

# PFH rapid

## Paving grout

### Cement-bonded rapid-hardening paving stone grout mortar with trass for natural stone and concrete paving

- specially developed for road construction
- impermeable
- rapid version: accelerated setting for early traffic release
- fulfils the requirements of the FGSV data sheet M FP bonded 618/2 Paving stone grout mortar Type A
- compressive strength:
  - 1d  $\geq 25$  N/mm<sup>2</sup>
  - 7d  $\geq 40$  N/mm<sup>2</sup>
  - 28d  $\geq 50$  N/mm<sup>2</sup>



## APPLICATIONS

- for surfaces with heavy traffic loads
- for grouting old and new paving
- for producing drainage gutters

## PROPERTIES

- meets the requirements of the FGSV working paper 618/2
- with accelerated curing behaviour
- highly free-flowing
- self-compacting
- polymer-modified
- high compressive strength
- high adhesive tensile strength
- low shrinkage tendency
- low tension curing thanks to original tubag trass
- single-component
- impermeable after hardening
- good workability
- high frost and de-icing salt-resistance
- suitable for road sweeping machines

## COLOURS

- grey, anthracite, beige

## COMPOSITION

- cement in accordance with DIN EN 197-1
- trass in accordance with DIN 51043
- graded stone aggregates in accordance with DIN 13139
- Admixture with general building authority approval for improving the processing properties

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### SUBSTRATE

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#### Properties/tests

- The joint depth should be at least 2/3 of the stone height.
- Required minimum joint width: 5 mm
- For large format tiles we recommend at least 5 mm or 1 % of the longest tile side as the joint width.
- Maximum joint width: 30 mm
- Dimensions differing from these details are to be agreed with our application technology department.
- The superstructure must be load-bearing according to the load and water-permeable over the long term.
- Besides a bonded drainage base course, in areas that are driven on, a bedding layer with a compressive strength > 30 N/mm<sup>2</sup> is recommended, e.g. tubag TPM-D trass paving drainage mortar. Inadequately load-bearing sublayers can lead to deformation, particularly under traffic loads, which entail damage to the paving and slab covering.
- As a matter of principle, only clean paving stones are to be used, which are suitable for use with paving stone grout mortar according to the manufacturer. Contamination and adhesion-reducing substances, such as formwork oil from the production of paving stones, reduce the adhesive bond considerably.

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#### Pretreatment

- The required joint depth should be created by blowing or scoring out the joint. The paving surface should then be cleaned dry.
  - Depending on the absorption behaviour the paving surface should be wetted thoroughly several times. However, there should be no standing water in the joints when applying the paving stone grout mortar.
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### PROCESSING

<b>Temperature</b>	<ul style="list-style-type: none"><li>■ Do not process or allow to dry out at air, material or substrate temperatures below +5°C, or if there is a risk of exposure to night frost, or at temperatures above +30°C, or in direct sunlight, or on heated up surfaces, and/or in windy conditions.</li></ul>
<b>Mixing / Preparation / Processing</b>	<ul style="list-style-type: none"><li>■ Mix fresh mortar in the compulsory mixer or with a mixing paddle.</li><li>■ When mixing manually, first place the quantity of water specified in the technical data in a clean container and then sprinkle in dry mortar. Use clean tap water.</li><li>■ Mix material homogeneously and without lumps with a suitable agitator. Stir again if necessary by adding more water and adjust to consistency suitable for processing.</li><li>■ Set consistency for grouting over the whole area to free-flowing.</li><li>■ Do not mix with other products and/or other substances.</li></ul>
<b>Processing</b>	<ul style="list-style-type: none"><li>■ Introduce the grout mortar diagonally to the run of the joints under slight pressure using a rubber squeegee so that the joints are filled completely, densely and deeply.</li><li>■ Pre-fillings with other building materials are not permitted.</li><li>■ Only a small amount of mortar may remain, otherwise cleaning the surface is not ensured. The grouted areas are to be kept moist with a soft spray jet until they are cleaned.</li><li>■ The hardening level is to be tested by pressing one's thumb in. Hardening time: approx. 30 to 120 minutes. The paving surface is to be cleaned as soon as the joint surface has hardened.</li><li>■ Depending on the absorbency and surface design of the paving, cleaning is to be done either manually with a soft water jet, or by machine if level surface design of the paving permits it.</li><li>■ Foam up any remaining mortar residue with a brush and remove it.</li><li>■ If the paving units have bevelled edges, the level of the grout after cleaning must be no higher than the bottom edge of the bevel.</li></ul>
<b>Processing / Working time</b>	<ul style="list-style-type: none"><li>■ approx. 30 minutes</li><li>■ Low temperatures prolong the processing time, high temperatures shorten it.</li><li>■ Mortar that has already started to harden must never be thinned down with additional water, remixed or applied.</li></ul>
<b>Drying / Hardening</b>	<ul style="list-style-type: none"><li>■ The fresh mortar is to be protected from rapidly drying out and unfavourable weather conditions such as frost, draughts, direct sunlight and direct driving rain.</li><li>■ The time from which a paving stone or tile covering can be approved for the usage is essentially based on the installation and hydration temperature of the paving stone grout mortar. It only applies if properly constructed and tubag bedding mortar is used.</li><li>■ The completed areas can generally be walked on by pedestrians after approx. 12 hours in dry weather.</li><li>■ An approval for vehicle traffic (cars) can be given at the earliest after 1 day.</li><li>■ Road sweepers can be used on it at the earliest after 7 days.</li><li>■ For binding statements, retention samples should be produced, which are stored under the same climate conditions. Timings relate to +20°C.</li></ul>
<b>Cleaning the tools</b>	<ul style="list-style-type: none"><li>■ Clean all tools and equipment with water immediately after use.</li></ul>
<b>Notes</b>	<ul style="list-style-type: none"><li>■ Optically related areas must be prepared with material from the same production batch to prevent colour differences.</li><li>■ We recommend performing a grouting test before carrying out the work.</li><li>■ Working in several steps, intermesh the bedding layer and joint filling by at least 1 m so that the joint filling does not end directly above the end of the last bedding section.</li><li>■ Tapering joints are to be avoided. Therefore, the end of a section being grouted should be closed by sealing the edges e.g. with tubag PFH or PFH light.</li></ul>

