

MasterSeal 581

Cementitious waterproofing coating for concrete and masonry structures.

DEFINITION OF THE MATERIAL

MasterSeal 581 is a grey or white cementitious waterproofing coating. Applied by brush, large brush or by spray directly onto the structure, it forms a coating with high waterproofing characteristics.



MAIN FIELDS OF APPLICATION

MasterSeal 581 is recommended for waterproofing concrete or masonry, indoors or outdoors, above or below ground, such as basements, swimming pools, tunnels, concrete pipes, tanks, pits, drinking water reservoirs. In the case of water purification tanks and conditioners, a preventive analysis of the water and its chemical agents is always advisable.

FEATURES

The features peculiar to MasterSeal 581 are:

- compliance with the principles defined in UNI EN 1504/9 ("Products and systems for the protection and repair of concrete structures: definition, requirements, quality control and evaluation of conformity. General principles for the use of products and systems") such as:
 - protection against the risk of penetration;
- preventing the ingress of water counters any corrosion of the reinforcement rods due, for

example, to the ingress of chlorine ions and to damage of the concrete connected with alternating freeze-thaw cycles;

- to perform adequately, the coating must undoubtedly offer high adhesion to the concrete;
- the resistance of the coating to the attack by sunrays is represented by the resistance to UV radiation, which must be effective particularly for outdoor applications;
 - control of humidity: high permeability to water vapour is essential to prevent vapour pressures being generated with changes in temperature at the protective film-concrete interface, which could result in separation.
 - increase of electrical resistivity: the continual loss of the moisture content that occurs through the natural transpiration of the substrate not excessively hindered by the protective layer plus the impermeability of the actual coating, makes the concrete intrinsically stronger with regard to corrosion of the reinforcement rods;
 - physical protection: abrasion and impact resistance could be important in certain cases in which impact and abrasion can represent serious external damaging agents.
 - chemical resistance: it resists permanent contact with:
 - inorganic bases and their salts by alkaline hydrolysis in aqueous solution (pH > 8) except for ammonium solutions and oxidising salt solutions (e.g. hypochlorite);
 - inorganic non-oxidising salt solutions with pH = 6 – 8;
- hydrocarbons such as petrol, aviation gasoline, heating oil and diesel fuel and unused engine and gear oils;
- compliance with the acceptable tolerances indicated in the relative UNI EN 1504/2 ("Surface protection systems for concrete").

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MasterSeal 581 is also:

- compliance with Italian Ministerial Decree No. 174 of 6 April 2004 (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);
- resistant to positive and negative water pressure.
- controllo dell'umidità, resistenza fisica, resistenza chimica, aumento della resistività.



CONSUMPTION

Prodotto	unità/m ²
MasterSeal 581	3 kg/m ²
MasterSeal 600	0,17 litri/m ²

PACKAGING

Prodotto	Confezione	Unità
MasterSeal 581	Bag	25 kg
MasterSeal 600	Pail	5 litri
MasterSeal 600	Pail	20 litri

STORAGE

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

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PERFORMANCE

Requisiti e metodi di prova	Performance (referred to a thickness of 2 mm)
Adhesion to the concrete, UNI EN 1542 on reference substrate MC (0.40) having 0.40 w/c ratio as specified in UNI EN 1766	> 3 MPa (cracking of substrate)
Thermal compatibility Adhesion to the concrete, UNI EN 1542 after 50 cycles freezing and twoing UNI EN 13687/1	> 3 MPa (cracking of substrate)
Compressive strength, UNI EN 12190	28 dd > 45 MPa
Water vapour transmission rat measured as air equivalent thickness Sd, UNI EN ISO 7783/1. - Sd = $\mu \cdot s$, - μ = water vapour diffusion coefficient, - s = thickness of coating • Class I: Sd < 5 m (Permeable) • Class II: Sd \geq 5 and \leq 50 m Class III: Sd > 50 (Not Permeable)	Sd < 0,2 m, Class I
Liquid-water transmission rate (permeability)UNI EN 1062/3	< 0,1 kg·m ⁻² ·h ^{-0,5}
Coefficient of linear deformation	2,13·10 ⁻⁵ K ⁻¹
Resistance to impact, UNI EN ISO 6272 • Class I: 4 N·m • Class II: 10 N·m • Class III: 20 N·m	Class III
Resistance to artificial weathering (UV radiation and relative humidity), UNI EN 1062/11 after 2000 hours of artificial weathering	No deterioration
Abrasion resistance, UNI EN ISO 5470/1 (load 1000 g grinding wheel H22/1000 cycles)	Perdita di peso < 3000 mg
Resistance of positive pressure, EN 12390/8	5 bar
Resistance of negative pressure, UNI 8298/8	2,5 bar

CHEMICAL RESISTANCE

Resistance to severe chemical attack, UNI EN 13529	Performance	
Resistance to severe chemical attack, EN 13529:	Class	Riduction in Shore
• Class I : after 3 days of contact, riduction in shore value \leq 50 %; • Class II : after 28 days of contact, riduction in shore value \leq 50 %;		
Testing liquid 4 (60% Toluene, 30% Xylene, 10% Methylnaphthalene) Petrol, aviation fuel, heating oil, diesel oil, unused engine and gear oils, (excepting benzene and crude oil)	II	0%
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

TEMPERATURE

MasterSeal 581 may be applied at an ambient temperature anywhere between +5°C and +40°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 suitable materials from the MasterEmaco range. Sanding is not required after repair.

