

HEGSEL Flex 540

Elastic 2-component polyurethane floating/wear coating for car park surface protection systems

Description:

HEGSEL Flex 540 is an elastic 2-component polyurethane coating, used as a floating layer for crack-bridging surface protection systems in accordance with RILI-SIB OS11a/b.

HEGSEL Flex 540 is used in the system as an intermediate layer, flexible even at low temperatures, in underground car park and multi-storey car park coatings with an increased risk of crack formation.

In accordance with the DAfStb (German Committee for Reinforced Concrete) guideline on the protection and maintenance of concrete structures, the product is suitable for the application of car park surfaces with OS11 coating, with increased dynamic crack-bridging capability for surfaces that can be walked and driven on.

HEGSEL Flex 540 is resistant to frost and de-icing salt and permanently protects the fabric of the building against the penetration of water and de-icing salt.

HEGSEL Flex 540 is a component of a complete car park system for surfaces that are exposed to different requirements.

The system components are:

- **HEGSEL Pox 484**
"2-component epoxy resin primer"
- **HEGSEL Pox 488**
"2-component epoxy resin primer"
- **HEGSEL Flex 540**
"2-component polyurethane floating coat, cold-flexible"
- **HEGSEL Flex 544**
"2-component polyurethane wear coat"
- **HEGSEL Pox 473**
"2-component epoxy resin top sealer, flexibilized"
- **HEGSEL Flex 545**
"2-component polyurea sealer, coloured, non-yellowing and weather-resistant"

Characteristics:

- Elastic and flexible even at low temperatures
- Dynamically crack-bridging
- Resistant to frost and de-icing salt
- Impervious to liquids

Application:

- As a crack-bridging floating layer for the OS 11a surface protection system for indoor and outdoor car park structures
- As a crack-bridging scattering and wear layer for the OS 11b surface protection system for indoor and outdoor car park structures
- As a highly elastic and tension-equalising intermediate layer
- As a sealing layer in garages or multi-storey car parks

Technical data:

Mixing ratio	Parts by weight	A : B = 1 : 1
	Parts by volume	A : B = 100 : 150
Processing time	Temperature	10 °C / 50 °F 20 °C / 68 °F 30 °C / 86 °F
	Time	30 - 40 min. 20 - 30 min 10 - 15 min
Processing temperature		Minimum 10 °C / 50 °F (room and floor temperature)
Curing time (Accessibility)	Temperature	10 °C / 50 °F 20 °C / 68 °F 30 °C / 86 °F
	Time	24 - 32 hrs. 16 - 24 hrs. 12 - 16 hrs.
Curing		2 - 3 days for mechanical load at 20 °C / 68 °F 7 days for chemical loading capacity at 20°C / 68 °F
Further coatings		After 18 - 24 hours, but no longer than 48 hours at 20°C / 68 °F
Consumption	Floating layer for OS 11a	Approx. 2.0 - 2.3 kg/m ²
	Floating layer for OS 11b	Approx. 2.0 - 2.3 kg/m ² / Addition of 30 % by weight of quartz sand 0.1/0.3
Packaging		Hobbock combi 30 kg
Shelf life		12 months (in original packaging)

1. Build-up of Coats

Surface protection system in accordance with DAfStb guideline OS 11a

Coating with increased dynamic crack-bridging capability for surfaces that can be walked and driven on as well as for open decks

- Prepare the substrate preferably through shot-blasting and thoroughly vacuum off.
- Prime with **HEGGEL Pox 484**, consumption approx. 0.3 - 0.4 kg/m². Open sanding with quartz sand, grain size 0.3/0.8 mm, consumption approx. 0.5 - 1.0 kg/m².
- Alternatively **HEGGEL Pox 488** can be used as pre-filled primer, consumption approx. 0.3 - 0.6 kg/m². Open sanding with quartz sand, grain size 0.3/0.8 mm or 0.7/1.2 mm, consumption approx. 0.5 - 1.0 kg/m².
- Apply the floating coat **HEGGEL Flex 540** with the toothed rake, consumption approx. 2.0 - 2.3 kg/m².

In accordance with the maintenance guidelines, corresponding layer thickness allowances are required when there is roughness.

