HEGGEL® SP 667

Injectable Halogen-Free Water Glass Mortar

You Build, We Protect!

Description:

HEGGEL SP 667 is a three-component, halogen-free, water-glass-based mortar, suitable for use as both a bedding and jointing compound for the installation of acid-resistant tiles and bricks and also as an injection and grouting compound, providing reliable chemical durability for industrial masonry applications. In comparison with conventional water-glass putties, **HEGGEL SP 667** offers an extended application spectrum, enabling use under neutral conditions while delivering excellent resistance to water exposure.
HEGGEL SP 667 is primarily used for strong acidic conditions at elevated temperatures, but it also tolerates situations where occasional neutral, water-based exposure may occur.

Characteristics:

- Excellent acid resistance (not including hydrofluoric acid)
- Highly resistant to oxidizing agents, organic solvents, oils, greases, and fuels, aggressive gases and flue gas components
- Water-resistant, suitable for neutral pH environments, and rainwater-resistant, making it suitable for outdoor use
- Temperature resistance up to 450 °C (Dependent on the type of chemical being used)
- Can be applied to metal surfaces without pre-treatment
- Halogen-free

Application Areas:

In ore processing, **HEGGEL SP 667** is mainly used in pressurised leaching autoclaves, especially in the steam zone. In the chemical and process industries, it is applied as a lining for washing, drying, and absorption towers and chimneys. It is also used for installing acid-resistant ceramic tiles and bricks in secondary containments, production areas, and tank farms.

Chemical Resistance:

Information on the chemical resistance is available on request.

Pot Life (20 °C):

Product	Time
HEGGEL SP 667	~ 30 - 60 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
Accessible / Walkable	At least 24 hrs
Chemical and Mechanical Load	At least 8 days

Packaging:

The products are supplied in the following standard package sizes:

Product	Size	Package
HEGGEL SP 667 Solution 1	25 kg	Hobbock
HEGGEL SP 667 Solution 2	20 kg	Canister
HEGGEL SP 667 Powder	25 kg	Bag

Storage:

The products must be stored in a cool and dry place, away from direct sunlight. The solution part must be frost-free. At the indicated storage temperatures, the shelf life of the products is at least the below mentioned periods:

Product	Temperature	Shelf Life
HEGGEL SP 667 Solution 1	20 °C	24 Months
HEGGEL SP 667 Solution 2	20 °C	24 Months
HEGGEL SP 667 Powder	20 °C	24 Months

Higher temperatures by storage and transport would reduce the shelf life, whereas lower temperatures would extend the minimum shelf life. The containers are to be kept closed tightly.

If **HEGGEL SP 667 solution 2** shows solid particles as a result of crystallization at low temperatures, the product may be re-liquefied and be homogeneous by gentle heating to a maximum of 40 °C for up to 48 hours. During reconditioning, the container must remain properly sealed and should be periodically agitated to facilitate complete homogenization.

1. Surface Preparation

As a rule, the mortar should be built up on one of the HEGGEL linings or coatings. Any unevenness in the substrate must already be levelled out.

1.1. Concrete / Screed

Refer to DIN EN14879-1.
Ensure the surface is prepared properly for adequate adhesive tensile strength. It should be dry, clean, free from any cement slurry, loose parts, defects, contaminants such as oil or grease or any substances that prevent adhesion. The residual moisture content of concrete shall not exceed 4%.
It is essential to protect the coating/lining from potential water or vapor pressure from its reverse side. While all water glass mortars have some porosity that might allow liquids in, it is vital to coat concrete surfaces with a liquid barrier layer, following standard practices for acid-resistant construction. The surface should be prepared so the water glass mortar binds effectively.

1.2. Steel

Refer to DIN EN14879-1.
The steel substrate shall be prepared by near-white blast cleaning to achieve a surface cleanliness level of Sa 2½ in accordance with DIN EN ISO 12944-4. The required surface profile corresponds to Roughness Grade Medium (G) per DIN EN ISO 8503-1, with a minimum surface profile of Rz ≥ 70 µm. Immediately after blasting, effective measures must be taken to prevent flash rust and maintain the specified preparation standard until coating application.

2. Environmental Conditions

The specified environmental conditions must be complied with during surface preparation and tile/brick lining. During the application, the substrate must be kept completely dry. No moisture (condensate, mist, etc.) may get onto the surfaces that are to be protected. The construction site has to be protected against direct sunlight and draught.
Significant day–night temperature fluctuations or frost risk may require climate control to maintain the specified application conditions.

Environmental conditions	Value
Relative humidity	≤ 80%
Surface / material / air 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.)

