

HEGSEL Flex 544

2-component polyurethane wear coating car park surface protection system

Description:

HEGSEL Flex 544 is an elastic 2-component polyurethane coating used as a wear layer for crack-bridging surface protection systems according to RILI-SIB OS11a in underground car park and multi-storey car park coatings.

HEGSEL Flex 544 is used to form the system's top wear coat.

To achieve this, **HEGSEL Flex 544** is pre-filled with natural quartz sand with grain size 0.1/0.3 mm and the entire surface is scattered with natural quartz sand grain size 0.3/0.8 mm.

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 OS 11a car park coatings with increased dynamic crack-bridging capability for surfaces which can be walked and driven on.

HEGSEL Flex 544 is resistant to frost and de-icing salt and permanently protects the building fabric against the permeation of water and de-icing salt.

HEGSEL Flex 544 is a component of a complete car park system for surfaces which are subject 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 even at low temperatures"
- **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"

The top coat is applied using the flexibilised epoxy resin top sealer **HEGSEL Pox 473** or the non-yellowing and weather-resistant 2-component polyurea top sealer **HEGSEL Flex 545**.

Characteristics:

- Solvent-free
- Very good flow
- Elastic and formable
- Hard-wearing

Application:

- As a resistant wear and /or scatter coat for the OS 11a surface protection system

Technical data:

Mixing ratio	Parts by weight Parts by volume	A : B = 5 : 1 A : B = 100 : 25
Processing time	Temperature Time	10 °C / 50 °F 45 minutes 20 °C / 68 °F 25 minutes 30 °C / 86 °F 15 minutes
Processing temperature		Minimum 10 °C / 50 °F (room and floor temperature)
Curing time (Accessibility)	Temperature Time	10 °C / 50 °F 24 – 36 hrs. 20 °C / 68 °F 18 - 24 hrs. 30 °C / 86 °F 12 - 16 hrs.
Curing		2 – 3 days for mechanical loading capacity 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		Approx. 1.8 - 2.1 kg/m ² with 20 % additional natural quartz sand with grain size 0.1/0.3mm
Packaging		Hobbock combi 30 kg
Colour		Colours available on request
Shelf life		12 months (in original packaging)

1. Build-up of Coats

Surface protection system in accordance with DAfStb guideline OS 11a

Coating with improved, dynamic crack-bridging capability for surfaces which 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**, consumption approx. 0.3 - 0.6 kg/m², can be used as pre-filled primer. Open sanding using 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 layer **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 wear coat **HEGGEL Flex 544** with approx. 20 % of quartz sand grain size 0.1/0.3 mm and mix until homogeneous.
- Apply the wear coat **HEGGEL Flex 544** 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 entire surface using quartz sand grain size 0.3/0.8 mm, consumption approx. 4 - 6 kg/m². Remove excess sand after curing, brush off loose grains and thoroughly vacuum off the entire surface.
- For exposed surfaces, apply the non-yellowing top sealer **HEGGEL Flex 545**, consumption approx. 0.6 - 0.9 kg/m², with a foam rubber wiper and evenly distribute in crisscross strokes using a velour roller.
- Alternatively, apply the flexibilised top sealer **HEGGEL Pox 473**, consumption approx. 0.6 - 0.9 kg/m².

Important notes:

- The maintenance guidelines require compliance with the layer thicknesses for attaining the certified properties, such as class IIT-V crack-bridging.
- For OS 11a, a minimum layer thickness of 1.5 mm is required for the system's

elastic layer (floating coat) and of 3.0 mm for its wear coat, plus the coating thickness allowance for roughnesses.

- Only OS 11a coatings are allowed to be used on exposed parking decks.
- For further requirements, see maintenance guidelines

2. Substrate

The substrate to be coated with **HEGGEL Flex 540** must be dry, dust- and dirt-free, as well as free from weakly-bonded components impairing adhesion.

The suitability of the product combination must be checked/applicable. If in doubt, please seek advice. Should **HEGGEL Flex 544** be applied onto the floating layer **HEGGEL Flex 540**, this must happen within 48 hours.

The following applies in general:

Materials impairing adhesion such as fat, oil and traces of paint and other contaminants should be removed using suitable methods. Please refer to the product information of the recommended **HEGGEL Pox 484** and **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 longer than 48 hours, or they must be scattered with quartz sand. The substrates to be coated should be mechanically prepared, preferably by shot blasting. The prepared area must be primed carefully and in a saturated and pore-free way. As it is often difficult to assess whether substrates are pore-free, a scratch coat is recommended to smooth the substrate. If the substrate has not been sealed completely, blisters and pores may appear in the coating as a result of the air rising from the substrate. Cleaning must be carried out on old substrates before the mechanical preparation. If old synthetic resin surfaces are coated, testing should be carried out to ensure that sufficient adhesion will be achieved. When in doubt, a test area is recommended. The refurbishment of floors outside the usual requirements requires substrate testing, e.g. testing of the adhesion tensile strength.

3. Mixing

For combi-packaging, a ready mix contains the factory-weighed material at exactly the right mixing ratio. Component B's packaging 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 speed 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 compound into a clean container ("to repot") 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 with the rake or notched trowel by applying an even layer on the prepared substrate. The layer thicknesses must be checked.

The coating is configured for optimal ventilation, never the less ventilating with the spiked roller is recommended to improve the transfer to the substrate, to optimise levelling and remove air bubbles. Depending on the temperature, application with the spiked roller is to be carried out after 15 - 20 minutes. To work seamlessly, always apply "fresh-on-fresh" and define working areas before commencing work.

Due to ventilation, do not undertake scattering too early; optimal time at 20 °C / 68 °F after 20 - 30 minutes.

The floor and air temperature must fall below 10 °C / 50 °F and the air humidity must not exceed 75 %. The difference between the floor and room temperatures must be less than 3 °C so that curing is not disturbed. If a dew-point situation occurs, normal curing may be disturbed and spotting may 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 to clean tools, use **Cleaner V30** or **V40** immediately after use. Hardened material can only be removed mechanically.

6. Storage

Store in a dry place and protect against frost. Ideal storage temperature 10 - 20 °C / 50 °F - 68 °F. Bring to the correct 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 and the transport regulation for hazardous goods. Refer to the DIN safety data sheet and to 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	3600-4200	mPas	DIN EN ISO 3219 (23 °C / 73.4 °F)
Density	Components A + B	1.50	kg/l	DIN EN ISO 2811-2 (20 °C / 68 °F)
Solid content	Components A + B	>99	%	HEGSEL method
Shore-hardness D		55-60	-	DIN 53505 (after 7 days)

(*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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