### PACKAGING

- 25 kg/sack
- loose in silo

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### STORAGE

- Store sacks appropriately and in dry conditions on pallets.

### QUANTITY REQUIRED / YIELD

- yield: app. 16 l fresh mortar per 25 kg/sack
- Depending on the paving stone format, joint depth and joint width, different consumption rates result.

### TECHNICAL DATA

<b>Water requirement</b>	ca. 4,7 l per 25 kg/sack
<b>Processing consistency</b>	free-flowing
<b>Grain</b>	0 – 1,2 mm
<b>Compressive strength</b>	after 1 day $\geq 25$ N/mm <sup>2</sup> after 7 days $\geq 40$ N/mm <sup>2</sup> after 28 days $\geq 50$ N/mm <sup>2</sup>
<b>Joint width</b>	5-30 mm
<b>Joint depth</b>	at least 2/3 of the stone height, $\geq 30$ mm
<b>Processing time</b>	approx. 30 minutes
<b>Walkability</b>	after approx. 12 hours
<b>Resilience</b>	after approx. 24 hours

All data are average values that were determined under laboratory conditions according to relevant test standards and application tests. Deviations are possible under practical conditions.

### SAFETY AND DISPOSAL INSTRUCTIONS

<b>Safety</b>	<ul style="list-style-type: none"><li>■ This product produces an alkaline reaction when it comes into contact with moisture/water. Therefore ensure that skin and eyes are protected. If it should come into contact with the skin or eyes, rinse them thoroughly with water. See a doctor immediately if it comes into contact with the eyes.</li><li>■ Further information can be found in the safety data sheet at <a href="http://www.tubag.de">www.tubag.de</a>.</li></ul>
<b>GISCODE</b>	<ul style="list-style-type: none"><li>■ ZP1 (products containing cement, low-chromate)</li></ul>
<b>Disposal</b>	<ul style="list-style-type: none"><li>■ Completely empty and recycle the packaging.</li><li>■ Leftover, hardened material can be disposed of in accordance with waste code number 08 04 09 (adhesive waste and sealing compound waste containing organic solvents or other dangerous substances).</li></ul>

### GENERAL INFORMATION

This information sheet provides only general recommendations. Should you have any queries relating to a specific application, please contact our technical sales advisor or call our hotline: +49 541 601-601. Since natural raw materials are used, the values and properties described may vary somewhat. All of the details given are based on our current knowledge and experience and on the assumption that the materials are professionally applied and used for their normal purpose. All of the details are non-binding and do not release users from their duty to undertake their own tests to ensure suitability for the intended application. Due to the effects of different weather, processing and construction site conditions, no guarantee can be given for the general validity of all details. We reserve the right to make changes as a result of further development of the product and applications engineering. The general rules for construction engineering, the valid standards and guidelines, and the technical working guidelines must be observed. The publication of this technical data sheet renders all previous editions of this data sheet void. Please obtain the latest information from our website.

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