If frost is expected, weather protection measures (e.g., tenting, heaters) must be adjusted to maintain suitable application conditions. To prevent frost damage to the mortar, the steel or brick surface must be kept at a minimum of 10 °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
- Duo agitator
- Spiral stirrers
- Trowel
- Joint injector
- Measuring cup
- Mixing vessel

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

Note: Do not stir or agitate the liquid components first!
Pour the weighed amount of **HEGGEL SP 667 Solutions** into a mixing vessel. Then, gradually add **HEGGEL SP 667 Powder** in portions. With a Dou agitator mixer set between 300 - 500 rpm, mix the components, making sure to cover the entire vessel, including its sides and bottom. Agitate intensively for roughly 5 minutes, ensuring the crumbly starting mixture develops into a fully homogeneous mortar. Once achieved, allow the mortar to rest for a brief 2-minute period. Following this rest interval, proceed to stir the mixture for an additional 3 minutes.
For smaller quantities, it is fine to mix by hand. Always remember not to use the mortar beyond its recommended working time for optimal results.

Mixing Ratio:

HEGGEL SP 667 (Bedding and Jointing Mortar)	Parts by Weight
HEGGEL SP 667 Solution 1	100
HEGGEL SP 667 Solution 2	21
HEGGEL SP 667 Powder	877
HEGGEL SP 667 (Injection and Jointing Compound)	**Parts by Weight**
HEGGEL SP 667 Solution 1	100
HEGGEL SP 667 Solution 2	14
HEGGEL SP 667 Powder	667

5. Application

Processing may only be started when the application requirements are met and can be maintained during the entire processing and curing.
HEGGEL SP 667 is suitable for both the full-joint as well as hollow-joint installation of tiles / bricks.
For a full-joint installation, apply the mortar to both side edges of the tiles or bricks. Once the mortar is applied, position the tile or brick in its designated place. For optimal adhesion, apply the mortar diligently to both the substrate and the tile or brick, ensuring thorough contact. The brick or tile is then rubbed into the intended position. Using a trowel, clear away the mortar bead and even out the joint. For a hollow joint setup, keep the butt joint free, filling it at a later stage.
The jointing can be done subsequently with a joint injector or 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: 5 - 8 mm). The sides of tiles must be free of mortar and the joints must be clean.
Extra attention must be applied to ensure that the work is free of voids.

Injection Method: For injection of jointing mortar HEGGEL SP 667 into cavities or behind masonry, use a grout gun, or alternatively pour the material in using a calibrated measuring cup.
Note: The HEGGEL SP 667 mortar must be protected from contact with water during application and curing. Water must not be used as a smoothing agent, nor may the material be re-worked with water or additional solution to restore workability at any stage of processing. If the mortar does not adhere and begins to roll off the substrate during application, it must not be used further.

Post Treatment: Acidification is required if neutral exposure is expected (e.g., rainwater before commissioning) or if no acidic medium is present during start-up. At 20 °C, acidification in vessels begins after 3 days at the earliest. For other circumstances, contact HEGGEL.

HEGGEL Acidifying Agent may be used for acidification.

During the period between completion of the lining and commissioning, adequate weather protection must be ensured. All open manholes and nozzles must be closed in a weatherproof manner. Condensation on the vessel interior or lining surface must be strictly avoided; therefore, the relative humidity must be kept below 40%.

6. Consumption

Required Mortar for full-length installation (Bed joint 5 mm, butt Joint width 8 mm)

Material	Size (mm)	Consumption (kg/m²)
Bricks	240 x 115 x 80	~ 28.00
Bricks	240 × 115 × 65	~ 24.80
Tiles	240 × 115 × 40	~ 20.50
Tiles	240 × 115 × 20	~ 16.30
Bed joint	5 - 8 mm	
Joint width	5 - 8 mm	

Note: Values are approximate requirements.

7. Cleaning

Tools stained with uncured materials can be easily cleaned using water.

8. Safety Measures

Ensure adequate ventilation, particularly when working inside enclosed rooms, pits, or confined containers.
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
Density	DIN EN ISO 1183-1	-	Mortar Mass: 2.15 g/cm³ Jointing Mortar: 2.13 g/cm³
Compressive Strength*	-	ASTM C579	60 MPa
Tensile Strength*	-	ASTM C307	7 MPa
Flexural Strength*	-	ASTM C580	16 MPa
Modulus of Elasticity*	-	ASTM C580	16 x 10^3 MPa
Adhesion Strength to Concrete / Screed*	DIN EN ISO 4624	-	> Inherent tensile strength
Adhesion Strength to Ceramic Tiles*	DIN EN 12004-1	-	> Inherent tensile strength
Thermal Coefficient of Linear Expansion*	DIN 51045	-	1.5 x 10^{-5} 1/K
Thermal Conductivity*	DIN EN ISO 22007	-	1.2 W/mK
Temperature Resistance	-	-	Up to 450 °C

* Mean value, determined on non-tempered samples. (Applied on **HEGGEL SP 667** Mortar Mass)

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