

HEGSEL FRP 320

Glass Mat Reinforced Phenol Lining System

Description: **HEGSEL FRP 320** is a black, approx. 3 mm thick; glass mat reinforced lining system based on a phenol resin. **HEGSEL FRP 320** is electrically conductive by using a hybrid mat.

- Characteristics:**
- Excellent chemical resistance, especially against acids and solvents
 - High temperature resistance up to 100°C (dry)
 - Electrically conductive

Applications: **HEGSEL FRP 320** can be applied on **HEGSEL Pox** coatings, sheets or rubber linings.

Chemical resistance: Information on the chemical resistance is available on request.

Substrate: Components to be coated shall be designed and manufactured in accordance with EN 14879-1. Before start of coating work, the suitability of the surface preparation measures according EN 14879-1 must be checked and recorded.

Pot life (20°C):

Product	Time (min)
HEGSEL FRP 320	ca. 20

Curing (20°C):

Load Capacity	Time
Over workable	ca. 24 h
Accessible	ca. 24 h

Packaging: The products are supplied in the following standard package sizes:

Product	Size	Article No.
HEGSEL Pox 414 SOLUTION	20 kg	17761815
HEGSEL Pox 414 HARDENER	8 kg	17761845
HEGSEL FRP 320 HARDENER	10 kg	17762490
HEGSEL FRP 320 SOLUTION	20 kg	17762460
Cleaner E-200	4 kg	17701830
Cleaner E-200	8 kg	17701833

Storage:

The products must be stored in a cool and dry place, away from direct sunlight. At the specified storage temperatures a shelf life of the products is given of at least for the following periods:

Product	Temperature	Shelf Life
HEGSEL Pox 414 HARDENER	≤ +25°C	24 Months
HEGSEL Pox 414 SOLUTION	≤ +25°C	24 Months
HEGSEL FRP 320 HARDENER	≤ +25°C	24 Months
HEGSEL FRP 320 SOLUTION	≤ +25°C	9 Months
Cleaner E-200	5-25°C	60 Months

If the storage time is exceeded, the materials must be tested before use. Higher storage and transport temperatures will reduce the shelf life. The containers must be kept tightly closed. Liquid products must be stored frost-proof. In addition, the DIN 7716 must be observed.

1. Surface preparation

Steel and concrete surfaces must be primed with **HEGGEL Pox 414 PRIMER** before application. If a sealing layer of rubber or coating is present, **HEGGEL FRP 320** can be directly applied on the sealing layer. Unevenness should be compensated in the ground.

C-STEEL

All contaminants, including non-visible detectable contaminants, must be removed in accordance with DIN Fachbericht #28 and EN ISO 8502.

Ferrite steel surfaces shall be abrasive blasted to "Near White Metal" in accordance with EN ISO 12944-4. A standard preparation degree of SA 2½ (SSPC SP-10; NACE #2) as specified in EN ISO 8501-1 must be achieved. A minimum surface profile of Rz ≥ 70 microns is required. For substrates made of stainless steel, the degree of roughness must also be "medium (G)" according to EN ISO 8503-1 and a minimum surface profile of Rz ≥ 70 microns. The primer must be applied immediately after the blasting.

CONCRETE

Appropriate action shall be taken to prepare the concrete surfaces; dry and free of dust and free of contaminants such as oil or grease. The concrete shall have minimum tensile strength of 1.5 N/mm². The residual moisture content must not exceed 4%.

2. Environmental conditions

The specified environmental conditions must be observed during surface preparation and coating work and be tested and recorded according EN 14879.

Environmental conditions	Value
Relative Humidity	≤ 80%
Surface Temperature	≥ +10°C up to +30°C
Application Temperature	+20°C ± 5°C recommended
Dew Point Distance	min. 3K

3. Application

The execution of the coating work is only permitted, if the requirements of "Surface Preparation" and "Environmental Conditions" are met.

The execution of the coating work is only permitted, if the requirements of „Surface Pre-treatment" and „Environmental Conditions" are met.

During the curing of phenolic resin, small amounts of water are formed due to the material-specific properties. These evaporate during curing. In order to ensure this, ensure that a continuous curing of the laminate system is provided. Based on this, a layer-wise installation of the glass mats is recommended for steel substrates.

HEGGEL FRP 320 SOLUTION tends to separate water during storage. If there is a water film on top, it is necessary to skim it first before use. Do not mix the water into the solution. Due to the nature of hand craft application, small air inclusions can not be avoided 100%. This is already

considered and it's compensated by a higher lining thickness of **HEGGEL FRP 320**.

APPLICATION STEEL

HEGGEL Pox 414 PRIMER is applied on the substrate by using brushes, wide brushes or rollers. If the overworking time is > 24 hours, the last coat must be grinded.

