

PRODUCT DATA SHEET

Sikacrete[®]-650 Tecfast

Deep Section, Rapid Setting, EN 1504-3 Class R4, Pourable Repair Micro-Concrete

PRODUCT DESCRIPTION

Sikacrete[®]-650 Tecfast is a cement based, one-component, rapid setting, shrinkage compensated ('non-shrink') repair micro-concrete.

Sikacrete[®]-650 Tecfast is suitable for all concrete works where early strength development is required in order to allow early use of the placed sections. The Product may be used for localised repairs, plus large area placement or reinstatement of concrete pavements.

USES

- High early strength grade (HES) track concreting.
- Construction of rail sleeper support pads.
- Concrete support of pit blocks.
- Reinstatement of deteriorated pavement areas.
- Constructing new pavement areas.
- Concrete repairs to accept foot and vehicular traffic.
- Structural support requirements.
- High strength support sections for steel and concrete superstructures.
- Other concreting works requiring rapid return to service (e.g. roads and runways).

CHARACTERISTICS / ADVANTAGES

- Easy to use - just add water.
- Rapid setting, allowing a fast return to service.
- High early strength gain.
- 20 to 650mm application layer thickness.
- Good chemical resistance.
- No special curing needed.
- No primer required.
- Shrinkage compensated ('non-shrink').
- Pourable consistency ensuring ease of use.
- Incorporates dust reduction technology (>75% reduction from equivalent conventional products) ensuring a cleaner, safer work space.
- Chloride 'free' (<0.01%), so can be safely placed in contact with steel.
- Reaction to fire Euroclass A1 ('non-combustible').
- Temperature insensitive - similar performance between +5°C and +30°C.

APPROVALS / STANDARDS

- Sikacrete[®]-650 Tecfast complies with the classification R4 according to EN 1504-3 and is a concrete repair product for structural repair CC mortar (i.e. based on hydraulic cement).
- Complies with the requirements of the Manual of Contract Documents for Highway Works (MCHW) Specification for Highway Works (SHW) CC 484 Concrete repairs (formerly Series 5700).

PRODUCT INFORMATION

Chemical Base	Portland cement, selected fillers and aggregates, special synergistic additives.
Packaging	25kg bags
Appearance / Colour	Grey powder
Shelf Life	6 months

Storage Conditions	Store properly in dry conditions in undamaged and unopened original sealed packaging.		
Density	~2350 kg/m ³ * * Hardened density determined at 28 days.		
Maximum Grain Size	D _{max} : ~4.0mm		
Soluble Chloride Ion Content	<0.01%		(EN 1015-17)
Compressive Strength	EN 1504-3 Class R4 (EN 12190)		
	Age	+5°C	+20°C
	1 Hour	≥30 MPa	≥30 MPa
	2 Hours	≥40 MPa	≥40 MPa
	1 Day	≥70 MPa	≥70 MPa
	3 Days	≥75 MPa	≥75 MPa
	7 Days	≥77 MPa	≥77 MPa
	14 Days	≥80 MPa	≥80 MPa
	28 Days	≥85 MPa	≥85 MPa
	NOTE:		
	<ul style="list-style-type: none"> Compressive strengths at +5°C determined with 10.2% water addition (i.e. 2.55 litres per 25kg bag). Compressive strengths at +20°C determined with 10.4% water addition (i.e. 2.60 litres per 25kg bag). Compressive strengths at +30°C determined with 10.6% water addition (i.e. 2.65 litres per 25kg bag), and water temperature +10°C. To maintain performance at lower temperatures, a lower water content (within the permissible range) should be used. To maintain performance at higher temperatures, a higher water content (within the permissible range) is recommended. 		
Modulus of Elasticity in Compression	36.1 GPa at 28 days		(EN 13412)
Tensile adhesion strength	3.5 MPa		(EN 1542)
Reaction to Fire	Euroclass A1		
Capillary Absorption	≤ 0.5 kg·m ⁻² ·h ^{-0.5}		(EN 13057)
Carbonation Resistance	dk ≤ control concrete MC (0.45)		(EN 13295)
Skid / Slip Resistance	SRT	69	(EN 13036-4)
Freeze thaw resistance	3.3 MPa (Pass)		(EN 13687-1)
Mixing Ratio	10.2% to 10.6% (i.e. 2.55 to 2.65 litres per 25kg bag)		
Yield	One 25kg bag will yield ~12 litres of mixed material.		
Layer Thickness	20mm minimum / 650mm maximum		
Product Temperature	+5°C minimum / +35°C maximum		
Ambient Air Temperature	+5°C minimum / +35°C maximum		
Substrate Temperature	+5°C minimum / +35°C maximum		
Pot Life	~10 minutes		
Open Time	Ambient Air Temperature	Open Time	
	+5°C	~20 minutes	
	+20°C	~15 minutes	
	+30°C	~11 minutes	
Application Time	The Product should be placed within 10 minutes when fully mixed. NOTE: Warmer temperatures will accelerate the Product; colder temperatures will retard the Product.		

