



PRODUCT DATA SHEET

SikaSet®-45

VERY RAPID-SETTING CHEMICAL REPAIR MORTAR, OPEN TO FOOT TRAFFIC IN 45 MINUTES

PRODUCT DESCRIPTION

SikaSet®-45 is a 1-component, very rapid-setting, early-strength gaining, magnesium phosphate-based patching and repair mortar for concrete.

WHERE TO USE

- Bridge deck and highway overlays and repairs
- Concrete joint repairs
- Structural repair to concrete parking structures, dams
- Full depth patching repairs
- Horizontal repairs of concrete and mortar
- Formed wall and marine structure repairs

CHARACTERISTICS / ADVANTAGES

- Very rapid hardening as defined by ASTM C928
- Freeze/thaw resistant
- Easy to use; economical patching and labour saving material
- No added chlorides
- Not gypsum-based
- High early-strength
- Very fast-setting
- Open to foot traffic in 45 minutes, to vehicle traffic in 1 hour at +23 °C (73 °F)
- Easily applied to clean, sound substrates
- Not a vapour barrier

APPROVALS / CERTIFICATES

- Approved by the Ministère des Transports du Québec (MTQ)
- Approved by the Ontario Ministry of Transportation and is qualified by The Road Authority (TRA)
- Product recognized by the British Columbia Ministry of Transportation (BC MoT)
- Meets Alberta Transportation (AT B391) specification for patching materials (both LTH and HEH approved)

PRODUCT INFORMATION

CSC MasterFormat®	03 01 00 MAINTENANCE OF CONCRETE
Packaging	22.7 kg (50 lb) bag
Appearance / Colour	Powder / Concrete Grey

Shelf Life	12 months in original, unopened bag.		
Storage Conditions	Store dry, ensuring that product is not exposed to rain, condensation or high humidity. For best results, condition product at temperatures between +18 °C and +29 °C (65 °F and 84 °F) before using.		
Soluble Chloride Ion Content	Chloride Resistance	@13 mm depth = 0.04 %	(ASTM C1543)
	Chloride Content	@25 mm depth = 0.02 %	
	Chloride Content (ASTM C1152) by mass of mortar = 0.011 %		
Compressive Strength	Mortar ASTM C109	+3 °C (37.4 °F)*	+23 °C (73 °F)
	1 hour		39 MPa (5 656 psi)
	3 hours		40 MPa (5 801 psi)
	1 day	33 MPa (4 786 psi)	42 MPa (6 091 psi)
	3 days	44 MPa (6 381 psi)	45 MPa (6 526 psi)
	7 days	50 MPa (7 250 psi)	51 MPa (7 397 psi)
	28 days	61 MPa (8 887 psi)	65 MPa (9 427 psi)
Shrinkage	60 days	No cracking	(ASTM C1581)
	90 days	- 0.017 %	(ASTM C157)
Water Absorption	6.8 % @ 14 days		(specification B391) Alberta Transportation

APPLICATION INFORMATION

Mixing Ratio	1.9 L (4 pints) of water per bag		
Yield	Approx. 11 L (0.39 ft ³) Approx. 16.4 L (0.58 ft ³)* when extended with up to 13.6 kg (30 lb) of 10 mm (3/8 in) dry pea gravel *Warning : Do not use limestone aggregate.		
Layer Thickness	10 – 50 mm		
Ambient Air Temperature	Minimum: 0 °C / Maximum: +35 °C		
Substrate Temperature	Minimum: 0 °C / Maximum: +35 °C		
Initial Set Time	10 – 20 minutes		(ASTM C266) (Modified)
Final Set Time	15 – 25 minutes		(ASTM C266) (Modified)
Waiting Time / Overcoating	Approx. 15 minutes after adding powder to the water		

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. Properties tested at +23 °C (73 °F) / 50 % r.h. unless stated otherwise.

LIMITATIONS

- Important: protect stored material from exposure to

rain, condensation and high humidity as moisture may penetrate packaging, causing lumps.

