi)	41.4 MPa (6000 psi)	34.5 MPa (5000 psi)	
	3 days	13.1 MPa (1900 psi)	48.3 MPa (7000 psi)	48.3 MPa (7000 psi)	
	28 days	27.6 MPa (4000 psi)	58.6 MPa (8500 psi)	58.6 MPa (8500 psi)	
	<b>Modulus of Elasticity in Compression</b>	<b>Time</b>	<b>SikaQuick® Set-45</b>		(ASTM C469)
	7 days	28.8 GPa (4.18 x 10 <sup>6</sup> psi)			
	28 days	31.4 GPa (4.55 x 10 <sup>6</sup> psi)			
<b>Tensile Strength in Flexure</b>	1-day strength on 75 by 100 by 406 mm (3 in x 4 in x 16 in) prisms				(ASTM C78, modified)
	SikaQuick® Set-45: 3.8 MPa (550 psi)				
	SikaQuick® Set-45 with 9 mm (3/8 in) pea gravel: 4.2 MPa (600 psi)				
	SikaQuick® Set-45 with 9 mm (3/8 in) crushed angular noncalcareous hard aggregate: 4.5 MPa (650 psi)				
<b>Coefficient of Thermal Expansion</b>	Hot Weather coefficients*: 12.8 x 10 <sup>-6</sup> cm/cm/°C (7.15 x 10 <sup>-6</sup> in/in/°F)				(CRD-C 39)
	*Determined using 25 mm x 25 mm x 279 mm (1 in x 1 in) bars. The test was run with neat mixes (no aggregate).				
<b>Freeze Thaw De-Icing Salt Resistance</b>	<b>Scaling resistance to deicing chemicals</b>				(ASTM C672)
	5 cycles: 0				
	25 cycles: 0				
	50 cycles: 1.5 (slight scaling)				
<b>Sulfate Resistance</b>	SikaQuick® Set-45 length change after 52 weeks: 0.09 %				(ASTM C1012)
	Type V cement mortar after 52 weeks: 0.20 %				
<b>Freeze thaw resistance</b>	80 % RDM at 300 cycles		(ASTM C666, Procedure A (modified**))		
	**Method discontinues test when 300 cycles or an RDM of 60 % is reached.				

## PRODUCT INFORMATION

<b>Composition / Manufacturing</b>	Magnesium-phosphate mortar
<b>Packaging</b>	22.6 kg (50 lb) polyethylene-lined bags
<b>Shelf Life</b>	12 months when properly stored
<b>Storage Conditions</b>	Store in unopened containers in cool, clean, dry conditions

## APPLICATION INFORMATION

<b>Yield</b>	Approx. 0.011 m <sup>3</sup> (0.39 ft <sup>3</sup> ) per 22.6 kg (50 lb) bag (mixed with the required water dosage) ; 60 % extension using 13 mm (½ in) rounded, sound aggregate produces approximately 0.016 m <sup>3</sup> (0.58 ft <sup>3</sup> )	
<b>Initial Set Time</b>	9-15 min at 22 °C (72 °F)	(Gilmore ASTM C266, modified)
<b>Final Set Time</b>	10-20 min at 22 °C (72 °F)	(Gilmore ASTM C266, modified)

## 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

SikaQuick® Set-45 is a material designed for professional use only; not for sale to or use by the general public. Proper application is the responsibility of the user. Field visits by Sika personnel are for the purpose of making technical recommendations only and not for supervising or providing quality control on the jobsite.

- Do not mix partial bags.
- Do not mix SikaQuick® Set-45 manually, the product must only be mixed mechanically.
- Colour variations are not indicators of abnormal product performance.
- SikaQuick® Set-45 will not freeze at temperatures above -29 °C (-20 °F) when appropriate precautions are taken.
- Do not add sand, fine aggregate, or Portland cement.
- Do not use SikaQuick® Set-45 for repairs less than 13 mm (½ in) deep. For deep repairs, use SikaQuick® Set-45 formula extended with aggregate, regardless of the temperature. Consult your Sika Technical Sales Representative for further instructions.
- Do not use limestone aggregate.
- Do not deviate from the recommended water content printed on the bag.
- Precondition these materials to approximately 21 °C (70 °F) for 24 hours before using.
- Protect repairs from direct sunlight, wind, and other conditions that could cause rapid drying of material for the first three (3) hours.
- When mixing or placing in a closed area, provide adequate ventilation.
- Do not use it as a precision machinery grout.
- When using in contact with galvanized steel or aluminum, consult your local Sika Technical Sales Representative.

## ENVIRONMENT, HEALTH & SAFETY

User must read the most recent corresponding Safety

Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

## APPLICATION INSTRUCTIONS

### SURFACE PREPARATION

1. Concrete must be structurally sound and fully cured (28 days).
2. Saw cut the perimeter of the area being repaired into a square with a minimum depth of 13 mm (½ in).
3. Refer to current ICRI Guideline no. 310.2R for surface preparation requirements to permit proper bond.
4. Any surface carbonation in the repair area will inhibit chemical bonding. Apply a pH indicator to the prepared surface to test for carbonation. If carbonation is present, abrade the surface to a depth that is not carbonated.

### MIXING

1. SikaQuick® Set-45 must be mixed, placed, and finished within 10 minutes in normal temperatures (21 °C [71 °F]). Only mix quantities that can be placed in 10 minutes or less.
2. Do not deviate from the following sequence; it is important for reducing mixing time and producing a consistent mix. Use a minimum 13 mm (½ in) slow-speed drill and mixing paddle or an appropriately sized forced-action mortar mixer.
3. Pour potable water into mixer. Use a maximum 1.9 L (0.5 US gal) of water per 22.6 kg (50 lb) bag of SikaQuick® Set-45. Do not deviate from the recommended water content.
4. Add the powder to the water and mix for approximately 1–1½ minutes.
5. Use neat material for repairs from 13–51 mm (½–2 in) in depth.

For deeper repairs, extend a 22.6 kg (50 lb) bag of SikaQuick® Set-45 by adding up to 13.6 kg (30 lb) of properly graded, dust-free, hard, rounded aggregate or non-calcareous crushed angular aggregate, not exceeding 13 mm (½ in) in accordance with ASTM C33, #8 (Test aggregate for fizzing with 10 % HCl). If the aggregate is damp, reduce the water content accordingly. Special procedures must be followed when

angular aggregate is used. Contact your local Sika Technical Sales Representative for more information.

## APPLICATION

1. Immediately place the mixture onto the properly prepared substrate. Work the material firmly into the bottom and sides of the patch to ensure good bond.
2. Level the SikaQuick® Set-45 and screed to the elevation of the existing concrete. Minimal finishing is required.

## CURING TREATMENT

No curing is required but protect from rain immediately after placing. Liquid-membrane curing compounds or plastic sheeting may be used to protect the early surface from precipitations. Never wet cure SikaQuick® Set-45.

## 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](http://www.sika.ca)

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### Product Data Sheet

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