

# HEGSEL FU 631

2-C-furan resin mortar with carbon fillers

**Description:**

**HEGSEL FU 631** is two-component, cold curing synthetic resin mortar, based on a furan resin with carbon fillers. The cured, silicate-free resin mortar is electrically dissipating.

**Characteristics:**

- Very high mechanical load capacity
- Outstanding chemical resistance, especially against hydrofluoric acid, strong lye, solvents and other organic compounds
- High temperature resistance

**Applications:**

**HEGSEL FU 631** is suitable as bedding and jointing mortar for tiles, bricks and fittings made of acid-resistant ceramic, carbon or graphite. **HEGSEL FU 631** is particularly suitable for high chemical loads of acids, including hydrofluoric acid, strong lye and organic solvents at high temperature loads. Main applications are tiling and brick linings of components in the chemical industry, waste water and process water treatment, in the phosphoric acid and sulphuric acid industry, in flue gas desulphurization plants, neutralization- and pickling lines. Due to its good electrical dissipation, **HEGSEL FU 631** is recommended for areas, where sparking shall be avoided due to the possible risk of explosion.

**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 (min):**

Product	15°C	20°C	30°C
HEGSEL FU 631	ca. 70	ca. 40	ca. 20

**Curing (20°C):**

Load Capacity	Time
Accessible	ca. 24 h
Chemical load	ca. 7 Days

**Packaging:**

The products are supplied in the following standard package sizes:

Product	Size	Article No.
HEGSEL FU 631 SOLUTION	20 kg	17760180
HEGSEL FU 631 SOLUTION	200 kg	17760183
HEGSEL FU 631 POWDER	25 kg	17760150
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 FU 631 SOLUTION	5-25°C	12 Months
HEGSEL FU 631 POWDER	-	24 Months
HEGSEL FU 631 UNI	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 a suitable primer before application. The primer must be sanded in a fresh state after the final coat. Usually a sealing layer made of rubber or synthetic resin coating is foreseen, where it is possible to work directly with **HEGSEL FU 631** 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. 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/mm<sup>2</sup>. The residual moisture content must not exceed 4%.

## 2. Environmental conditions

The specified environmental conditions must be observed during surface preparation and brick lining and be tested and recorded according EN 14879-6.

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 brick lining work is only permitted, if the requirements of „Surface Pre-treatment“ and

„Environmental Conditions“ are met. **HEGSEL FU 631** is applied with a trowel onto the substrate or onto the existing lining. The bricks or tiles have to be bedded as far as possible without cavities, either filled-joint or hollow-joint. For the protection of rubber linings usually a thin layer of mortar is trowelled in advance to prevent mechanical damages. In case of an application of hollow-joint tiling into cement or potassium silicate bedding, acid washing with 10% hydrochloric acid or 20% alcoholic sulphuric acid of the open joints is necessary.

## 4. Work tools

The following tools are essential for the application:

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

## 5. Mixing ratio

Pour **HEGSEL FU 631 SOLUTION** in a mixing vessel and add certain amount of **HEGSEL FU 631 POWDER** with the specified mixing ratios, then mix. The components must be mixed thoroughly and intensively. The walls and the bottom of the mixing vessel have to be mixed as well considering that mortar may deposit at those areas. Mix for at least three minutes and until a uniform mixture is achieved.

The filler content of the mixing ratio can be reduced by maximum 10% filler content. If the **HEGSEL FU 631 SOLUTION** is filled from drums, the drums must be stirred up before each discharge by using a drum-rollerback.

HEGSEL FU 631	Parts by Weight (kg)	Parts by Volume (Liter)
HEGSEL FU 631 SOLUTION	100	2.00
HEGSEL FU 631 POWDER	400	7.00

## 6. Consumption

Bedding and jointing (Bed Joint 5 mm / Cross Joint 5-7 mm)

Material	Size (mm)	Coverage (kg/m <sup>2</sup> )
Tiles	240 x 115 x 20	ca. 19
Tiles	240 x 115 x 40	ca. 22
Bricks	240 x 115 x 65	ca. 26
Bricks	240 x 115 x 80	ca. 28

## 7. Cleaning

Clean all equipment with Cleaner E-200 immediately after use.

## 8. Testing

The brick lining work shall be assessed according EN 14879-6 by visual inspection without magnifying lens. There shall be no imperfections (e.g., gaps, voids, unevenness, cracks or mechanical damages), which could impair the protective effect of the tile / brick lining.

## 9. Repair

The defective areas have to be removed with suitable tools and have to be renewed again. Care has to be taken that no damages to the primer and / or sealing layers will occur. Optionally they also have to be renewed. Where post jointing is required, the min. joint depth must be 5 mm. When replacing multi-layered brick linings, a stair-like outbreak has to be ensured.

## 10. 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 ISO 1081	Ω	≤ 1 × 10 <sup>6</sup>
Density	EN ISO 2811 (ASTM D1475)	g/cm <sup>3</sup>	2.3
Compressive Strength	EN ISO 604 (ASTM D695)	N/mm <sup>2</sup>	70
Adhesion Strength	DIN EN ISO 4624	N/mm <sup>2</sup>	≥ 4
Coefficient of Thermal Expansion	DIN 53752 (ASTM C531)	1/K	29 × 10 <sup>-6</sup>
Max. Operating Temperature Liquids	-	°C	+180

**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.

**HEGSEL GmbH**

Hutropstr. 60  
45138 Essen  
Germany

Tel: +49 201 17003 270

Fax: +49 201 17003 277

E-Mail: info@heggel.de

Web: www.heggel.de