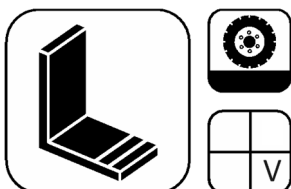


Wecryl Waterproofing System under asphalt

ETAG 033 and ZTV-ING, Part 6, Section 3 “TL/TP-BEL-B 3”
(version from 1995)



Short description

The Wecryl Waterproofing System under asphalt is an innovative PMMA waterproofing system with outstanding crack-bridging performance. It uses the high-quality, extremely flexible PMMA-based waterproofing resin Wecryl 240 /-thix as a sealing layer with improved crack-bridging properties under asphalt, in accordance with ETAG 033 and ZTV-ING (Supplementary Technical Regulations and Guidelines for the Protection and Maintenance of Concrete Components) Part 6 Section 3 (TL/TP-BEL-B 3, 1995 (Technical Delivery Conditions / Test Regulations for Construction Materials used in Bridge Deck Surfacing on Concrete with a Waterproofing Layer)).

Furthermore, the product can be used as a sealing layer under poured asphalt in accordance with DIN 18532-6. Its application in liquid form makes seamless waterproofing of continuous areas possible – without embedded nonwoven reinforcement.

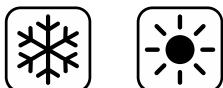
Characteristics and benefits

- Highly flexible and crack-bridging even at temperatures down to -20 °C (100,000 dynamic cycles, and also
- tested to crack-bridging class B 4.2 at -30 °C)
- Tested and approved in accordance with TL/TP-BEL-B 3 (1995) as a sealing layer for bridge deck surfacing on concrete
- Waterproofing resin without nonwoven reinforcement
- Static crack-bridging after exposure to stress > 8.0 mm
- Very good adhesion to both poured and rolled asphalt, and consequently good shear strength
- Fully bonded to the substrate, no seepage
- Fast, simple application
- Rapid curing
- Solvent-free

Areas of application

Wecryl 240 /-thix is used for waterproofing concrete structural components with separating cracks and routine mechanical stress, e.g. on bridges, sunken motorways and tunnel floors. Wecryl 240 /-thix serves as a highly flexible waterproofing layer with outstanding crack-bridging properties under protective and covering asphalt layers for foot and vehicle traffic. It can also be used on steel bridges.

Application conditions



Temperatures

The system can be applied in an ambient temperature range from 0 °C to +35 °C. Some products are also suitable for application at sub-zero temperatures. Please refer to the table below for exact details.

Product	Temperature range (°C)		
	Air	Substrate*	Material
Wecryl 821	+5 to +30	+5 to +30*	+10 to +30
Wecryl 130	0 to +35	+3 to +30*	+3 to +30
Wecryl 131	0 to +35	+3 to +30*	+3 to +30
Wecryl 131 K	0 to +35	+3 to +30*	+3 to +30

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Waterproofing layer			
Wecryl 240 /-thix	-5 to +35	+3 to +35*	+3 to +30
Protective layer			
WestWood® Tack Resin	-5 to +35	+3 to +35*	+3 to +30
Wecryl 890 Tack Resin	-5 to +35	+3 to +35*	+3 to +30

* The substrate temperature must be at least 3 °C above the dew point during application and curing.

Application rates and curing times

Product	System build-up				
Substrate	Roughness height	1. layer	2. layer	3. layer	4. layer
Concrete	< 1.5 mm	Wecryl 130, approx. 0.6 kg/m ² + QS 0.4-0.8 mm approx. 1.5-2.0 kg/m ²	Wecryl 130, approx. 0.5-0.6 kg/m ²	Wecryl 240, approx. 2.4 kg/m ²	Wecryl 890, approx. 0.4 kg/m ² or WestWood® Tack Resin approx. 0.4 kg/m ²
Concrete	> 1.5 mm	Wecryl 130, approx. 0.6 kg/m ² + QS 0.4-0.8 mm, approx. 1.0 kg/m ²	Wecryl 131 K, approx. 1.7 kg/m ² per 1 mm layer thickness	Wecryl 240, approx. 2.4 kg/m ²	Wecryl 890, approx. 0.4 kg/m ² or WestWood® Tack Resin approx. 0.4 kg/m ²
Steel	-	Wecryl 240, approx. 2.4 kg/m ²	Wecryl 890, approx. 0.4 kg/m ² or WestWood® Tack Resin approx. 0.4 kg/m ²		