- For best results, condition product to temperatures between +18 °C and +29 °C (65 and 84 °F) prior to mixing and installation. Lower temperatures may result in slower strength development and longer cure times.
- Product will not freeze at ambient and surface temperatures down to -30 °C (-22 °F) if appropriate precautions are taken. Maximum application temperature : +35 °C (95 °F). Consult Sika Canada for more informations.
- Minimum application thickness: 13 mm (1/2 in) as a

mortar and 38 mm (1 1/2 in) when extended with aggregate.

- Not compatible with normal-setting bonding agents, such as SikaTop® Armatec-110 EpoCem® and Sikadur®-32 Hi-Mod.
- Do not add sand, fine aggregate or cement to SikaSet®-45.
- Do not feather edge.
- Use only potable water.
- Extending with aggregates will reduce compressive and flexural strengths. Dimensions and grading of aggregates will influence effect on physical properties; pre-testing is recommended.
- Do not use as a precision grout.
- Membranes and coatings are not compatible with SikaSet®-45; the mortar should be left as finished and not receive a surface treatment as adhesion cannot be assured.
- When used in contact with aluminum or galvanized steel, consult Sika Canada.

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

Remove all deteriorated concrete, dirt, oil, grease or any contaminants or conditions that may affect adhesion or overall product performances. Be sure repair area is not less than 13 mm (1/2 in) in depth. Following ICRI Guideline 310.2, the concrete surface must be clean, sound and mechanically prepared to obtain a surface profile of CSP 6 – 10 (ex : hydrodemolition, scarification, scabbling + sandblasting, etc.). Check concrete surface for evidence of carbonation using a pH indicator. If surface is carbonated, remove concrete to depth that is not carbonated and proceed with repairs. Follow ICRI Guideline 310.1 for the preparation of the repair perimeter, the repair area geometry and for the cleaning of the concrete and reinforcing steel surfaces. Saw-cutting the edges is recommended. Saturate the surface to be repaired with clean water. Substrate should be saturated surface dry (SSD) with no standing water prior to application. Verify the absence of micro cracking following ICRI Guideline 310.2. To ensure optimum repair results, the effectiveness of cleaning and preparation should be assessed by a pull-off test.

MIXING

Water content is critical, use a maximum of 1.9 L (4 pints) of water per 22.7 kg (50 lb) bag of SikaSet®-45. Mechanically mix in an appropriately sized mortar mixer. Wet down tools and mixer to be used. Pour clean (potable) water into the mixer. Add aggregate, if extending the unit for deep patches. If aggregate is damp, lower the water proportion accordingly. Add the SikaSet®-45 powder to the mixer and mix for 1.5 to 2 minutes. Following this sequence will ensure consistent and uniform batches. **SikaSet®-45 should be mixed, placed and finished within 10 minutes [+20 °C (68 °F)] from the time that the powder is added to the water.** Use neat material for patches from 13 to 38 mm (1/2 to 1 1/2 in) deep. For application greater than 38 mm (1 1/2 in) in depth, add up to 15 kg (33 lb) of 10 mm (3/8 in) coarse aggregate. The aggregate must be non-reactive (as per ASTM C1260, C227, and C289), clean, well graded, oven-dried, have low absorption, high density and comply with ASTM C33, size number 8 per table 2.

Note: The addition rate of 13.6 kg (30 lb) of coarse aggregate increases the unit yield to approx. 16.4 L (0.58 ft³).

APPLICATION

A scrub coat should be applied prior to placement of mortar. Apply a 3 mm (1/8 in) thick scrub coat of SikaSet®-45 into the substrate, filling all pores, voids and edges. Onto the fresh scrub coat, force the mortar against the edge of the repair area or onto the resurfacing site, working towards the centre and observing minimum and maximum layer thicknesses. After filling repair, screed off excess. Allow concrete to set to desired stiffness, then finish. To control setting times, cold water should be used in hot weather and hot water in cold weather.

CURING TREATMENT

SikaSet®-45 should air cure for proper curing, but should be protected from rapid moisture loss during first three (3) hours. To do so, a liquid curing compound or polyethylene can be used, as well for protecting fresh SikaSet®-45 from rain. **Never wet cure SikaSet®-45.**

CLEAN UP

Clean all tools and equipment immediately after use with water. Once hardened, material can only be removed manually or mechanically.

LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for exact product data and uses.

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

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Product Data Sheet

SikaSet®-45
September 2022, Version 01.01
020302040030000048

