MasterSeal 545

Two components polymer modified cementitious microfibers reinforced class A4 crack bridging waterproofing coating for concrete structures.

DEFINITION OF THE MATERIAL

MasterSeal 545 is a two components polymer modified cementitious microfibers reinforced class A4 crack bridging waterproofing coating for concrete structures.

MasterSeal 545 is reinforced with a unique inorganic natural non-toxic high aspect ratio microfibers (length / diameter), able to create a micro three-dimensional homogeneously diffused reinforcement to improve the crack bridging ability and tensile strength of the waterproofing membrane.
MasterSeal 545 is available in light grey and white colors.

MAIN FIELDS OF APPLICATION

The material is suitable for the waterproofing and protection for example of channels, dams, tanks for containment of drinking water, fish farming ponds, tanks and hydraulic lines. It can be used also to waterproof swimming pools, balconies, manholes and various concrete elements.

FEATURES

The features peculiar to MasterSeal 545 are:

- crack bridging class A4 (1,25 – 2,5 mm) according to EN 1504/2;
- impermeable both for positive and negative pressure;
- UV lights resistant;
- anti-carbonation coating;
- compliance with the principles defined in EN 1504/2 (“Surface protection systems for concrete”) and relative specifications;
- drinking water certified according to the Italian Ministerial Decree No. 174 of 6 April 2004 (Italian transposition of the European Directive 98/83/CE, Regulations concerning materials and objects that may be used in fixed systems for the collection, treatment, supply and distribution of water intended for human consumption).

THEORICAL COVERAGE

3,4 kg/m^2 for 2 mm thickness.

PACKAGING

Product	Packaging	Kg
Component A	Bag	25
Component B	Plastic pail	10
Kit (A+B)	1 Bag + 1 Plastic pail	35

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PERFORMANCE

Test methods	Performance (referred to 2 mm thickness)
Adhesion to the concrete, EN 1542: MC substrate (0.40) to EN 1766	> 1 MPa
Thermal compatibility: adhesion EN 1542 after 50 freeze-thaw cycles with de-icing salts EN 13687/1	> 1 MPa
Crack bridging ability, UNI EN 1062/7 - Static - Dynamic	 +23°C Class A_4 (crack opening 1,25 – 2,5 mm) - 20°C Class A_3 (crack opening 0,5 – 1,25 mm) +23°C Class B_2 (1000 cycles, 0,03 Hz, crack opening w_o = 0,15 mm and wu = 0,10 mm) - 20°C with FX Mesh: Class $B_{3.1}$ - 20°C: Class B_1
Resistance to artificial weathering (2000 hours of UV radiation and condensation), EN 1062/11	No blistering, cracking or flaking, no change in color
Resistance to positive hydrostatic pressure, EN 12390/8	5 bar (equivalent to 50 m water column)
Resistance to negative hydraulic pressure, UNI 8298/8	2.5 bar (equivalent to 25 m water column)
Capillary absorption coefficient, EN 1062/3	< 0,1 $kg \cdot m^{-2} \cdot h^{-0,5}$
Permeability to CO_2 measured as air equivalent thickness Sd, EN 1062/6. Sd = µ·s, µ = coefficient diffusion to CO_2, s = thickness of coating	Sd > 50 m
Impact resistance, EN ISO 6272 • Class I: 4 N·m • Class II: 10 N·m • Class III: 20 N·m	Class III (equivalent to the fall of a 1 kg steel ball from a height of 2 m)
Permeability to water vapour measured as air equivalent thickness Sd, EN ISO 7783/1. Sd = µ·s, µ = water vapour diffusion resistance coefficient, s = thickness of coating • Class I: Sd < 5 m (Permeable) • Class II: Sd ≥ 5 and ≤ 50 m • Class III: Sd > 50 (Not Permeable)	Class I
Abrasion resistance, EN ISO 5470/1 (load 1000 g abrading wheel H22/1000 cycles)	Weight loss < 3000 mg

CHEMICAL RESISTANCE

Resistance to severe chemical attack, EN 13529	Performance	
Class I: 3 days contact, riduction Shore ≤ 50 %; Class II: 28 days contact, riduction Shore ≤ 50 %;	Class	Riduction Shore
Testing liquid 11 (20% Sodium Hydroxide): Inorganic bases and their salts undergoing acid hydrolysis in aqueous solution (pH > 8) excepting ammonium solutions and oxidising salt solutions (e.g. hypochlorite)	II	0%
Testing liquid 12 (20% Sodium Chloride): Non-oxidising inorganic salt solutions with pH = 6 – 8	II	0%

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APPLICATION SHEET

STORAGE
Store the product in a sheltered, dry place at a temperature anywhere between +5°C and +30 °C.