- Fill the **HEGGEL Flex 544** wear coat with approx. 20 % quartz sand with grain size 0.1/0.3 mm and mix until homogeneous.
- Apply the **HEGGEL Flex 544** wear coat with the toothed rake, consumption approx. 2.2 - 2.5 kg/m².

In accordance with the maintenance guidelines, corresponding layer thickness allowances are required when there is roughness.

- Scatter the full surface with quartz sand, grain size 0.3/0.8 mm, consumption approx. 4 - 6 kg/m². After curing, remove excess sand, brush off loose grains and vacuum the entire surface thoroughly.
- For exposed surfaces, the non-yellowing top coat **HEGGEL Flex 545**, consumption approx. 0.6 - 0.9 kg/m², is applied with a foam rubber wiper and distributed evenly in criss-cross strokes with a velour roller.
- Alternatively, the flexible top coat **HEGGEL Pox 473**, consumption approx. 0.6 - 0.9 kg/m², may be applied.

Important notes:

- The maintenance guidelines require compliance with the layer thicknesses in order to achieve the certified properties such as crack-bridging in class IIT-V.
- For OS 11a, a minimum layer thickness of 1.5 mm is required for the elastic surface protection coating (floating

coat), and 3.0 mm for the wear coat, plus the coating thickness allowance for roughnesses.

- Only coating OS 11a may be used on exposed car park decks.
- For further requirements, see the maintenance guidelines.

Surface protection system in accordance with DAfStb guideline OS 11b

Coating with increased dynamic crack-bridging capability for surfaces that can be walked and driven on

- Prepare the substrate preferably through shot-blasting and thoroughly vacuum off.
- Prime with **HEGGEL Pox 484**, consumption approx. 0.3 - 0.4 kg/m². Open sanding with quartz sand, grain size 0.3/0.8 mm, consumption approx. 0.5 - 1.0 kg/m².
- Alternatively **HEGGEL Pox 488** can be used as pre-filled primer, consumption approx. 0.3 - 0.6 kg/m². Open sanding with quartz sand, grain size 0.3/0.8 mm or 0.7/1.2 mm, consumption approx. 0.5 - 1.0 kg/m².
- Fill the floating coat **HEGGEL Flex 540** with approx. 30 % quartz sand with grain size 0.1/0.3 mm and mix until homogeneous.
- Apply the floating coat **HEGGEL Flex 540** with the toothed rake. Consumption approx. 2.8 - 3.2 kg/m² mixing.

In accordance with the maintenance guidelines, corresponding layer thickness allowances are required when there is roughness.

- Scatter the full surface of the fresh coating with quartz sand, grain size 0.3/0.8 mm, consumption approx. 4 - 6 kg/m². After curing, remove excess sand, brush off loose grains and vacuum the entire surface thoroughly.
- Apply the flexible top coat **HEGGEL Pox 473**, consumption approx. 0.6 - 0.9 kg/m², with a foam rubber wiper and evenly distribute in criss-cross strokes with a velour roller.
- Alternatively **HEGGEL Flex 545** can be used as a non-yellowing top coat, consumption approx. 0.6 - 0.9 kg/m².

Important notes:

- The maintenance guidelines require adherence to the layer thicknesses in order to achieve the tested properties such as crack-bridging in class IIT-V.
- For OS 11b, a minimum layer thickness of 4.0 mm is required, plus the layer thickness allowance for roughnesses.
- Coating OS 11b must not be used on exposed car park decks.
- For further requirements, see the maintenance guidelines.

2. Substrate

The substrate to be coated must be level, dry and dust-free, have sufficient tensile and compression strength and be free from weakly bonded components or surfaces. Materials impairing adhesion such as grease, oil and paint residues and other soiling must be removed by suitable means.

Please refer to the notes in the product information of the recommended HEGGEL primers **HEGGEL Pox 484** and/or **HEGGEL Pox 488**.

The surface strength must then amount to at least 1.5 N/mm². For concrete, the moisture content must not exceed 4.5 CM-%. Rising damp must be permanently excluded. Primers must not be left uncovered for more than 48 hours or must be scattered with quartz sand. The substrates to be coated must be prepared mechanically, preferably through shot-blasting.

