

# 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 XC1-4, XD1-3, XS1-3, XF1-4, XW1-2, XA1-2, XM1, X0, XALL, XDYN, XSTAT and XBW.
- Certified and classified according to EN 1504 part 3 for principles 3 and 7, procedures 3.3, 7.1 and 7.2.

## APPLICATION NOTES:

- **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 reinforcement, 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:

Characteristic	Unit	Value	Comments
Maximum grain size	mm	4	
Dry bulk density	kg/dm <sup>3</sup>	2.1	
Application conditions	°C	≥ 5 ≤ 35	air, substrate and material temperatures
Consumption (Dry mortar)	kg/m <sup>2</sup> /mm	2	without bounce-back
Flexural strength:			
• 24 hours	N/mm <sup>2</sup>	3.6	
• 7 days		5.9	
• 28 days		10.9	
Compressive strength:			
• 24 hours	N/mm <sup>2</sup>	11.4	
• 7 days		31	
• 28 days		62	
E-modulus (dynamic)	N/mm <sup>2</sup>	29,500	after 28 days
Layer thickness	mm	10	minimum layer thickness per pass/operation
		30	maximum layer thickness per pass/operation
		60	maximum total layer thickness
		120	as a reprofiling mortar
Fresh mortar bulk density	kg/dm <sup>3</sup>	2.2	
Reworking time	minutes	15	at 20° C
Chloride migration coefficient	m <sup>2</sup> /s	0.89·10 <sup>-12</sup>	
Depth of carbonation	mm	0	after 28 days

\* All technical values are laboratory results determined at 21°C ±2°C and 50% relative humidity.

## PRODUCT CHARACTERISTICS:

<b>Form</b>	Pulverous.
<b>Colour</b>	Cement grey.
<b>Delivery form</b>	25 kg bag.
<b>Storage</b>	Can be stored in cool and dry conditions for at least 12 months in original unopened packs.

**Note:** The information provided here is based on our experience and correct to the best of our knowledge. It is, however, not binding. It will need to be adapted to the requirements of the individual building projects, to the specific application and to non-standard local conditions. Our data refers to the accepted engineering rules, which have to be observed during application. Given these preconditions we shall be liable for the accuracy of the information given as outlined in our sales and delivery terms and conditions. Recommendations by our employees that deviate from this information are only binding for us if they have been confirmed in writing. In all cases, the generally accepted rules and practices reflecting the current state of the art must be adhered.

Edition version: **11.10.2023**. Some technical changes have been made to this print medium. Older editions are invalid and may not be used.