Roughness heights must be determined in accordance with RiLi-SIB (determination of roughness height) and an additional operation may be required to level out or smooth over the surface. In the case of roughness heights > 1.5 mm, we recommend levelling out the roughness height with Wecryl 131 K or Wecryl 131. Roughness heights > 5 mm should not be levelled out; in such cases, concrete repair with a PCC mortar is required. The scratch coat is applied to the previously applied primer. The scratch coat must not be applied directly to the concrete substrate.

Product	Curing time (approx. values at 20 °C)			
	Pot life	Rainproof	Overlayable	Fully cured
Wecryl 821	15 min	30 min	45 min	2 hours
Wecryl 130	10 min	30 min	60 min	3 hours
Wecryl 131 K	12 min	30 min	60 min	3 hours
Wecryl 131	12 min	30 min	60 min	3 hours
Wecryl 240 /-thix	15 min	45 min	1.5 hours	3 hours
Wecryl 890 Tack Resin	10 min	30 min	60 min	3 hours
WestWood® Tack Resin	15 min	60 min	65 min	3 hours

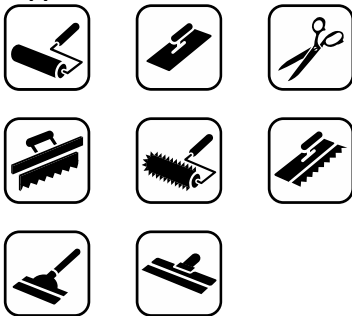
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Product	Usable life of mix > 10 minutes at substrate temperature in °C and catalyst amount:							
	+3	+5	+10	+15	+20	+25	+30	+35
Wecryl 821, 25 kg can	8%	7%	5%	3%	3%	2%	1%	-
Wecryl 130, 25 kg can	6%	4%	3%	3%	1.5%	1%	1%	-
Wecryl 131 K, 25 kg can	2%	1.5%	1.5%	1%	1%	0.5%	0.25%	-
Wecryl 131, 25 kg can	6%	4%	3%	3%	1.5%	1%	1%	-
Wecryl 240 /-thix, 25 kg can	6%	6%	4%	4%	2%	2%	2%	1%
Wecryl 890, 25 kg can	4%	4%	4%	2%	2%	2%	1.5%	-

At very cool temperatures (< 10 °C), the mixture must be stirred for a longer time. This applies especially to Wecryl 240 /-thix, which should be stirred for at least 4 minutes.

-Application tools



Product	Application tool
Wecryl 821	Rubber squeegee: use the back side and do not draw forcefully Sheepskin roller for smoothing out excess material Brush (only for areas not accessible with the sheepskin roller)
Wecryl 130	Notched rubber squeegee (3 mm), no smoothing out required; alternatively: Rubber squeegee (take care to ensure adequate coverage) and then smooth out with the sheepskin roller
Wecryl 131 K/Wecryl 131	Rubber squeegee: use the back side
Wecryl 240	Notched rubber squeegee (11 mm) and spiked steel roller
Wecryl 240 /-thix	Sheepskin roller
Wecryl 890	Notched rubber squeegee (3 mm)
WestWood® Tack Resin	Sheepskin roller

Substrate preparation and primer selection

Correct substrate preparation and a proper primer coating are essential to ensure the functional durability of the WestWood® system.

