

PRODUCT DATA SHEET

SikaEmaco® T 45 Highway

Pre-mixed, one-part, cementitious, 'non-shrink' (shrinkage compensated), rapid strength bedding mortar designed to be opened to traffic after only 45 minutes

PRODUCT DESCRIPTION

SikaEmaco® T 45 Highway is a very high-performance, pre mixed, one-part, cementitious, shrinkage compensated ('non-shrink'), fast-setting bedding mortar, suitable for the support of road ironwork and highway furniture. The mixed mortar, when placed, has been formulated to harden in approximately 10 minutes. The compressive strength gain is designed to reach 20 N/mm² within 45 minutes, allowing early opening of roads to vehicular traffic. The self-contained Product only needs to be mixed with water on site and the rapid setting assists the rebedding of manhole frames and the setting of new frame systems. The Product can be classed as 'chloride-free' and can be safely used with cast iron and steel units. The mortar can be placed in sections of 10 mm to 100 mm in thickness. Greater thicknesses can be built up in layers. After placement, no special curing is required in moderate ambient conditions.

USES

- Re-bedding of all access covers.
- Bedding of frames in new roads.
- Fast installation of kerbs.
- Rapid support of, and fixing, street furniture.
- Emergency repairs.
- Fast anchoring of rebar, threaded rods, etc.
- Rapid placement of paving (i.e. pavers, slabs, blocks, granite setts, etc.).

CHARACTERISTICS / ADVANTAGES

- Ready to use, just add water.
- Easy to mix and apply.
- Very high early strength gain, even at low temperatures.
- Application range: 10 to 100 mm per layer.
- 'Non-shrink' (shrinkage compensated).
- Supplied in convenient, contractor-friendly 20 kg

- bags and plastic pails (which can be used for mixing).
- Stiff workable mortar consistency.
- High bond strength.
- No special curing needed.
- Does not require a primer.
- Very rapid setting.
- Ready to receive traffic after only 45 minutes.
- Compressive strength ~95 N/mm² at 28 days.
- Resistant to freeze / thaw action.
- EN 1504-6 CE Marked for anchoring.
- Reaction to fire Euroclass A1 ('non-combustible').
- Incorporates dust reduction technology ensuring a cleaner, safer work space.
- Non-corrosive (very low chloride content), so can be used safely in contact with steel.
- Temperature insensitive - similar performance between +5°C and +30°C.
- To improve performance, the Product can be modified with SikaCem® Fibres-6.

APPROVALS / STANDARDS

CE marking and declaration of performance based on EN 1504-6:2004 Products and systems for the protection and repair of concrete structures — Anchoring reinforcing steel bar.

SikaEmaco® T 45 Highway has been tested in accordance with the appropriate parts of BS EN 12390.

The Product complies with the requirements of the Design Manual for Roads and Bridges Volume 7 Pavement Design and Maintenance Section 2 Pavement Design and Construction Part 4 HD 27/15 - Pavement Construction Methods (superseded by Design Manual for Roads and Bridges CD 226 - Design for new pavement construction). Mortars for bedding ironwork, such as manhole cover frames during repairs, may be trafficked when the strength is expected to be >20 N/mm². For rapid construction, this strength should be achieved within 2 hours. SikaEmaco® T 45 Highway has been designed to achieve the required strength of 20 N/mm² after only 45 minutes at temperatures

between +5°C and +30°C.

PRODUCT INFORMATION

Chemical Base	Cement, selected fillers and aggregates, special synergistic additives.				
Packaging	20 kg bags and 20 kg plastic pails				
Appearance / Colour	Grey powder				
Shelf Life	6 months				
Storage Conditions	Store properly in dry conditions in undamaged and unopened original sealed packaging.				
Density	Unmodified: ~2260 kg/m³ (hardened density) Modified with SikaCem® Fibres-6: ~2295 kg/m³ (hardened density)				
Soluble Chloride Ion Content	<0.01%		(EN 1015-17)		
Compressive Strength	Product unmodified:				
	Age	+5°C	+20°C	+30°C	(EN 12190)
	45 Minutes	~22 N/mm²	~23 N/mm²	~40 N/mm²	
	1 Day	~75 N/mm²	~80 N/mm²	~82 N/mm²	
	7 Day	~85 N/mm²	~90 N/mm²	~95 N/mm²	
	28 Day	~87 N/mm²	~95 N/mm²	~103 N/mm²	
	NOTE:				
	▪ All tests completed using 11 % (2.2 litres per 20 kg of powder) water addition.				
	▪ Compressive strengths at +5°C determined with powder and water at +5°C.				
	▪ Compressive strengths at +20°C determined with powder and water at +20°C.				
	▪ Compressive strengths at +30°C determined with powder temperature of +30°C and +20°C water temperature.				
	Product modified with SikaCem® Fibres-6:				(EN 12190)
	Age	+5°C	+20°C	+30°C	
	45 Minutes	~27 N/mm²	~28 N/mm²	~45 N/mm²	
	1 Day	~80 N/mm²	~85 N/mm²	~88 N/mm²	
7 Day	~88 N/mm²	~93 N/mm²	~96 N/mm²		
28 Day	~92 N/mm²	~100 N/mm²	~105 N/mm²		
NOTE:					
▪ SikaCem® Fibres-6 dosed at 0.375 % (i.e. one 150 g bag of SikaCem® Fibres-6 to 40 kg of powder).					
▪ All tests completed using 11.5 % (2.3 litres per 20 kg of powder) water addition.					
▪ Compressive strengths at +5°C determined with powder and water at +5°C.					
▪ Compressive strengths at +20°C determined with powder and water at +20°C.					
▪ Compressive strengths at +30°C determined with powder temperature of +30°C and +20°C water temperature.					
Pull-Out Resistance	≤ 0.6 mm at load of 75 kN (dry)		(EN 1881)		
	≤ 0.6 mm at load of 75 kN (wet)		(EN 1881)		
Reaction to Fire	Euroclass A1				
Flow resistance	Product unmodified:				
	Temperature		Motorised Table Flow		
	+5°C		~160mm		
	+20°C		~157mm		
	+30°C		~157mm		