Careful saturated and pore-free priming of the prepared surface is required. As it is often difficult to assess whether substrates are pore-free, a scratch coat is also recommended for smoothing the substrate. Failure to carry out pore-free priming of the substrate could result in bubbles and pores in the coating due to the air rising from the substrate. Old substrates must be cleaned prior to mechanical preparation. If old synthetic resin surfaces are to be coated, they must be checked to ensure that sufficient adhesion is achieved. In case of doubt, a test surface is recommended.

The refurbishment of floors outside the usual requirements requires further substrate tests (e.g. through testing of the adhesive tensile strength).

3. Mixing

With combi packages, one package contains the material in exactly the right mixing ratio, weighed in the factory. The package for component B has sufficient volume to hold the entire quantity. Empty all of component A into the resin container. Mixing is carried out mechanically with a slow-running mixer (200 - 400 rpm) for 2 - 3 minutes until a homogeneous, streak-free compound is obtained. To avoid mixing errors, it is recommended to decant the resin/hardener mixture thoroughly into a clean container and then to briefly mix it again. Should quartz sand be added, this must be stirred in immediately after mixing.

4. Processing

Processing is carried out immediately after mixing. To maintain the layer thicknesses specified in accordance with RILI-SIB, apply with a notched trowel (with the recommended toothing).

Consumption and, if relevant, the wet coating thicknesses must be monitored.

The coating compound is configured for optimal ventilation, nevertheless it is recommended to work with the spiked roller to improve the transfer to the substrate, optimise levelling and remove any air bubbles.

Depending on the temperature, application with the spiked roller is to be carried out after 10 - 20 minutes. To ensure that there are no streaks, always work "fresh-on-fresh" and define working areas before starting work.

Due to ventilation, do not scatter too soon; at 20 °C / 68 °F, the optimal scattering time is after 15 - 30 minutes.

The air and floor temperature must not fall below 10 °C / 50 °F and the humidity must not exceed 75 %. The difference between the floor and room temperature should be less than 3 °C / 37.4 °F so curing is not disturbed. If a dew point situation occurs, standard curing may malfunction and spotting occur. Exposure to water should

be avoided during the first 7 days. The specified curing times are based on a temperature of 20 °C / 68 °F. The processing and curing times will increase at lower temperatures and decrease at higher temperatures. Failure to adhere to the processing conditions could result in deviations from the technical properties of the end product (surface and load-bearing capability).

5. Cleaning

To remove fresh impurities and clean tools immediately after use, use **Cleaner V30** or **V40**. Cured material can be removed only mechanically.

6. Storage

Store in a dry place, free from frost. Ideal storage temperature: 10 - 20 °C / 50 - 68 °F. Bring to a suitable processing temperature before processing. Seal

opened containers tightly and consume as soon as possible.

7. Special Remarks

The product is subject to the hazardous material regulation, operational safety regulation as well as the transport regulations for hazardous substances. Refer to the DIN safety data sheet and the information on the container label.

GISCODE: PU 20

VOC content labelling:

(EU Regulation 2004/42)

Maximum Permissible Value 500 g/l (2010,II,j/lb): Ready-for-use product contains < 500 g/l VOC.

Technical Data*

Viscosity	Components A + B	3000 - 4000	mPas	DIN EN ISO 3219 (23 °C / 73.4 °F)
Density	Components A + B	approx. 1.30	kg/l	DIN EN ISO 2811-2 (20 °C / 68 °F)
Shore hardness A		68	-	DIN 53505 (after 7 days)
Elongation at break	23 °C / 73.4 °F	approx. 600	%	DIN 53504
Tensile strength	23 °C / 73.4 °F	approx. 4	N/mm ²	DIN 53504
Elongation at break	-20 °C / -4 °F	approx. 300	%	DIN 53504
Tensile strength	-20 °C / -4 °F	approx. 12	N/mm ²	DIN 53504

(*Values achieved in sampling are average values. Variation in product specification is possible.)

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All information contained herein is based on the current state of our knowledge and practical experience at the time of release. Therefore, please make sure that this is the actual edition of the Technical Data Sheet. All data are only intended as a guideline for informational purposes and do not constitute a legally-binding warranty of the suitability for a certain purpose of use, due to its dependence on site conditions and possible processing, use and applications. All information contained in this technical datasheet is subject to change without notice.

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