The substrate must be prepared in accordance with ZTV-ING, Part 6, Section 1. This can be done by methods such as shot blasting, scarifying, grinding etc. Apply the primer only to prepared substrates. The bonding and adhesion of the sealer or primer to a mineral substrate relies on careful and intensive substrate preparation. High-strength concrete, vacuum-treated surfaces or extremely smoothed, very dense concrete surfaces require a more intensive preparation compared to normal concrete surfaces. After preparation, the embedded aggregate should be clearly visible. In some cases, a test surface should be created.

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Once the substrate has been prepared, the bond strength of the concrete must be checked.

The mean bond strength must be at least 1.5 N/mm². The lowest individual value must not be less than 1.0 N/mm².

Generally, the substrate must be sound, dry and free from loose or adhesion-reducing particles. That is why paint coats, cement slurry, dirt and grease must always be removed completely. As a rule, this is done by shot blasting, scarifying or grinding, and then vacuuming off the debris. The roughness height of the surface must then be determined using the sand patch method, and the values for additional layer thickness must be complied with (see DAfStb guidelines (published 2001), "Part 3, section 3.2.5 - Determination of roughness height" and table 5.2).

The primer layer then applied creates an ideal barrier and enables optimal adhesion between the substrate and the WestWood® system.

The surface temperature must be at least 3 °C above dew point.

Dew point table:

Air tem- pera- ture	Dew point in °C at relative humidity of:										
	45 %	50 %	55 %	60 %	65 %	70 %	75 %	80 %	85 %	90 %	95 %
2	-7.8	-6.6	-5.4	-4.4	-3.2	-2.5	-1.8	-1.0	-0.3	0.5	1.2
4	-6.1	-4.9	-3.7	-2.6	-1.8	-0.9	-0.1	0.8	1.6	2.4	3.2
6	-4.5	-3.1	-2.1	-1.1	-0.1	0.9	1.9	2.7	3.6	4.5	5.4
8	-2.7	-1.6	-0.4	0.7	1.8	2.8	3.8	4.8	5.7	6.5	7.3
10	-1.3	0.0	1.3	2.5	3.7	4.8	5.8	6.8	7.7	8.5	9.3
11	-0.4	1.0	2.3	3.6	4.7	5.8	6.7	7.7	8.6	9.4	10.2
12	0.4	1.8	3.2	4.5	5.6	6.7	7.8	8.7	9.6	10.5	11.3
13	1.3	2.8	4.2	5.4	6.6	7.7	8.7	9.6	10.5	11.4	12.2
14	2.2	3.8	5.1	6.4	7.6	8.7	9.7	10.7	11.6	12.6	13.4
15	3.1	4.7	6.1	7.4	8.5	9.6	10.7	11.7	12.6	13.5	14.4
16	4.1	5.6	7.0	8.3	9.5	10.6	11.7	12.7	13.6	14.6	15.5
17	5.0	6.5	7.9	9.2	10.4	11.5	12.5	13.6	14.5	15.4	16.2
18	5.9	7.4	8.8	10.1	11.3	12.4	13.5	14.6	15.4	16.3	17.3
19	6.8	8.3	9.8	11.1	12.3	13.4	14.5	15.5	16.4	17.4	18.2
20	7.7	9.3	10.7	12.0	13.2	14.4	15.5	16.5	17.4	18.4	19.2
21	8.6	10.2	11.6	12.9	14.2	15.4	16.4	17.4	18.4	19.3	20.2
22	9.5	11.2	12.5	13.9	15.2	16.3	17.4	18.4	19.4	20.3	21.2
23	10.4	12.0	13.5	14.9	16.0	17.3	18.4	19.4	20.4	21.3	22.2
24	11.3	12.9	14.4	15.7	17.1	18.2	19.2	20.3	21.4	22.3	23.2
25	12.2	13.8	15.4	16.7	18.0	19.1	20.2	21.4	22.3	23.3	24.2
26	13.2	14.8	16.3	17.7	18.9	20.1	21.3	22.3	23.3	24.3	25.2
27	14.1	15.7	17.2	18.6	19.8	21.1	22.2	23.3	24.3	25.2	26.1
28	15.0	16.6	18.1	19.4	20.9	22.1	23.2	24.3	25.3	26.2	27.2
29	15.9	17.6	19.0	20.5	21.8	23.0	24.2	25.2	26.2	27.3	28.2
30	16.8	18.4	20.0	21.4	23.7	23.9	25.1	26.1	27.2	28.2	29.1
32	18.6	20.3	21.9	23.3	24.7	25.8	27.1	28.2	29.2	30.2	31.2
34	20.4	22.2	23.8	25.2	26.5	27.9	28.9	30.1	31.2	32.1	33.1
36	22.2	24.1	25.5	27.0	28.4	29.7	30.9	32.0	33.1	34.2	35.1
38	24.0	25.7	27.4	28.9	30.3	31.6	32.8	34.0	35.0	36.1	37.0
40	25.8	27.7	29.2	30.8	32.2	33.5	34.7	35.9	37.0	38.1	39.1

