

HEGSEL SP 660

2-C-halogen free potassium silicate mortar

Description: **HEGSEL SP 660** is a two-component, halogen-free, bedding and jointing mortar based on potassium silicate.

- Characteristics:**
- Halogen-Free, containing no Fluoride
 - Temperature Resistance up to +900°C
 - Extremely high resistance against acids

Applications: **HEGSEL SP 660** is suitable for bedding and jointing of acid resistant ceramic tiles, bricks, brick lining of vessels, apparatus and chimneys. **HEGSEL SP 660** exhibits excellent resistance to water and rinsing actions, which allows rinsing even at neutral range for several weeks, yet permanent rinsing, is not possible. For consistent rinsing or abrasion resistance, use an HEGSEL synthetic resin based mortar for jointing.

Except to hydrofluoric acid, **HEGSEL SP 660** is resistant to all acids, solvents, oxidizing agents, oils and fats; but it is not resistant to alkalis

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

Substrate: Components to be brick lined shall be designed and manufactured in accordance with EN 14879-1. Before start of brick lining work, the suitability of the surface preparation measures according EN 14879-1 must be checked and recorded. Concrete surfaces needs to be covered with a sealing barrier layer, since all silicate based mortars have a certain porosity due to their nature, which allows the ingress of liquids.

Pot life (20°C):

Product	Time (min)
HEGSEL SP 660	ca. 60

Curing (20°C):

Load Capacity	Time
Accessible	ca. 1 - 2 Days
Chemical load	ca. 8 - 10 Days

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

Product	Size	Article No.
HEGSEL ACID SOLUTION	5 kg	17763120
HEGSEL SP 660 SOLUTION	20 kg	17760690
HEGSEL SP 660 SOLUTION	290 kg	17760660
HEGSEL SP 660 SOLUTION	1000 kg	17760675
HEGSEL SP 660 POWDER	25 kg	17760270
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 SP 660 SOLUTION	≤ +30°C	24 Months
HEGSEL SP 660 POWDER	-	24 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

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/mm². 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 Preparation" and "Environmental Conditions" are met.

The scratch coat is applied on the substrate by using a wide brush or a lamb's wool roller.

HEGGEL SP 660 is applied on the substrate or sealing layer by using a mortar trowel. Tiles and bricks must be free of voids, fully bedded and hollow jointed.

4. Work tools

The following tools are essential for the application:

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

5. Mixing ratio

Pour **HEGGEL SP 660 SOLUTION** in a mixing vessel and add **HEGGEL SP 660 POWDER** at the specified mixing ratio. The stirring of the merged components should be at least 3 minutes and must result in a homogeneous mixture.

Scratch Coat for 1m²	Parts by Weight (kg)	Parts by Volume (Liter)
HEGGEL SP 660 SOLUTION	100	2.00
HEGGEL SP 660 POWDER	100	2.47

HEGGEL SP 660	Parts by Weight (kg)	Parts by Volume (Liter)
HEGGEL SP 660 SOLUTION	100	2.00
HEGGEL SP 660 POWDER	300	7.41

6. Consumption

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

Material	Sizes (mm)	Coverage (kg/m²)
Tiles	240 x 115 x 20	ca. 15
Tiles	240 x 115 x 40	ca. 19
Bricks	240 x 115 x 65	ca. 23
Bricks	240 x 115 x 80	ca. 26

7. Post treatment

The brickwork and flooring with **HEGGEL SP 660** will be waterproof after 2 – 3 weeks, even if it is not acidified. If an earlier water-proofing is sought, then it should be acidified.

Acidifying is also necessary when **HEGGEL SP 660** is applied without

jointing; where it is to be post jointed with a furanic or phenolic resin based mortar. In this case, after the potassium silicate mortar is set, it is necessary to acidify the voids / joints 2 or 3 times, with a few hours interval between. Acidifying can be done with **HEGGEL ACID SOLUTION** (mixture of 40 parts 50% sulphuric acid + 60 parts isopropylalcohol) or alternative with a mixture (by weight) of: 20% alcoholic sulphuric acid (mixture of 20 parts water + 20 parts 96% sulphuric acid + 60 parts isopropyl alcohol).

20% watery sulphuric acid can also be used, but it has a slower drying time. When mixing, the water has to be added first.

8. Commissioning

Brick and tile linings with **HEGGEL SP 660** can be exposed to chemical stresses of fluids, at the earliest after 5 days; except when the liquid temperature is +150°C, then there should be a time lapse of 8 -10 days after completion. In the case of chimneys, the actual norms and guidelines should be followed. Brick lined vessels or apparatus, should be put into operation initially with diluted mineral acids. If there is a long period of time between the completion of the linings and normal operation; or after the apparatus has been out of service for a longer time, it is mandatory to fill the vessel or apparatus with a weak concentration of acid and water. Open vessels should be covered.

9. Cleaning

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

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
Flexural Strength	EN ISO 178	N/mm²	10
Density (Mixture)	EN ISO 2811 (ASTM D1475)	g/cm³	2.0
Compressive Strength	EN ISO 604 (ASTM C579A)	N/mm²	25
E-Modulus	-	N/mm²	1.1 × 10 ⁴
Hardness Shore D	-	-	> 20
Coefficient of Thermal Expansion	-	1/K	12 × 10 ⁻⁶
Thermal Conductivity	-	W/(m • K)	1.2
Max. Operating Temperature Dry	-	°C	+ 900

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

HEGGEL SP 660; Revision No: 1.00 / Last Revision Date: 20.10.2020

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.

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