

Note on English translation / Hinweise zur englischen Fassung

This is a translation of the Technical Information valid in Germany.

All stated details and properties are in compliance with the regulations of the German standards and building regulations. They are only applicable for the specified products, system components, application rules, and construction details in connection with the specifications of the respective certificates and approvals.

Knauf Gips KG denies any liability for applications outside of Germany as this requires changes acc. to the respective national standards and building regulations.



K-Sentials

VT11.de

Technical Information 2019-09

Application Instructions

K-Sentials flowing screed compounds for truck mixers

General comments

This document is intended to provide general instructions and examples for the safe use of flowing screed compounds with the truck mixer. Details for the properties and composition of the individual flowing screed compounds can be found in the respective technical information of the product as well as in the safety data sheets. Flowing screed compounds combine raw materials to produce a mortar, where the type of mixing process and the application instructions for the mortar can influence the properties of the final product, so that monitoring in each individual case is essential.

The notes and technical information on the products do not replace the inspection obligation (initial inspection and the factory production control) and release of the required flowing screed compound in every individual application case by the user/customer.

Requirements relating to cleanliness and cleaning the mixing plant, transport vehicles and further equipment

- The mixing units and the corresponding metering units / elevators must be cleaned
- Clean fresh water must be used to manufacture the mortar
- The mixer drum on the mixer truck must be cleaned thoroughly before the truck mixer is loaded and may not contain any remnants of the previous load. The water used to rinse out the truck mixer must be removed completely.

Remark

The use of scrubbing slurry or recycled water, or the presence of remnants of other products can negatively affect the properties of the screed or mortar and lead to

- Accelerated / retarded mortar
- High initial shrinkage rate with increased risk of cracking
- Reduced hardness development
- Retarded drying behaviour
- Degradation of the surface quality

Manufacture of mortar in the mixing plant

- It is highly recommended that the Knauf mixing (design) specifications are observed. The ratios of flowing screed compound, aggregate and water must be determined in advance by the user / customer and must be verified.
- The moisture level of the applied sand must be determined in advance and it must be considered in the calculation of the required water quantity when manufacturing the mortar. The moisture level of the sand is dependent on the weather when stored in the open and can vary considerably within the sand heap or with every delivery.
- With the exception of clean mains water and the tested, washed sand/ gravel mix, no further additives, compounds, binders etc. may be added (observe the Knauf mixing (design) specifications) to the flowing screed compound.

Remark

Regular inspection of the sand is strongly advised, as in particular, fine particles / settling solids and fluctuating grading curves, e.g. can lead to a change in the water requirement of the mortar, and can thus have a major influence on the screed properties (e.g. surfaces, strengths).

In the following, notes on two mixing procedures are taken as examples, which do not replace the need for close examination in every individual case in practice. These are the batch mixer procedure and the slurry mixer procedure described in the following.

Procedure example with batch mixer

- In this procedure, the mortar is manufactured using a stationary mixer.
- The moisture level of the sand must be included in the calculation of the water quantity.
- Practical example of the metering sequence:
Aggregate – flowing screed compound – water
- Aggregate, flowing screed compound and water are mixed in the mixer.
- The mixing process is complete as soon as a homogeneous mortar is achieved.
- The slump flow / slurry spread (observe the Knauf mixing (design) specifications) on a homogeneous mortar (taken from the mixer) must be performed on a Knauf plastic panel (alternative to a suitable glass plate) using a Hägermann funnel. The board/panel must be flat, clean and dry.
- The truck mixer is filled after the mixing procedure has ended and the spread rate is in the desired range.

Procedure example with slurry mixer

- In this procedure, the mortar is manufactured in the drum of the truck mixer.
- The moisture level of the sand must be included in the calculation of the water quantity.
- Practical example of the metering sequence:
Water – flowing screed compound – aggregate
- Water and flowing screed compound are mixed in the drum mixer.
- The mixing process is complete as soon as a homogeneous slurry is achieved.
- The aggregate is then added.
- The mixing process is complete as soon as a homogeneous mortar is achieved.
- The slump flow / slurry spread (observe the Knauf mixing (design) specifications) on a homogeneous mortar (taken from the mixer) must be performed on a Knauf plastic panel (alternative to a suitable glass plate) using a Hägermann funnel. The board / panel must be flat, clean and dry.

