

# Nafufill GTS-HS rapid

## One-component, fast-setting special concrete replacement for repair of hydraulic structures

### Product Properties

- Application by dry spraying technique
- Polymer-modified
- Highly sulphate resistant, low active alkali content
- Resistant to water exposure after 1 hour
- Resistant to elevated temperatures, frost and de-icing salt
- Low-shrinkage, low E-modulus, chloride-proof
- Class R4 according to EN 1504 part 3

### Areas of Application

- Especially suitable for tidal hydraulic structures
- Repair of reinforced and non-reinforced hydraulic structures, e. g. harbour facilities, bank walls, docks, sluices, tide gates etc.
- Concrete replacement for repair of wastewater structures, open sewers, emergency basins
- According to ZTV-W LB 219 suitable for exposure classes XC 1-4, XD 1-3, XS 1-3, XF 1-4, XW 1-2, XA 1-3 and XM 1
- Certified and classified according to EN 1504 part 3 for principles 3 and 7, procedures 3.3, 7.1 and 7.2

### Application

#### Substrate preparation

See leaflet "General Application Advice Coarse Mortars / Concrete Replacement Systems".

In case of tidal structures, Nafufill GTS-HS rapid may be applied onto damp substrates, but not directly onto standing or flowing water. Dripping, seeping or flowing water penetration must be temporarily stopped by suitable measures (e.g. injection) prior to spray application or drained off through a suitable drainage system.

#### Application/Pre-wetting (standard application)

Prior to application of Nafufill GTS-HS rapid the substrate must be pre-wetted thoroughly. In case of completely dried out concrete components, pre-wetting should already start one day prior to application. A closed water film must be avoided. When starting spray application the substrate should be slightly damp.

#### Application/Spraying

The water intake of the nozzle mixing unit is to be adjusted to achieve a homogeneous and dust-free spray mortar. The spray angle between spray nozzle and substrate must be 90° and the distance between nozzle and substrate should be min. 0.5 meters. When spraying behind reinforce-

ment, both distance and angle may vary.

Nafufill GTS-HS rapid can be applied in one or more layers. A waiting time between the individual work steps of approx. 20 minutes must be observed. The first layer remains spray-rough, following layers may be finished. Nafufill GTS-HS rapid must not be finished after it has begun to set.

#### General information

Nafufill GTS-HS rapid can be applied using standard dry spraying machines (rotor system).

For information on equipment technology, compressor power, rebound, supportive casing and application conditions please see leaflet "General Application Advice for Dry Spray Mortars".

#### Curing

Repaired areas of hydraulic structures exposed to tide may be flooded with salt- or freshwater after 1 hour.

Apart from that Nafufill GTS-HS rapid must be prevented from drying out too rapidly due to direct sunlight and wind exposure. Nafufill GTS-HS rapid must be cured for 3 days using damp jute and foil. During this time the jute must not dry out and is to be damped continuously.



### Technical Data for Nafufill GTS-HS rapid

Characteristic	Unit	Value*	Comments
Largest grain size	mm	4	
Fresh mortar density	kg/dm <sup>3</sup>	2.2	
Dry mortar density	kg/dm <sup>3</sup>	2.1	
Bending tensile strength/ compressive strength	N/mm <sup>2</sup>	2.9/10 5.9/31 10.9/62	after 24 hours after 7 days after 28 days
Dynamic E-modulus	N/mm <sup>2</sup>	29,500	after 28 days
Carbonation resistance acc. to EN 13295	mm	0	after 28 days
Chloride migration coefficient	m <sup>2</sup> /s	0.89	
Coverage (dry mortar)	kg/m <sup>2</sup> /mm	2.00	+ rebound
Finishing time	minutes	15	at + 20 °C
Layer thickness	mm	10 30 60 120	min. layer thickness per work step max. layer thickness per work step max. total layer thickness reprofiling of ruptures
Application conditions	°C	≥ 5 - ≤ 30	air, material and substrate temperature

### Product Characteristics for Nafufill GTS-HS rapid

Colour	cement-grey
Delivery	25 kg bags
Storage	Can be stored in cool and dry conditions for at least 12 months in original unopened packs.
Disposal	Packs must be emptied completely.

\*All technical values have been determined in the lab at + 23 °C and 50 % relative humidity.

**Note:** The information on this data sheet is based on our experiences and correct to the best of our knowledge. It is, however, not binding. It has to be adjusted to the individual structure, application purpose and especially to local conditions. Our data refers to the accepted engineering rules, which have to be observed during application. This provided we are liable for the correctness of this data within the scope of our terms and conditions of sale-delivery-and-service. Recommendations of our employees which differ from the data contained in our information sheets are only binding if given in written form. The accepted engineering rules must be observed at all times.

Edition 06/18. Some technical changes have been made to this print medium. Older editions are invalid and may not be used anymore. If a technically revised new edition is issued, this edition becomes invalid.