



MORCEMSEAL TODO 1

MORCEMSEAL

ALL IN 1

One component mortar of high strength for passivation, repair and protection of reinforced concrete structures, reinforced by fiber for thicknesses between 4 - 40 mm.



DESCRIPTION

Thixotropic mortar of high strength, with fiber for concrete repair and protection, based on nano-silane technology. Classification R4

TECHNICAL CHARACTERISTICS

Product based on special cements, selected aggregates and corrosion inhibitor, (Silanes functional organ) and reinforced with fiber.

ADVANTAGES AND USES

- Repair mortar R4 class according to EN-1504-3
- Passivation mortar according to 1504-7
- Mortar for concrete protection according to 1504-2
- Structural concrete repair, floor slabs repair, cantilevers, balconies, decorative elements,
- Cornices, aesthetic repairs, ramps,...
- Great adhesion to concrete and corrugated steel.
- Setting fast
- Paintable after 4 hours
- Thixotropic, without detach in ceilings application
- Permeable to water vapor.
- Waterproof.
- Good resistance to chloride.
- Resistant to freezing-thawing cycles...
- Compensated retraction to minimize cracking risk
- High resistance to carbonation.
- Weather-resistant.
- Concrete regeneration

DURABILITY

Tests conducted at the Eduardo Torroja Institute for Construction Science according to UNE EN 12390-10 - Determination of resistance to carbonation of concrete under atmospheric levels of carbon dioxide, yielded a carbonation rate (K) of 1.100 mm/year^{0.5} for Morcemrest Todo 1.

This value can be incorporated into models for estimating the service life of reinforced concrete elements due to corrosion and used to calculate the carbonation depth using the equation: $P = K * t^{0.5}$, where "P" is the carbonation depth in mm, "K" is the carbonation rate in mm/year^{0.5}, and "t" is time in years.

For example, substituting values into the equation, over 50 years, a section of Morcemrest Todo 1 mortar will carbonate 7.78 mm, and 11.00 mm over 100 years.

Similarly, a 25 mm-thick layer of Morcemrest Todo 1 mortar would take 517 years to fully carbonate, this

CONCRETE REPAIR

MORCEMSEAL TODO 1

duration far exceeds the expected service life of the structure, even without considering the contribution of potential surface protection renders.

Tests conducted at the Eduardo Torroja Institute for Construction Science according to UNE EN 12390-11 - Determination of chloride resistance, unidirectional diffusion, yielded a non-steady-state chloride diffusion coefficient (D_{ns}) = $1.271 \cdot 10^{-12} \text{ m}^2/\text{s}$ for Morcemrest Todo 1 which can be incorporated into models for estimating the service life of reinforced concrete elements due to corrosion.

The chloride diffusion coefficient obtained is significantly lower compared to those provided in the Structural Code, Table A12.3.2.b, Annex 12. Similar coefficients to those obtained for Morcemrest Repair can only be found in concretes designed with Type III/B cement and low water-to-cement ratios.

SUITABLE SUBSTRATES

- Support must be healthy, clean of fat-free, oils, dust and poorly attached parts (Resistance to minimal traction of 1.5 MPa)
- If necessary, perform a preparation of the same using preferably mechanical means and leave discovered healthy concrete
- Absorbent supports will be previously moistened to saturate, preventing flooding. Apply, MORCEMSEAL all in 1 once surface will get matte aspect.
- If armors exist, they will have to be clean of oxide, fats, oils and other poorly attached parts.
- If they are rusted, it will proceed to its cleanliness by means sandblast or metallic prongs brush

APPLICATION PROCEDURE

Mortar mixing:

- To add 2/3 parts of foreseen water and mix progressively the totality powder while we are removing. Then add remaining water and mix during 2 more minutes. do not prepare any more material that the one we are going to use during 20 minutes (to +20°C)

Application:

- Apply MORCEMSEAL all in 1 with a trowel, pressing to ensure adhesion and to compact material firmly.
- MORCEMSEAL TODO 1 can be applied in several coats fresh on fresh, with a minimum thickness of 4 mm per coat. On vertical surfaces, thicknesses of up to 40 mm can be applied without the aid of formwork