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Humidity

The relative humidity must be $\leq 90\%$.

The surface to be coated must be dry and free of ice.

Check the dryness of the concrete surface by heating small areas of it with a blower or hot-air fan (if the concrete is damp, this will make it noticeably lighter in colour).

The surface must be protected from moisture until the coating has hardened.

Concrete substitute systems

Since the primer was developed specifically for concrete, its use on concrete substitute systems must be tested separately, since curing problems can occur.

Primer layer

The primer is applied to the prepared substrate.

Wecryl 821 – substrate stabiliser

Wecryl 821 is a fast-curing, ultra-low-viscosity primer which reliably seals cracks and pores. Wecryl 821 is ideal for improving surface strength on porous substrates. The use of this system component is not mandatory, but it can be used as an optional addition to deal with the aforementioned problems. Ideally Wecryl 821 should be applied evenly with a rubber squeegee. The resin penetrates quickly into the substrate; more resin should then be applied wet-on-wet until a thin film is visible on the surface. Once cured, continue by applying the primer Wecryl 130.

Wecryl 130 – primer for mineral substrates

Wecryl 130 fills the pores in the surface of the concrete and creates a permanent bond between the concrete and the next layer. Two coats are applied, with a topping of quartz sand in between. The second coat is not topped with quartz sand.

As a first coat, Wecryl 130 is applied to the substrate with a notched rubber squeegee (3 mm) at a rate of approx. 600 g/m^2 until the surface is saturated, or with an ordinary rubber squeegee before smoothing out with a sheepskin roller. Topping with (kiln-dried) quartz sand must be started while the primer is being applied. The sand topping should be 0.4 - 0.8 mm thick (application rate: approx. $1.5 - 2.0 \text{ kg/m}^2$). Any sand that is not firmly incorporated in the first coat of the sealer after curing must be removed (by sweeping or blowing away).

The second coat of Wecryl 130 can be applied with a sheepskin roller or rubber squeegee after just 60 min. (temperature-dependent) at a rate of at least 500 g/m^2 .

Wecryl 131 K – scratch coat for greater roughness heights

Roughness heights $> 1.5 \text{ mm} < 5 \text{ mm}$

With filler added at the factory

This is designed to level out substantial roughness of heights $> 1.5 \text{ mm}$ and $< 5 \text{ mm}$. It is applied on top of the cured primer. The Wecryl 131 K scratch coat must be levelled over the tips of its particles. The excellent flow

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properties of Wecryl 131 K enable it to be applied from an upright working position without difficulty, using a rubber squeegee (use the back side). While applying light pressure, draw the material over the rough areas. Avoid drawing it very forcefully over the particles. Wecryl 131 K comes pre-filled at the factory with filling material, so you do not need to add (and should not add) any additional filler to it. Bulking out the Wecryl 131 further is not approved, and alters the product's properties. Also, do not ever make a mortar out of the Wecryl 131 K. This is not approved and likewise alters the properties of the material. The application rate is 1.7 kg/m² per 1 mm layer thickness.

