

## Maleki-IFS 400

### Standard Industrial Floor System

Item-No.: 1410

Self-leveling industrial floor. Hardens fast and tension-relieved with a layer thickness of 2 – 50 mm.



### Technical data

<b>Product type</b>	CT-C50-F10-A9 according to DIN EN 13813	<b>Mixing ratio</b>	4.5 l water per 25 kg powder
<b>Compressive strength</b>		<b>Flexural strength</b>	
1 day	> 25 N/mm <sup>2</sup>	1 day	> 4.5 N/mm <sup>2</sup>
7 days	> 35 N/mm <sup>2</sup>	7 days	> 7.5 N/mm <sup>2</sup>
28 days	> 50 N/mm <sup>2</sup>	28 days	> 12 N/mm <sup>2</sup>
<b>Abrasion resistance according to Böhme</b>	A9	<b>Grain size</b>	< 0.5 mm
<b>Processing time at 20°C</b>	approx. 25 min	<b>Slip resistance / displacement space</b>	
<b>Processing temperature</b>	min. +2 °C, max. +35 °C	Without quartz sand	R 10
		With quartz sand	R 13 / V8
<b>Application thickness</b>	2 - 50 mm	<b>Consumption</b>	approx. 1.8 kg / m <sup>2</sup> and mm layer thickness
<b>Loadability</b>	Curing at 20°C	<b>Density</b>	
Walkable	after 4 hours	Bulk density	approx. 1.1 kg/dm <sup>3</sup>
Light load	1 day	Fresh mortar density	approx. 2.0 kg/dm <sup>3</sup>
Fully loadable	4 days		
Fully loadable in exterior areas	7 days		

### Properties

- Eco-Binder technology
- environmentally friendly
- mineral
- very low emission EMICODE EC 1<sup>PLUS</sup>
- fast curing and tension-relieved
- waterproof up to 1.5 bar
- fulfills the requirements for conductivity according to DIN EN 61340-5-1
- high flowability
- high abrasion resistance
- easy application
- also processible by machine

### Range of usage

- for indoor and outdoor use
- for revision of concrete and screed
- as coating for areas with high mechanical load like garages, warehouses und production areas
- suitable for use in food processing companies
- quickly usable final coating
- for the rigid coating of heavily loaded, drivable surfaces.
- walkable after 4 hours

- applicable in layer thicknesses of 2 – 50 mm, for larger areas a layer thickness of approx. 3 – 5 mm is recommended
- for application of class DS 1 visible leveling compounds according to TKB-Technical Briefing Note 19 of the German Adhesives Association (Industrieverband Klebstoffe e.V.)

### Product systems

- Industrial Flooring System
- Maleki-CP OS 8 (Car park coating)

### Substrates

- Concrete
- Cement and calcium sulfate-based screed, heated and non-heated
- Self-leveling compounds, floor filling compounds
- Asphalt screed
- Magnesia screed
- Dry screed
- Adhering ceramic coverings

### Preparation of substrate

Prior to coating, ensure that the surface is stable and has sufficient surface tensile strength. The surface should also be

ready for coating, dry or matt damp, clean and free from all kinds of debris. Mechanical surface preparation e.g. shot-blasting is recommended. Due to roughening the surface, the adhesion for the subsequent layer can be improved.

Already existing cracks must be repaired professionally. Cracks with a crack depth and crack width up to 5 mm can be filled with Maleki-FS 440. Cracks which are over 5 mm wide / deep and deeper ruptures must be filled with Maleki-VM 530. In general, only crack patterns that are no longer subject to movement can be repaired force-locked with the products mentioned.

The surface should be permanently vibration-free and crack-free. Therefore, new concrete or screed should have a minimum age of 28 days. The adhesive strength of the substrate must be at least 1.5 N/mm<sup>2</sup>.

The substrate has to be dry for priming, and dried for 2 hours after priming with Maleki-TG 110. By priming the surface, the absorbency of the substrate is adjusted. This avoids the rising of air bubbles during the subsequent coating. In order to guarantee this on critical undergrounds, a test area of 1m<sup>2</sup> should be created. Apply a further layer of primer if necessary. The coating work on the primer has to be finished within 6 hours. Please refer to the technical data sheet of Maleki-TG 110 for more information.

The edge joint must be prepared with a suitable expansion strip. Thereby attention must be paid to a clean adhesion to avoid material flowing below or behind the expansion strip. Expansion joints must be adopted. After finishing all coating works, all joints have to be filled with a permanently elastic compound. Transitions and closing edges should be protected against over-flow by installing end rails.

Maleki-TG 110 is not used as a primer for coating mastic asphalt surfaces. The suitability of each surface must always be checked individually. This must be agreed with customer service. After checking the absorbency, a suitable surface can be slightly pre-wetted before application, if necessary.