Curing:

- Protect from wind, cold and Sun during hardening. To avoid excessive drying, it is suitable to cover surface with wet sackcloth or plastic during its curing.
- Curing operation is essential in all cases.
- Do not add more water to mortar than recommended and do not mix again
- Do not apply below 5 ° C or above 30 ° C.
- Do not add concrete, sand or other substances that can affect material properties
- Tools have to be cleaned up with water immediately after use, to avoid material hardening otherwise it must be removed with mechanical means.
- Consult Technical Department for any application not specified in this technical data sheet.
- For all information concerning security in handling, transport, storage and product use, consult updated version of safety sheet product.

RECOMMENDATIONS

- Do not add more water to mortar than recommended and do not mix again
- Do not apply below 5 ° C or above 30 ° C.
- Do not add concrete, sand or other substances that can affect material properties
- In supports exposed to exceptional circumstances, it is recommended the adhesion bridge on epoxy base IMPLAREST EP.
- Tools have to be cleaned up with water immediately after use, to avoid material hardening otherwise it must be removed with mechanical means.
- In committed repairs or with aggressiveness environmental consult technical department.
- Consult Technical Department for any application not specified in this technical data sheet.
- For all information concerning security in handling, transport, storage and product use, consult updated version of safety sheet product.
- If applied manually ensure the coats are strongly compacted; in areas of difficult compaction it is recommended its mechanical application.
- For further information on how to prepare concrete or steel framework; consult the recommendations given by the UNE-EN-1504-10 guideline.
- When applying the repair mortar without a bonding bridge, the foundation of concrete must be rough,

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MORCEMSEAL TODO 1

PACKAGING AND STORAGE

clean and well moistened before, but the surface must be free of water at the time of application, that is, the foundation must not be waterlogged. The repair mortar must be applied making it penetrate into the foundation previously prepared and must be compacted avoiding the inclusion of air in order to obtain the required strength, and to protect the reinforcement from corrosion.

MORCEMSEAL all in 1 is presented in sacks of 5 y 25 Kg. Storage up to 1 year in original container closed, to shelter from weather and humidity.

CONCRETE REPAIR

MORCEMSEAL TODO 1

TECHNICAL DATA

(Statistical results obtained in standard conditions)

	REQUIREMENTS R4	PRODUCT DATA
Appearance		Grey powder
Particle size		D. max 2 mm
Coat thickness		min. 4 mm - 40 mm max
Compressive strength 28 days (12190)	$\geq 45 \text{ N/mm}^2$	$\geq 45 \text{ N/mm}^2$
Chloride content (1015)	$\leq 0,05\%$	$\leq 0,01\%$
Adhesion (EN 1542)	$\geq 2 \text{ N/mm}^2$	$\geq 2 \text{ N/mm}^2$
Resistance to carbonation (EN 13295)	DK $\leq$ Concrete control type MC (0.45)	none
Elasticity module (EN 13412)	$\geq 20 \text{ GPa}$	$\geq 20 \text{ GPa}$
Capillary absorption (EN 13057)	$\leq 0,5 \text{ Kg}\cdot\text{m}^2\cdot\text{h}^{0.5}$	$\leq 0,5 \text{ Kg}\cdot\text{m}^2\cdot\text{h}^{0.5}$
Thermal compatibility part 1 (EN 13687-1)	$\geq 2 \text{ N/mm}^2$	$\geq 2 \text{ N/mm}^2$
Abrupt cooling cycles from high temperature(50 cycles) (EN 13687-2)	$\geq 2 \text{ N/mm}^2$	$\geq 2 \text{ N/mm}^2$
Thermal compatibility part 4: Thermal cycles in dry (50 cycles) (on 13687-4)	$\geq 2 \text{ N/mm}^2$	$\geq 2 \text{ N/mm}^2$
Compression resistance curve : (EN 12190)		
1 day		$\geq 7 \text{ N/mm}^2$
7 days		$\geq 20 \text{ N/mm}^2$
28 days		$\geq 45 \text{ N/mm}^2$
Flexural strength (EN 12190)		$\geq 7 \text{ N/mm}^2$ 28 days
Permeability to water steam (EN ISO 7783:2012)	Class I	sd < 5 m
Capillary absorption and permeability to water (EN 13057)	$\leq 0,5 \text{ Kg}\cdot\text{m}^2\cdot\text{h}^{0.5}$	$\leq 0,5 \text{ Kg}\cdot\text{m}^2\cdot\text{h}^{0.5}$
Abrasion resistance(EN 5470-1)	< 3000 mg	< 3000 mg
Impact resistance (EN ISO 6272-1)	class III	$\geq 20 \text{ N/mm}^2$
Thermal expansion coefficient (EN 1770)	< 30 $\mu\text{m/m}^\circ\text{C}$	< 30 $\mu\text{m/m}^\circ\text{C}$
Adhesion by shear (15184)		none
Protection against corrosion (15183)		none
Start and end of setting		25 - 50 minutes
Mixing water		19% $\pm$ 1%
Performance		1,7 Kg/m ² /mm thickness
Classification according to EN 1504-3:2006		R4
Type		PCC
Classification according to EN-1504-7:2007		achieves