Surface moisture content

The surface moisture contents were measured with a Tramex Moisture Meter on a 400mm deep application at various intervals, with the results as follows:

Age	Surface Moisture Contents
24 Hours	4.0%
48 Hours	3.8%
72 Hours	3.2%

NOTE: Ambient air temperature was +25°C, and the relative humidity was 48%.

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.

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

NOTES ON INSTALLATION

- Do NOT exceed maximum water addition.
- Use only clean, potable water for mixing.
- Do NOT part mix - only use full units.
- Active cracks must be made passive / static prior to application.
- Vibrating pokers may be used to ensure full compaction.
- If mixing with a drill and paddle:
 - The drill shall be high torque, slow speed (i.e. 200 to 500 rpm) with a suitable mixing paddle.
 - Use a clean, rigid mixing vessel - flexible containers (e.g. 'gorilla tubs') are unsuitable.
 - Add the appropriate quantity of clean, potable water to the mixing vessel first and gradually add the powder to the water, mixing continuously.
 - Keep the mixing head in the material - refrain from lifting in and out, as this will introduce air.
 - Once all powder has been added, mix until homogeneous (i.e. at least 90 seconds).
 - Do NOT try and mix too many bags at a time! Most drills and paddles are only capable of mixing one bag at a time. Large volumes require specialist machinery.
- Use only on clean, sound substrates free of loose material (concrete shall be soaked to saturated surface dry (SSD) condition).
- Application temperature range +5°C to +35°C.
- Avoid application in direct sun and / or strong wind.
- Due to the rapid setting nature of the Product, pumping is NOT recommended. The Product can be poured into position.
- Wherever possible, pour continuously from one side or area only (keep any header boxes / hoppers topped up for the duration of the application).
- Do NOT add additional water if surface finishing, as

this will cause discoloration and / or cracking.

- Do NOT apply to substrates that are likely to be affected by freeze-thaw action.
- When the ambient temperature is warm, protect the working area from direct sunlight with temporary shelters or canopies. Do NOT expose equipment, materials or application to direct sunlight.

EQUIPMENT

As an alternative to mixing with drills and paddles, the Euromair MixPro 100 Paddle Mixer (415v) has been successfully used to fully mix and discharge 50kg of Product in ~3 minutes.

Pan-type mixers such as CreteAngle or Rojo, or a tipping type mixer such as a Portamix Mega Hippo, may also be used.

SUBSTRATE QUALITY / PRE-TREATMENT

All excavation work and installation of shuttering must be completed prior to start of mixing. All formwork should be of adequate strength, treated with release agent and sealed to prevent leakage. Sealing can be achieved by using Sikaflex®-11 FC Purform sealant beneath or around formwork and between joints. Ensure formwork includes outlets for extraction of the presoaking water.

Break out defective concrete to an appropriate profile. Surfaces must be sound, clean, free from ice, oils, grease, standing water and any loose or friable particles and any other surface contaminants. The concrete substrates should be pre-soaked with clean water continuously to ensure a saturated surface dry (SSD) substrate is achieved throughout the operation. Immediately before pouring the Product, remove all excess or standing water from within any formwork, cavities or pockets. A matt damp condition is ideal.

MIXING

Mixing should be undertaken using a pre-calibrated water measure and a purpose designed, handheld paddle mixer such as Refina.

Alternatively, Euromair MixPro 100 Paddle Mixers (see 'Equipment' Section), a pan-type mixers such as CreteAngle or Rojo, or a tipping type mixer such as a Portamix Mega Hippo may be used.

Mix Sikacrete®-650 Tecfast in close proximity to the point of application. Measure the appropriate amount of clean, potable water and add into the a clean mixing vessel. Sikacrete®-650 Tecfast should be added slowly whilst continuously mixing. Mix thoroughly for

at least 90 seconds to produce a pourable, self-compacting micro-concrete. **Once setting of the micro-concrete has commenced, re-tampering or further mixing should NOT be attempted.**

APPLICATION

Mixed Sikacrete®-650 Tecfast should be placed onto the dampened prepared surface as soon as mixing is complete. Once placed, fully compact the micro-concrete to obtain maximum strength development. The bed thickness applied in a single application should be between 20mm and 650mm.

CURING TREATMENT

No special curing is required at temperatures between +5°C and +35°C.

CLEANING OF TOOLS

Clean all tools and application equipment with water immediately after use. Hardened / cured 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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