For coatings on tiled floors the surface has to be pre-leveled with Maleki-IFS 400. For this purpose, Maleki-IFS 400 is applied by a toothed spatula or a screed rake. The layer thickness above the tile surface should be at least 1 mm. The joint profile has to be fully covered. After curing time of approximately 6 hours the surface can be primed with Maleki-TG 110. The application of the primer with all respective waiting times has to be handled according to the normal substrate preparation. Due to the application on tiled floors attention should be paid to a crack-free underground. Already existing cracks can also be filled with Maleki-FS 440 (s. section for crack repair). However, loose tiles and tiles over cavities must be removed.

For simultaneous work on various substrates with changing absorbencies the surface has to be pre-leveled to maintain a uniform coloring of the mortar. For this purpose, Maleki-IFS 400 is applied by a toothed spatula or a screed rake on the primed surface. The layer thickness should be 1 mm above floor level. All further procedures for application of the actual coating are done according to the coating of tiled floors.

## Mixing and application

### Manual mixing

Mix the material by using a mixing machine. First, add 4.5 liters of water per 25 kg powder material into the mixing container. Then, pour Maleki-IFS 400 inside while stirring. For applications on slopes the water amount can be reduced to 4.25 l. For manual applications the hand-held mixer BSM 2882 by Baier Tools and the Collomix mixing paddle DLX 152 HF are recommended. By using the respective mixing paddle, a proper thread adapter must be used. For mixing of partial quantities in smaller containers the mixing paddle DLX 90 S for drilling machines is recommended. The material has to be mixed intensely for 2 minutes, left to set for 2 minutes, and then mixed again for 1 more minute. Single mixing batches must be mixed fast and uniform. The material has to be poured out seamlessly within the workability time. With manual processing an aeration time of up to 5 minutes has to be maintained between the end of the mixing time and application of the material. This minimizes rising of air bubbles within the poured material. After mixing, apply Maleki-IFS 400 onto the primed surface and distribute it with a pin leveler to the intended thickness. In order to avoid processing marks in the fresh surface do not use a conventional trowel.

For optimal leveling of the fresh mortar and to maintain the flatness tolerances according to DIN 18202 it is recommended to use a layer thickness of approximately 3 – 5 mm for larger areas. Thereby the required layer thickness depends on the surface quality of the substrate which has to be coated.

The fresh surface is to be treated directly with a fine spiked roller in a crosswise motion in order to effectively smooth out any pouring streaks and minor undulations in the substrate. Do not walk in the spiked surface. Consider the spikes to be long enough for the respective layer thickness. For an optimal result, a metal spiked roller with thin spikes is recommended. Alternatively, use a surface scraper to smoothen the surface. The coating has to be protected from too quick drying (solar radiation, draft), frost and rain for the 1<sup>st</sup> 24 hours. Do not cover the finished surface with foils or other materials.

For the generally expected appearance of mineral self-leveling compounds please refer to the fact sheet "Self-leveling compounds in decorative areas".

### Application on larger areas

It is recommended to use bigger mixing devices or mixing pumps for larger areas:

- > 50 m<sup>2</sup>: Mobile mixing station Giant 120 by Baier Tools.
- > 300 m<sup>2</sup>: Continuous mixing pump duo-mix 2000 by m-tec or comparable machine with dual mixing system.

For an even better result, a separate mixing and conveying system is recommended (mixer D20 and pump P20 from m-tec). For more information about the listed machines and the respective application please refer to the current "System Installation Manual for industrial floors".

# Technical data sheet

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## Application as car park coating

For application as a car park coating, the same application principles for Maleki-IFS 400 basically apply. All necessary system products and their use can be found in the "System installation manual Maleki-CP OS 8".

## Tools and cleaning

Hand-held mixer or mixing device, stirrer, trowel, pin leveler, surface scraper, spiked roller and spiked shoes.

All equipment should be washed clean and dried before and after application.

## Post-processing and coating protection

All above-mentioned waiting times depend on the respective ambient conditions and the layer thickness used. All values given are valid for 20°C and for the recommended film thickness of 3 - 5 mm. The following conditions can lead to an extension of the stated waiting times:

- Low temperatures below 10°C
- Permanently high relative humidity
- Installation in high layer thickness above 10 mm

In general, on all surfaces created with Maleki-IFS 400 a suitable protection system must be applied after a drying time of at least 24 hours (see table below). Only when Maleki-IFS 400 is used as a car park coating in the product system "Maleki-CP OS 8" the previously mentioned impregnation and sealing products are not used. In this case, sealing is carried out with Maleki-EP 150. Please refer to the respective data sheets for more information about the used products.