Rev. 25_01 - This revision cancels all previous ones. Please, obtain the latest version from our web site - www.grupopuma.com - (+34) 957 76 40 40

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MORCEMSEAL TODO 1

CE MARK

	
GRUPO PUMA ESPAÑA, S.L. .Avd. Agrupación Córdoba, Núm.17 14014 (Córdoba) 23 Nº 215204	
Nº370-CPR-2578	
EN-1504-3 MORCEMSEAL TODO 1	
One component mortar of high strength for passivation, repair and protection of reinforced concrete structures, reinforced by fiber for thicknesses between 4 - 40 mm.	
Compression resistance	Class R4
Chloride ion content	$\leq 0.05\%$
Adhesion	$\geq 2 \text{ MPa}$
Resistance to carbonation	none
Elasticity module	$\geq 20 \text{ GPa}$
Thermal compatibility-part 1	$\geq 2 \text{ GPa}$
Absorption capillary	$\leq 0.5 \text{ Kg}\cdot\text{m}^2\cdot\text{h}^{0.5}$
Fire Reaction	A1

	
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Nº370-CPR-2578	
EN-1504-2 MORCEMSEAL TODO 1	
One component mortar of high strength for passivation, repair and protection of reinforced concrete structures, reinforced by fiber for thicknesses between 4 - 40 mm	
Permeability to steam water	$\text{sd} < 5 \text{ m}$
Absorption capillary and permeability to water	$\leq 0.5 \text{ Kg}\cdot\text{m}^2\cdot\text{h}^{0.5}$
Adhesive force for test to traction	$> 2 \text{ N/mm}^2$
Abrasion resistance	$< 0,5 \text{ mg}$
Impact resistance	$\geq 20 \text{ N/mm}^2$
Thermal compatibility	$\geq 2 \text{ N/mm}^2$
Thermal expansion coefficient	$< 30 \mu\text{m/m}^\circ\text{C}$

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Avd. Agrupación Córdoba, Núm.17 14014 (Córdoba)
23
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Nº370-CPR-2578

EN-1504-7
MORCEMSEAL TODO 1

One component mortar of high strength for passivation, repair and protection of reinforced concrete structures, reinforced by fiber for thicknesses between 4 - 40 mm.

Adhesion by shear	none
Protection against corrosion	none

ENVIRONMENTAL PRODUCT DECLARATION (EPD)

Cement based mortar prepared with aggregates that are supplied close to the production center, which reduces the greenhouse gas emissions that would otherwise arise from their transport. Manufactured in production centers with an Environmental management certified system following ISO 14001 regulation, offering a firm promise of sustainability and respect for the environment.
Cement based mortar with type III ecological label (the most strict) Environmental Product Declaration verified externally by AENOR.

LEGAL DISCLAIMER

The instructions for use are given according to our tests and knowledge and do not imply any commitment by GRUPO PUMA nor free the consumer from the examination and verification of the products for their correct use. Claims must be accompanied by the original packaging to allow a proper traceability.

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