JOINTS, CRACKS, SHARP CORNERS, WATER FLOWS

These should be suitably treated with materials from the MasterSeal 590 and MasterEmaco. For working details, see the relative data sheets.

CLEANING AND SATURATION OF THE CONCRETE

Once the substrate has been prepared, thoroughly wash the whole surface to be treated so as to saturate it and also remove any dust left from sanding.

PREPARATION OF THE MIX

MasterSeal 581 must be mixed with a low-speed drill with whisk attachment, such as the EZ mixer (400-600 rpm), or by hand using a trowel or knife (for small quantities from the bag).

For best performance especially in terms of workability, adhesion and curing in conditions of wind and high temperatures, it is advisable to use a water/ MasterSeal 600 mix in the ratio of 3/1.

A 25 kg pack of MasterSeal 581 therefore requires 6 litres of water or 4.1 litres of water and 1.4 litres of MasterSeal 600. MasterSeal 600 must not be used when MasterSeal 581 expected to come into contact with hydrocarbons (in the case of contact with hydrocarbons, in any case contact our technical department). When mixing by hand, add the liquid a little at a time to MasterSeal 581 stirring with a trowel or knife. Leave the mix to rest for a few minutes, then stir again and if necessary add more liquid until the required consistency is obtained. When mixing with the drill with whisk attachment, such as the EZ-mixer, gradually add MasterSeal 581 to the liquid and mix. The consistency of MasterSeal 581 is suitable for application when the MasterSeal brush is placed at a slight angle in the mortar and it slowly sinks. If the mix is too dry it is difficult to apply MasterSeal 581 whereas if it is too fluid, it tends to drip. In normal environmental conditions the mix must be used within 45 minutes from the end of mixing. Do not try to soften the product by adding water.

APPLICATION

In the case of new structures MasterSeal 581 may even be used immediately after removing the formwork.

MasterSeal 581 must be applied in two successive coats, allowing the first coat to set.

The first coat should preferably be applied in the average quantity of 1.5 kg/m² using a large brush or Thoro type brush. Application by hand allows better penetration of the mortar into the substrate voids. If the Thoro brush tends to drag the product during application, wet the substrate and do not add latex.

The second coat must be applied when the first is completely set, preferably the day after and in any case not before 8 hours have elapsed. After having wetted the surface, apply MasterSeal 581 in the average quantity of 1.5 kg/m². The second coat may be applied by hand or by plaster sprayer. Tools should be cleaned with water. If MasterSeal 581 is used to waterproof drinking water reservoirs/tanks, swimming pools or fish tanks, after application the surface must be washed with a saline solution (12% salt in water) to remove any surface alkaline salts. Leave the solution to act for approx. 8 hours, then rinse with clean water.

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CURING

If the product is applied in particularly severe conditions from a hygrothermometric point of view, i.e. with low relative humidity, wind and sunlight, it is advisable to protect the treated surfaces with tarpaulins. The setting and curing of MasterSeal 581 depend on the temperature. After 7 days it has practically all its mechanical characteristics and is therefore impermeable to water under pressure.

 1305	
BASF Construction Chemicals Italia Spa Via Vicinale delle Corti, 21 Treviso 09 1305-CPD-0805 BC2-563-0013-0002-001	
EN 1504-2 Rivestimento protettivo cementizio impermeabilizzante rigido	
Resistenza a compressione	Classe I
Coefficiente di espansione termica lineare	$\leq 3 \cdot 10^{-5} K^{-1}$
Adesione al supporto	≥ 1 MPa
Resistenza all'abrasione	≤ 3000 mg
Permeabilità al vapore acqueo	Classe I
Resistenza all'urto	≥ 4 N.m
Compatibilità termica parte 1 – prova di gelo-disgelo	$\geq 1,0$ MPa
Assorbimento capillare	$\leq 0,1$ kg·m ⁻² ·h ^{-0,5}
Esposizione agli agenti atmosferici artificiali	No rigonfiamenti, fessurazioni o scagliature
Resistenza all'attacco chimico severo	Classe I e II: riduzione shore $\leq 50\%$ Shore
Reazione al fuoco	E (A1 se senza polimero)
Sostanze pericolose	Conforme DM 10/05/2004 e DM 14/05/1996

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

The technical advice on how to use our products, either written or verbally given, are based on the present state of our best scientific and practical knowledge, and no guarantee and/or implicit or explicit responsibility are assumed on final results of works executed by the use of our products.

The owner, his representative, or the contractor is responsible for checking the suitability of our products as to the intended use and aims.

Supersedes all prior issues on this product.

February 2016