Application	Protection system	Quantity [g/m <sup>2</sup> ]
Car park coating in product system "Maleki-CP OS 8"	Maleki-EP 150	300 per application
- Outdoor areas - Permanent water load and heavy mech. load - Cleaning with high-pressure or steam cleaners - Increase of chem. resistance	Maleki-DW 100 + Maleki-LL 100	50 – 80 15 – 30
- Focus on stain protection and easy cleaning - Increase of chem. resistance - Medium mech. load	Maleki-VS 930	150 – 200 (one layer) Up to 300 (two-layer)

## Packaging and shelf-life

25 kg paper bag

For larger quantities from approx. 24 tons, the material can also be delivered in bag bags. The desired form of delivery must be clarified in advance with the customer service.

Original packing is storable for 9 months in dry and controlled temperate areas (not below 0 °C, recommended 10 – 25 °C). Reseal opened containers immediately and use within a very short time.

## Associated products

Maleki-VM 530	Item-No. 1442
Maleki-FS 440	Item-No. 1413
Maleki-TG 110	Item-No. 1110
Maleki-IFS 400	Item-No. 1410
Maleki-DW 100	Item-No. 1815
Maleki-LL 100	Item-No. 1810
Maleki-VS 930	Item-No. 1828
Maleki-EP 150	Item-No. 1812

## Safety notes

There is no mandatory hazard labeling for Maleki-IFS 400. Avoid inhaling dust when opening packaging. Protect skin and eyes during the mixing process.

Please refer to the Material Safety Data Sheet which can be requested on [www.malekigmbh.com](http://www.malekigmbh.com) for further information on safety during transportation, storage, handling and disposal. Follow instructions on the packaging.

## Relevant regulations and fact sheets

When applying Maleki-IFS 400 the following regulations and fact sheets must generally be observed, unless otherwise specified in this technical data sheet:

### General

#### DIN 18202:2019-07

Tolerances in building construction – Buildings

#### DIN EN 13318:2000-12

Screed material and floor screeds – Definitions

#### DIN EN 13813: 2003-01

Screed material and floor screed – Screed materials – Properties and requirements

#### BEB-Work and information sheet 9.1

Surface tensile strength and adhesive strength of floors. General, testing, influences, assessment.

#### TKB-Technical Briefing Note 9

Technical specification and installation of floor levelling compounds.

#### TKB-Technical Briefing Note 19

Floors made of mineral design/ decorative levelling compounds. Requirements, execution and classification.

#### TR Instandhaltung

Technical rule "Maintenance of concrete structures", Part 1 and 2 (May 2020) – Surface protection system OS 8

### Maleki data sheets

Technical data sheets of all listed system products

Fact sheet Self-leveling compounds for decorative areas

# Technical data sheet

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System Installation Manual – Maleki-Industrial Flooring System

System Installation Manual – Maleki-CP OS 8

## Notes

The application has to be protected from drying too quickly (due to drafts or intense heat from the sun) for at least 24 hours. Some minor color differences are inevitable due to different production batches. This should be taken into account while performing work. It is necessary to work on designated sections with the same batch (see label) if a uniform color is desired. Due to different water addition during application or changing working techniques light color shades in the coating surface can occur. Please take note that this coating is a mineral product. Product colors are not fully conformed to the RAL-Map and therefore they should only be seen as estimated classifications.

In case of extreme climatic conditions at the limits of the recommended application temperatures (+2 - 35°C), it is recommended to apply a small test quantity to check the workability time under the given conditions.

The content of this technical data sheet corresponds to the latest development and our applications experience. All information is based on ideal conditions and therefore does not apply for every application purpose. Due to different materials, substrates and different actual site conditions no warranty is given for the customer's application. In particular, we assume no liability based on this information or any verbal statements. The only exception is when we can be blamed for the case of intent or gross negligence. In that case the customer has to prove that he has transmitted all required information completely and in a timely manner for a proper and promising evaluation by Maleki GmbH. Any further details regarding the application of our products have to be confirmed in writing by Maleki GmbH. The customer must test the product's suitability for the intended application and purpose. We reserve the right to change the product specifications due to the ongoing development. Apart from that our general terms and conditions are valid. This data sheet supersedes all earlier technical data on this product. The technical data sheet can be requested on [www.malekigmbh.com](http://www.malekigmbh.com).



### Maleki GmbH

Carl-Stolcke-Straße 1  
D - 49090 Osnabrück  
Fon. +49 541 2024799-0  
Fax +49 541 2024799-9

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No. 1410 EN

### EN 13813

#### EN 13813 CT-C50-F10-A9

Self-leveling industrial floor. Hardens fast and tension-relieved with a layer thickness of 2 – 50 mm.

Fire behavior	A2
Compressive strength	C50
Flexural strength	F10
Release of corrosive substances	CT