Roughness height x density = approximate application rate per square metre

Example: 3 mm x 1.7 kg/l = 5.1 kg/m²

Wecryl 131 – scratch coat for greater roughness heights

Roughness heights > 1.5 mm < 5 mm

No filler added at the factory

This is designed to level out substantial roughness with heights > 1.5 mm and < 5 mm. It is applied on top of the cured and topped primer. The scratch coat (Wecryl 131) must be levelled over the tips of its particles. Do not ever make a mortar out of the Wecryl 131. This is not approved and alters the properties of the material. The application rate depends on the addition of the filling material. Wecryl 131 is made slightly thixotropic at the factory. This means that the filling material does not immediately sink to the bottom of the can, and instead it remains in suspension after you stir it in carefully. Be sure to mix in the filler first until the correct or desired consistency is reached, and only then add the catalyst. The amount of catalyst to add should be calculated in a ratio to the Wecryl 131, not relative to the finished mixture.

Example: 25 kg Wecryl 131 + 25 kg quartz sand = 50 kg total mixture

The amount of catalyst should only be calculated for the 25 kg of Wecryl 131.

Grading of kiln-dried quartz sand	Mixing ratio Resin : Sand	Result
0.4 – 0.8 mm	1:1	Very easy to apply; the material flows freely.
0.4 – 0.8 mm	1:1.5	Easy to apply
0.4 – 0.8 mm	1:2	Very easy to apply; it is difficult to apply the material from an upright working position.
0.7 – 1.2 mm	1:2	Variant for greater roughness heights; suitable for roughness height > 3.5 mm

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Levelling	Concrete repairs (< 1m ²) in structurally significant areas (horizontal only) could be done with Wecryl 885, for example.
Waterproofing layer	The surfaces of the sealer or scratch coat must cure before the waterproofing layer can be applied. The first stage involves waterproofing any details (e.g. kerbs, penetration points). The waterproofing is then applied to the continuous area.
Detail waterproofing	Wecryl 240 thix Waterproofing of upstand details is done in two stages. The waterproofing of the details is done without nonwoven reinforcement and at least 1.5 kg/m² is applied in each stage. Roll a full-coverage, even layer of the mixed material over the entire area (at least 1.5 kg/m²) with a sheepskin roller. The thickness of the layers can be controlled using a layer thickness map. The wet layer thickness should be at least > 1200 µm in each stage. That will give a correct application rate and the required minimum dry layer thickness of > 2 mm. Once the first waterproofing layer is completely cured, the second waterproofing layer can be applied using the same procedure.
Waterproofing of continuous areas	Wecryl 240 – waterproofing without nonwoven reinforcement Continuous flat areas are waterproofed with a single layer, in a single stage. Apply a full coverage, even layer of the mixed material to cover the entire area (at least 2.4 kg/m²), distribute with a notched rubber squeegee (11 mm) and then immediately go over the surface with a spiked metal roller. Spiking the still-liquid waterproofing helps with deaeration, and makes sure there are no air inclusions left in the waterproofing. The notched rubber squeegee should be held upright, as this is the only way of ensuring the correct and required application rate of 2.4 kg/m². If the waterproofing is applied to the sealer, the tooth height of the notched rubber squeegee should be checked after 400 m², as it will wear on the rough sealer. Defects in the cured waterproofing can be reworked easily afterwards. The cured waterproofing must form a closed surface over the entire area.
Protective layer	Wecryl 890 Tack Resin (poured asphalt) Apply full coverage of Wecryl 890 all over the cured waterproofing with a notched rubber squeegee (2 mm). The notched rubber squeegee should be held upright, as this is the only way of ensuring the correct and required application rate of 0.4 kg/m². Within 14 days, Wecryl 890 should be covered with the poured asphalt. If work is interrupted for > 14 days, the Wecryl 890 must be reapplied. WestWood® Tack Resin (rolled asphalt) The 1- component material is applied evenly with the sheepskin roller to the cured waterproofing layer at an application rate of approx. 0.4 kg/m². The WestWood® Tack Resin must be overlaid with rolled asphalt within seven days. If work is interrupted for > 7 days, the Wecryl Tack Resin must be reapplied.