PREPARATION OF THE SUBSTRATE

STRUCTURALLY SOUND CONCRETE
All the surfaces to be coated must be prepared by sanding or water-sanding to remove the loose surface particles, grease, oil and traces of formwork release agents and to ensure a minimum roughness.

DAMAGED CONCRETE
In these cases, first check the depth of the damage and then repair with MasterSeal P 385 comp D mixed with water only or the suitable material from the MasterEmaco range. Sandblasting is not required after repair.

WATER LEAKAGE
Water infiltration must be stopped using the fast setting mortar MasterSeal 590 or MasterSeal P 385 comp D mixed with water only, before applying MasterSeal 545.

COVINGS
The covings will be prepared using MasterSeal 590 or Masterseal P 385 Comp. D mixed with water only. For details, always refer to the relevant technical sheets. In the case that is not feasible to realize the coving (for example in swimming pools lined with tiles that require an angle of 90°) reinforce the corners using the tape MasterSeal 944 or MasterSeal 924.

JOINTS
To ensure proper waterproofing of the structure great care must be taken over levelling out geometrical and constructional unevenness by suitably using MasterSeal NP 474 sealant, elastic tapes MasterSeal 944 or MasterSeal 924, MasterSeal 902 bentonite hydro-swelling water stop or MasterSeal 910 rubber hydro-swelling water stops. For working details, see the relative data sheet and contact the BASF technical expert.

CLEANING AND SATURATION OF THE CONCRETE
Once the substrate has been prepared, thoroughly wash the whole surface to be treated to saturate it and also to remove any dust left from substrate preparation.

APPLICATION TEMPERATURE
Between +5 °C and +40°C.

PREPARING THE MIX
Pour approx. 75% of the liquid component B into a bucket. Slowly add the powdered component A, constantly mixing the product with a low-speed drill (400-600 rpm) with whisk attachment until a smooth, lump-free mix is obtained.
Continuing to mix, add the remaining part of the liquid component B, as specified in the table, to the mix.

Application method	Component B per bag of Component A
Spatula	9 – 9,5 kg
Brush	9 – 9,5 kg
Spray	9,5 – 10 kg

Quantity of component B (latex) for every complete pack (A+B), they may vary slightly according to the environmental conditions.
Mix thoroughly for a maximum of 3 minutes until a smooth, lump-free fluid mix has been obtained.
Let the mix to rest for approx. 5 minutes so that the polymer can completely disperse. Then mix again for a maximum of 2 minutes. Maintain the same mixing ratio for the various mixes used in the one application so that the colour of the coating remains the same.

APPLICATION
Application may be by spatula, Thoro brush or by spray machine with 4 mm nozzle and pressure of 3-5 bar.
If the brush tends to drag the product during application of the first coat, wet the substrate but do not add latex. Wet the substrate before applying the second coat, especially if the weather is particularly hot.

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Data for the application	
Pot life	60 minutes + 20° C
Recoating time at 20°C	12 – 24 hours

The second coat should be applied “crosswise” to the first coat to ensure maximum waterproofness. In any case it is recommended that the second coat only be applied when the previous one is sufficiently dry to withstand.

CURING

Whenever the product is not yet set it must be protected against the rain.
After 7 days MasterSeal 545 is fully cured and it can be used for waterproofing purposes.

DECLARATION OF PERFORMANCE (DoP) and CE MARKING

According to the European Regulation (EU No 305/2011 and EU No. 574/2014) the material has its own CE marking lable and DoP based on EN 1504/2. This documents are available on demand according European Regulation.

From 16/12/1992 BASF Construction Chemicals Italia Spa operates under the Quality System in compliance with European Standard UNI-EN ISO 9001. The environmental management system of BASF Construction Chemicals Italia Spa is certified accordingly to UNI EN ISO 14001 and the System of Safety Management is certified accordingly to OHSAS 18001.

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For further information, please consult your local BASF Construction Chemicals Italia Spa representative.

Supersedes all prior issues on this product.
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