NOTE: Determinations completed on unmodified mortar with 11 % (2.2 litres per 20 kg of powder) water content.

Product modified with SikaCem® Fibres-6:

Temperature	Motorised Table Flow
+5°C	~135mm
+20°C	~135mm
+30°C	~135mm

NOTE:

- SikaCem® Fibres-6 dosed at 0.375 % (i.e. one 150 g bag of SikaCem® Fibres-6 to 40 kg of powder).
- Tests on fibre-modified Product completed using 11.5 % (2.3 litres per 20 kg of powder) water addition.

Mixing Ratio	2.1 to 2.4 litres of water for 20 kg of powder. If required, SikaCem® Fibres-6 should be dosed at 0.375 % (i.e. one 150 g bag of SikaCem® Fibres-6 to 40 kg of powder).	
Open Time	Temperature	Open Time
	+5°C	~10 minutes
	+20°C	~8 minutes
	+30°C	~8 minutes
Consistency	Stiff, workable mortar.	

VALUE BASE

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.

LIMITATIONS

- Do not use outside of the stated water content range.
- Application temperature range +5 to +30°C.
- The substrate must be clean and surface dry (no standing water).
- Protect freshly laid material from strong direct sunlight, rain, frost and snow.
- Clean all mixing equipment and tools before setting commences.

ECOLOGY, HEALTH AND 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

SUBSTRATE PREPARATION

Laitance and all loose material including dust, oil and grease should be removed in order to produce a sound substrate. The work area should be pre-wetted (ideally saturated surface dry) taking care to remove any standing water before placing the mortar.

MIXING

To achieve the most consistent mortar mix, mechanic-

al mixing is recommended. Thorough hand mixing can be used, but care should be taken to ensure that the mix is fully wetted out without the use of excess water. Mechanical mixing may be carried out in a suitable vessel using a slow speed high torque drill and paddle. Hand mixing may be carried out using a clean spot board or wheelbarrow.

20 kg of SikaEmaco® T 45 Highway requires 2.1 to 2.4 litres of water to give a stiff mortar. Additional water should not be added. Once setting has commenced, further mixing should not be used to rework the mix. The mortar should be fully placed within approximately 10 minutes of mixing. The working time may be extended in cold ambient conditions, and may be slightly shortened in hot ambient conditions. If SikaCem® Fibres-6 are to be incorporated, refer to the Product Data Sheet for this Product. Dosage shall be 0.375 % (i.e. one 150 g bag of SikaCem® Fibres-6 to 40 kg of powder).

APPLICATION

Required mixing water is 2.1 to 2.4 litres per unit. Do not add additional water. Variations in water content for particular applications may alter mortar consistency and compressive strength achieved.

Set suitable levelling shims onto the working surface ready to receive the frame or unit. Place the mixed mortar onto the prepared surface and lower the frame or unit onto the mortar and knock down onto the pre-set shims to line and level. The bed thickness applied in a single application should be between 10 mm to 100 mm. Thicker support beds can be achieved by applying further material as soon as the lower bed has hardened sufficiently not to distort under the additional work.

The placed mortar has been formulated to have hardened sufficiently to carry out further work, such as haunching, within approximately 15 minutes, depending on the ambient conditions.

CURING TREATMENT

No special curing is required at temperatures between +5 and +30°C. For placing at temperatures outside this range, contact Sika® Technical Services.

CLEANING OF TOOLS

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

LOCAL RESTRICTIONS

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

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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Product Data Sheet

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