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Cleaning the tools

If work is interrupted or when it is completed, clean the tools thoroughly with WestWood® Cleaning Agent within the pot life of the material (approx. 10 minutes). This can be done with a brush. The tools are ready to be used again as soon as the cleaning agent has evaporated fully. Simply immersing the tools in the cleaning agent will not prevent the material from hardening.

Information on safety and risks

Please refer to the safety data sheets for the products used.

General information

The preceding information, especially with regard to the application of the products, is based on extensive development work and many years of experience and is provided as the best of our knowledge. However, the wide variety of requirements and conditions on sites-mean it is necessary for the installer to test the product to verify its suitability for the intended purpose. Only the most recent version of the document is valid. We reserve the right to make changes to reflect advances in technology or improvements to our products.

Appendix

System drawings

Last revised: 1 August 2023

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System build-up for roughness heights > 1.5 mm

Substrate

1 Concrete, for example

Primer layer

2 Optional: Wecryl 821

(substrate stabiliser)

3 Wecryl 130

4 Optional: Wecryl 131 / Wecryl 131 K

Waterproofing layer

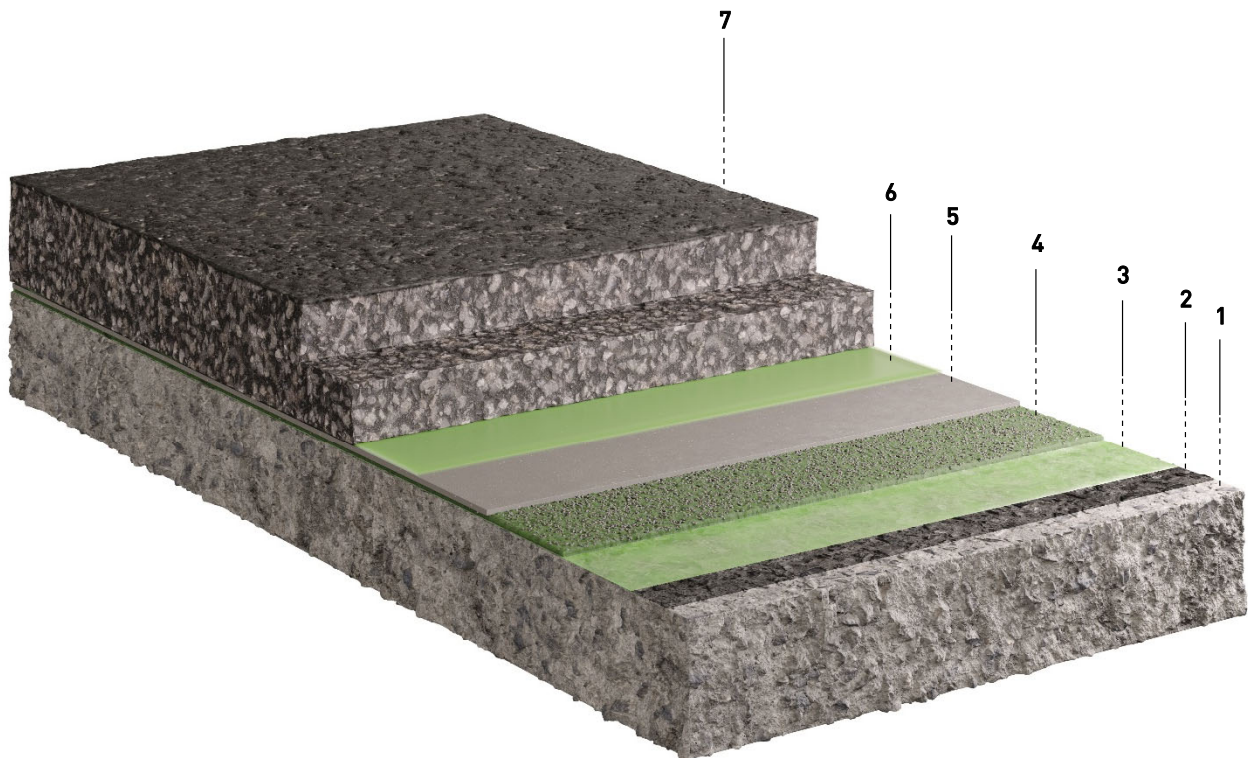
5 Wecryl 240

Protective and wearing layer

6 Wecryl 890 Tack Resin

Finished surface

7 Asphalt



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System build-up for roughness heights < 1.5 mm