Remark for both variants

An excessive quantity of water can negatively affect the properties of the mortar (e.g. sedimentation, formation of blisters, reduced strengths). The result is optimum if the entire quantity of water required can be added at the beginning of the process. Addition of water at a later stage (e.g. on the building site) has a lower liquefaction effect, i.e. a higher share of water than actually necessary is the result.

Delivery to the building site

- The journey to the building site should be undertaken with a slowly rotating truck mixer drum (speed approx. 3 to 7 RPM).

Remark

Continuous high speed rotation of the drum can cause increased thickening of the mortar.

- During the waiting time (parked waiting for use) on the building site, the mixing process must be suspended or reduced to a very slow rotary speed in the event of an extended waiting time.
- Directly before transfer of the mortar into the pump it should be mixed intensively for about 5 minutes at medium speed.
- The slump flow must be tested on a Knauf plastic panel (the board / panel must be flat, clean and dry) with a Hägermann funnel and the result must be documented.

The ideal ranges for slump flow have to be determined for every individual blend by the user / customer to achieve the strengths and ensure correct application properties.

Common values:

approx. 210 mm to 245 mm (Durhydrit F plus)

approx. 230 mm to 255 mm (Duralpha F 2003, Duralpha F 2201, Duralpha F 2202).

- If the slump flow is between approx. 200 mm and 209 mm (Durhydrit F plus) or approx. 210 mm and 229 mm (Duralpha F 2003, Duralpha F 2201, Duralpha F 2202) a one-off further addition of water of max. 5 l/m³ flowing screed can be undertaken, provided that the required strengths can be achieved (observe the mixing design specifications / preliminary testing necessary). The vehicle driver must note this addition of water on the delivery docket.

Remark

Further addition of water on the building site has a lower liquefaction effect than the initial addition of water in the plant and leads to a reduction of the screed strength.

- The maximum time frame of 3 hours between filling and emptying the truck mixer should not be exceeded.

Remark

The results from the individual mixing design specifications and your own QC data will need to be closely observed here. The time frame may be reduced by the qualities of the sand and water used.

- In case the maximum time frame has been exceeded and the mortar in the mixer is in immediate danger of setting, the setting process can be interrupted by the addition of Durastop (ratio: 10 l Durastop for max. 8 m³ mortar; to improve the mixing in behaviour it may be prudent to add a further 100 l to 150 l of water).

In case Durastop is added, the screed material must always be disposed of immediately, see remark.

Remark

Just how much the retard effect / interruption of setting will have by the addition of Durastop depends on various factors (e.g. point in time at which it is added, type of binder, etc.) Generally, the quantity described will result in a delay of a further 3 to 5 h, and the normal strengths can no longer be achieved. The mortar must be disposed of in any case and may not be used on a building site.

Instructions for the building site

- The lubrication pastes and slurries used should be collected and not worked into the screed.

Remark

The lubrication pastes and slurries are used to lubricate the hoses and prevent the formation of blockages during transport. Should they remain in the screed, they can negatively influence the mortar and screed properties, and lead to

- Accelerated / retarded mortar
- High initial shrinkage rate with increased risk of cracking
- Reduced hardness development
- Retarded drying behaviour
- Degradation of the surface quality

- The application temperatures of the products must be observed, particularly during the summer months. (Refer to the product data sheets for the flowing screed compounds)

- During the pouring and setting processes (within the initial 24 hours) the fresh screed must be protected against draughts and the chimney effect (e.g. close the building doors/openings and windows). Fresh screed must be protected against direct sunlight (provide shading on large glass surfaces).

Remark

Draughts can lead to rapid drying of the screed surface and thus to the formation of cracking.

- To achieve optimum surface properties, the screed must be dappled immediately or after 15 minutes at the latest.

Remark

If the strength testing using EPS prisms are undertaken following EN 13813 on building sites, please note that the determined strength values, particularly for compressive strength, of these types of test specimens often only achieve approx. 70 % of the strength of standard test specimens due to process conditions.



Observe safety data sheet!

For safety data sheets and CE marking see pd.knauf.de



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All given data are reference values with tolerance due to source and production.
Determination method according to Knauf test procedure, can be asked for, if required.

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