After the primer has cured, the **HEGGEL FRP 320** solution is applied on the surface by using a roller and then the first 450 g/m² glass mat is pressed fresh – with an over-lapping width of approx. 5 cm – and rolled on free of bubbles by using a roller, saturated with **HEGGEL FRP 320** solution. The remaining air must be removed by using a laminate roller. After a curing time of min. 12 hours (20°C) **HEGGEL FRP 320** solution is applied on the first glass mat and then the second 450 g/m² glass mat is pressed - with an overlapping width of approx. 50 cm – on the uncured layer, soaked with **HEGGEL FRP 320** solution again and rolled on free of bubbles by using a roller, saturated with **HEGGEL FRP 320** solution. The remaining air must be removed again by using a laminate roller. After a further curing time of min. 12 hours (20°C) the **HEGGEL FRP 320** solution is applied on the second glass mat and then a 30 g/m² surface veil is applied as cover fresh in fresh and free from bubbles.

APPLICATION CONCRETE

HEGGEL Pox 414 PRIMER is applied on the substrate by using brushes, wide brushes or rollers. If the overworking time is > 24 hours, the last coat must be grinded. **HEGGEL FRP 320** solution is applied on the surface by using a roller and then the first 450 g/m² glass mat is pressed fresh in fresh – with an overlapping width of approx. 5 cm – and rolled on free from bubbles by using a roller, saturated with **HEGGEL FRP 320** solution. The remaining air must be removed by using a laminate roller. The second 450 g/m² glass mat is pressed - with an overlapping width of approx. 50 cm – on the uncured layer, soaked with **HEGGEL FRP 320** solution again and rolled on free from bubbles by using a roller, saturated with **HEGGEL FRP 320** solution.

The remaining air must be removed again by using a laminate roller. Finally, a 30 g/m² surface veil is applied as cover fresh in fresh and free from bubbles.

CONDUCTIVITY

If **HEGGEL FRP 320** should be conductive, a 290 g/m² hybrid fleece must be applied on the second glass mat instead of the 30 g/m² surface veil.

SLIP RESISTANCE

To improve the slip resistance of **HEGGEL FRP 320**, the fresh laminate coating can be sanded with silicon carbide (0.5mm; Consumption: 1.5 kg/m²).

4. Work tools

The following tools are essential for the application:

- Stirrer (max. 300 r/min.)
- Measuring cup & Mixing vessels
- Flat / wide brush
- Laminate roller
- Scissors
- Miscellaneous (safety glasses, rubber gloves etc.)

5. Mixing ratio

MIXING PRIMER

HEGGEL Pox 414 PRIMER must be stirred before adding the **HEGGEL Pox 414 HARDENER** in the recommended mixing ratio. The stirring of the merged components should be at least 3 minutes and must result in a homogeneous mixture. Then pour the mixture into a clean pail and mix again briefly.

MIXING HEGGEL FRP 320 SOLUTION

HEGGEL FRP 320 SOLUTION must be stirred before adding the **HEGGEL FRP 320 HARDENER** in the recommended mixing ratio. The stirring of the merged components should be at least 3 minutes and must result in a homogeneous mixture. Then pour the mixture into a clean pail and mix again briefly.

PRIMER	Parts by Weight (kg)	Parts by Volume (Liter)
HEGGEL Pox 414 SOLUTION	100	2.00
HEGGEL Pox 414 HARDENER	40	0.81

HEGGEL FRP 320	Parts by Weight (kg)	Parts by Volume (Liter)
HEGGEL FRP 320 SOLUTION	100	2.00
HEGGEL FRP 320 HARDENER	16	0.33

6. Consumption

Layer	Product	Coverage (g/m ²)
Primer	HEGGEL Pox 414 Primer	ca. 300 - 350 (concrete) / ca. 250 (steel)
Laminate Layer	HEGGEL FRP 320	ca. 2600 / ca. 3300*
	2 x Fibreglass mats 450 g/m ²	ca. 1000
	1 x Surface veil 30 g/m ²	ca. 33

* When applying a hybrid fleece

7. Cleaning

Clean all equipment with **Cleaner E-200** immediately after use. The cleaning is done while the material is still not hardened.

8. Safety measures

The material safety data sheets of the individual components, the safety instructions on the packing (label) as well as the legal requirements for handling hazardous materials must be observed.

Technical Data	Standard	Unit	Value
Resistance to Ground	DIN EN 14879	Ω	$\leq 1 \times 10^6$
Density (Mixture)	EN ISO 2811 (ASTM D1475)	g/cm ³	1.16
Adhesion Strength Concrete	EN ISO 4624	N/mm ²	Own tensile strength
Hardness Shore D	-	-	> 60
Max. Operating Temperature Dry	-	°C	+ 100

Note: The indicated temperatures are dependent on the present load and may vary

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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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