HEGGEL® FU 632

Aldehyde-Free Furan Resin Based Mortar with Carbon Fillers

You Build, We Protect!

Description:

HEGGEL FU 632 is a two-component mortar based on a modified aldehyde-free furan resin with a carbon- containing filler used for easy bedding and jointing of acid-resistant ceramic bricks, tiles or carbon bricks.

Characteristics:

- Temperature resistance up to 280°C (immersed) and up to 350°C (short-term) depending on the type of chemical being used
- Excellent chemical resistance to a broad range of media, including inorganic acids (also Hydrofluoric acid)
- Reliable component storage stability, even at elevated temperatures
- Superior adhesion to ceramic tiles, bricks or carbon bricks
- Electrically conductive
- Very good thermal shock resistance
- Great stability in wet-dry transitions areas
- Hardening with low shrinkage

Applications:

The preferred material for lining components exposed to high thermal loads, thermal cycling, inorganic chemical exposure, and frequent dry-to-moist transitions such as those encountered in industrial flue gas cooling, quenches, and venturis.
HEGGEL mortar systems can be used for the full-joint or hollow-joint installation of tiles / bricks.

Chemical Resistance:

Information on the chemical resistance is available on request.

Pot Life (20°C):

Product	Time
HEGGEL FU 632	Approx. 30 - 50 min

Note: Depending on the actual ambient temperature, the pot life may vary. Higher temperatures could shorten the pot life, while lower temperatures would prolong it. For further information, please consult HEGGEL!

Curing (20°C):

Load Capacity	Time
Walkability	At least. 24 hrs.
Chemical / Mechanical Load	At least 7 days

Packaging:

The products are supplied in the following standard package sizes:

Product	Size	Package
HEGGEL FU 632 Solution	25 kg	Hobbock
HEGGEL FU 632 Powder	15 kg	Bag

Storage:

The products must be stored in a cool and dry place and frost-proof conditions. At the indicated storage temperatures, the shelf life of the products is at least the below mentioned periods:

Product	Temperature	Shelf Life
HEGGEL FU 632 Solution	20°C	24 months
HEGGEL FU 632 Powder	20°C	24 months

If the shelf life is passed, the materials must be tested prior to use. Higher temperatures would reduce the shelf life, whereas lower temperatures would extend the minimum shelf life. The containers are to be kept closed tightly.

1. Surface Preparation

As a rule, the mortar should be built up on one of the HEGGEL linings or coatings; in the case that such a sealing layer is not applied, then at least a suitable primer with adequate scattering must be used. Any unevenness in the substrate must already be levelled out.

1.1. Carbon Steel

All contaminants such as those which are not visible but detectable, have to be removed in accordance with DIN Fachbericht # 28 and EN ISO 8502. Ferrite steel surfaces must be 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 is required.

1.2. Concrete

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

2. Environmental Conditions

The specified environmental conditions must be complied with during surface preparation and tile/brick lining. The construction site has to be protected against direct sunlight and draught.

Environmental Conditions	Value
Relative humidity	≤ 80%
Surface & ambient & material temperature	≥ +10°C up to +30°C
Optimum processing temperature	+20°C
Dew Point Distance	min 3°C (At a relative humidity of above 70 % at least 5°C)

Elevated or decreased temperatures could affect the working time and consistency of the mixture. As a result, consumption and application performance may vary.

3. Application Tools

- Mortar mixer
- Joint iron
- Scale
- Drilling machine
- Trowel
- Joint injector
- Measuring cup
- Mixing vessel
- Anchor stirrer

Note: The materials being processed may have a corrosive or damaging effect on mixing and processing tools. Therefore, please ensure that only suitable tools are used.

4. Mixing Instruction

Processing should only begin when the application requirements are fully met and can be consistently maintained throughout the entire processing and curing period.

HEGGEL FU 632	Parts by Weight
HEGGEL FU 632 Solution	100
HEGGEL FU 632 Powder	160

In case of higher ambient temperatures, mix smaller quantities of mortar to prevent the mixture from a strong exothermic reaction. With an anchor stirrer (300 - 500 rpm) blend the solution well before complete or partial use. The stirrer shall be moved across the vessel wall and over the bottom. Liquid components need to be first weighed or measured and then transferred to the mixing vessel. Solid components need to be separately weighed or measured before being added to the solution in portions and blended carefully with an anchor stirrer (300 - 500 rpm) to achieve a lump-free mixture. In the process of mixing, the stirrer must be moved across the vessel walls and past the bottom several times.

5. Application

During application, the substrate must be kept completely dry and free of any moisture, including condensate, mist, etc. **HEGGEL FU 632** is suitable for both the full-joint as well as hollow-joint installation of tiles / bricks.

Apply the mortar to two side edges of the tiles / bricks for full-joint installation, then place the tile/brick in position.

Remove the mortar bead with the trowel and smooth out the joint. For a hollow joint installation, the butt joint shall remain free and be filled later. Extra consideration should be given to ensure that the application is free of voids.

The jointing can be done subsequently with a joint injector, joint iron. To compress the joint, excess material should be pressed with the joint iron into the joint. The remaining material should be removed with the trowel.

When HEGGEL Mortar is being used for hollow-joint installation of tiles, the bedding joint must be cured and dry again. There should be a rectangular cross-section in the open joint (depth: >15 mm, width: 4 - 8 mm). The sides of tiles must be free of mortar and the joints must be clean.

6. Consumption

Required mortar for full-length installation (Bed joint 5 mm, Joint width 7 mm)

Material	Sizes (mm)	Consumption (kg/m²)
Bricks	240 x 115 x 80	Approx.19.50
Bricks	240 × 115 × 65	Approx. 17.25
Tiles	240 × 115 × 40	Approx. 14.25
Tiles	240 × 115 × 20	Approx. 11.25
Bed joint	4 - 7 mm	
Joint width	4 - 8 mm	

7. Cleaning

Any tools that are contaminated with uncured material can be cleaned using **HEGGEL Cleaner**. Only clean in areas with good ventilation and observe safety measures.

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

Title	DIN	ASTM	Value	Unit
Density	DIN EN ISO 1183-1	-	1.5	g/cm³
Flexural Strength *	-	ASTM C580	24	MPa
Compressive Strength *	-	ASTM C579	70	MPa
Tensile Strength *	-	ASTM C307	10	MPa
Flexural Modulus of Elasticity *	-	ASTM C580	5000	MPa
Adhesion Strength to Ceramic Tiles	DIN EN ISO 4624	-	> 2	MPa
Adhesion to Carbon Tiles	DIN EN ISO 4624	-	> Inherent tensile strength carbon tiles	MPa
Ground Dissipation Resistance	DIN EN 14879-6 At > 50% relative humidity	ASTM F150/98	$< 10^8$	Ω

***** Mean value, determined on annealed samples

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HEGGEL GmbH
Huttropstr. 60
45138 Essen
Germany
Tel: +49 201 17003 270
Fax: +49 201 17003 277
E-Mail: info@heggel.de
Web: www.heggel.de