Substrate

1 Concrete, for example

Primer layer

2 Optional: Wecryl 821
(substrate stabiliser)

3 Wecryl 130

Waterproofing layer

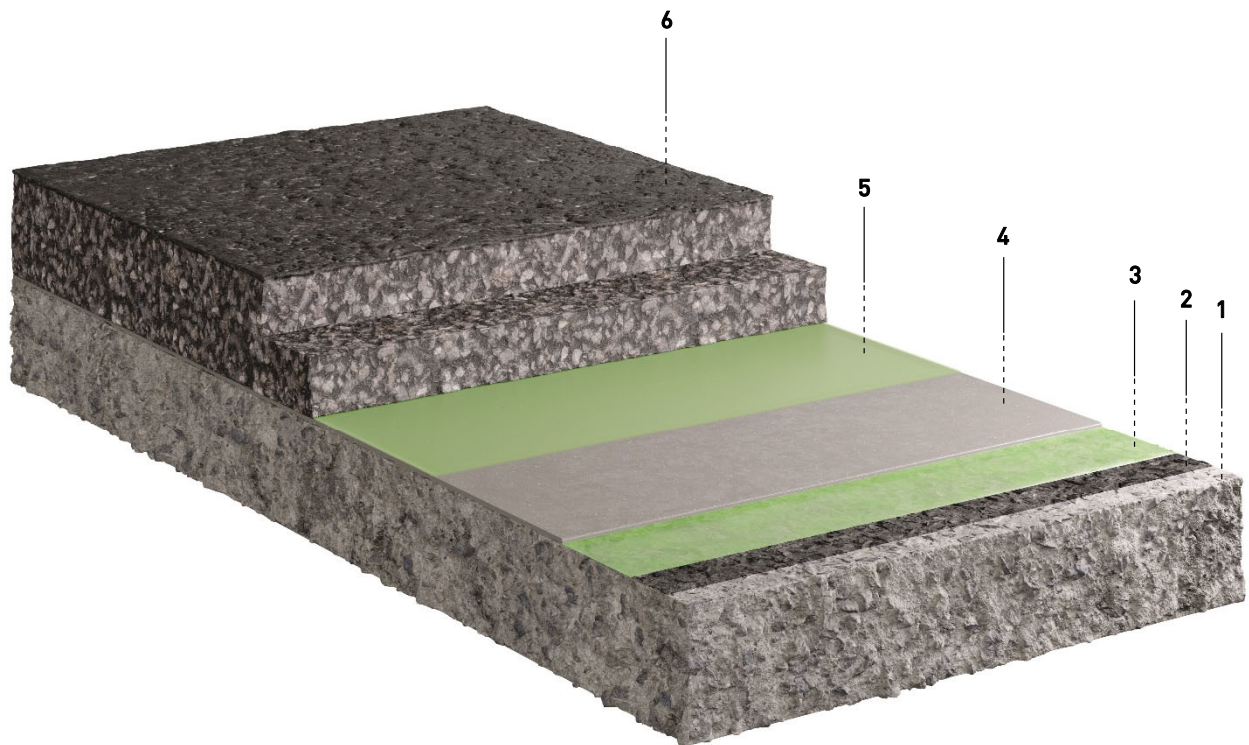
4 Wecryl 240

Protective and wearing layer

5 Wecryl 890 Tack Resin

Finished surface

6 Asphalt



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System build-up with substrate: steel

Substrate

1 Steel

Waterproofing layer

2 Wecryl 240

Protective and wearing layer

3 Wecryl 890 Tack Resin

Finished surface

4 Asphalt

