

MasterProtect 220

Solvent-based aliphatic polyurethane elastomeric protector, with high crack bridging for the film-forming protection of reinforced concrete.

MATERIAL DESCRIPTION

Two-component, solvent-based polyurethane resin (aliphatic cycle), with high solids content by volume, elastic. Applied by roller or spray directly on the structure previously treated with its specific primer, MasterProtect 220, together with its primer MasterProtect P 210, creates a film-forming coating having the ability to bridge cracks, resisting their propagation without deterioration (crack bridging ability) and with high protective capacity against the aggressors of reinforced concrete.

FIELDS OF APPLICATION

MasterProtect 220 is generally indicated both for the protection of new reinforced concrete structures and those restored with mortars from the MasterEmaco line. MasterProtect 220 is not suitable for the protection of structures subject to permanent contact with water

FEATURES AND BENEFITS

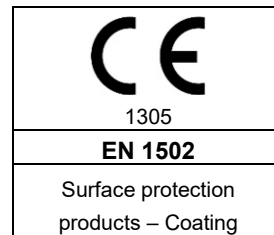
The peculiar characteristics of MasterProtect 220 are:

- protects against the risks of penetration;
- preventing the entry of water allows you to counteract any corrosion processes of the reinforcements related to the entry, for example, of chlorine ions and the degradation of the concrete connected to the alternation of freeze and thaw cycles;
- carbon dioxide over time causes the concrete to lose its natural ability to passivate the reinforcements with the consequent risk of corrosion. The protective makes the access of such aggressive person impervious;
- crack bridging ability: this "crack resistance" feature allows the protective layer to remain intact through existing cracks in the conglomerate. This requirement can be important for specific conditions. To obtain this performance it is necessary to apply the material for a thickness of at least 300 µm;
- controls the moisture content and increases the electrical resistivity: a high permeability to water vapor is essential to avoid the generation, as the temperature varies, of vapor tensions at the interface between the protective and the concrete, capable of causing detachment. Furthermore, the continuous loss of internal humidity, made possible through the natural transpiration of the support not hindered by the protective, combined with the impermeability of the coating itself, makes the reinforced concrete intrinsically more resistant than the corrosion

phenomena of the reinforcements thanks to a gradual and constant increase. the electrical resistivity of the concrete;

- resists UV radiation: this feature is especially important for outdoor applications;
- protects from physical aggression: resistance to abrasion and impact can in fact be important in some cases in which abrasive and impacting phenomena can represent serious external aggression;
- adheres well to the substrate.

In compliance with the European Regulation (EU No 305/2011 and EU No. 574/2014) the product is provided with the CE marking according to UNI EN 1504-2 and the relative DoP (Declaration of Performance).



CONSUMPTION AND PACKAGING

MasterProtect 220: should be applied in thicknesses between 200 and 400 µm of dry film, depending on the aggressiveness of the environment and the degree of protection you want to achieve. The consumptions shown below are indicative, the real ones depend on the execution methods and the nature and roughness of the substrate.

MasterProtect P 210 (primer for concrete support in the case of new works or restored for some time).

- Consumption: 0.10 - 0.15 liters / m²
- Packaging: 10 liter units (7.5 liter A - 2.5 liter B)

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Dry film thickness (µm)	consumption (lt/m ²)
200	0,33
300	0,49
400	0,66

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- Packaging: 20 liter units (17.4 liters A - 2.6 liters B)
- Color: RAL 7032-7035-7038

To achieve the desired dry film thickness it is necessary to follow the following table which links the dry film thickness with the wet film thickness, through the solids content by volume of the protective.

Dry film thickness (µm)	Wet film thickness (µm)
200	330
300	490
400	655

The wet film thickness can be measured with the specific micrometer

STORAGE

MasterProtect 220, MasterProtect P 210 must be stored in a covered and dry place at a temperature between 5 and 35°C.

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Application data MasterProtect P 210		Application data MasterProtect 220	
Density	1.47 ± 0.05 kg / liter	Density	1.40 ± 0.05 Kg / liter
Solids by volume	66 ± 2%	Solids by volume	61 ± 2%
Useful life in an open vessel	2 hours (at + 20°C)	Mixing ratios	Weight A 90, B 10
Mixing ratios	Weight: 83% A / 17% B	Useful life at 20°C	Vol. A 87: B 13
Deep drying	Volume: 75% A / 25 B	Operating temperature	1 hour
Cleaning tools	24 hours (at + 20°C)	Cleaning of tools	-20 ÷ + 70°C
Application temperature	Thinner for epoxies		
Product data			
Color	Color: RAL 7032-7035-7038		
Applicable thickness	From 200 to 400 µm of dry film		
Application temperature	From + 5°C to + 35°C		
Workability time	60 minutes		
Technical data according to UNI EN 1504-2 obtained with a dry film thickness of 200 microns		Limits and class	Performances
Adhesion to concrete	UNI EN 1542 on reference substrate MC (0.40) with a / c ratio 0.40 as specified in UNI EN 1766	For rigid systems with no traffic: > 1 MPa	> 3.5 MPa (type A breakdown: lack of substrate cohesion)
Permeability to water vapor equivalent air thickness	UNI EN ISO 7783/2	For the permeability condition: Sd < 5 m	Sd < 1,2 m (µ < 6000)
Water impermeability measured as a capillary absorption coefficient	UNI EN 1062/3	< 0,1 kg·m ⁻² ·h ^{-0.5}	<0.002 kg m ⁻² h ^{-0.5} (Impervious to diffusion of chlorides)
Permeability to CO2 -equivalent air thickness	UNI EN 1062/6	Sd > 50 m	Sd > 450 m (µ > 2.100.000)
Static crack bridging ability (23°C) with coating thickness 300 µm	UNI EN 1062	Class A1, A2, A3, A4, A5	A2 (cavillature > 0,250 mm)
Dynamic crack bridging ability (23 ° C) with coating thickness 300 µm: <ul style="list-style-type: none"> Wo=0,15 mm, Wu=0,10, n=100, f = 0,03 Hz, w = 0,05 mm Wo=0,15 mm, Wu=0,10, n=1000, f = 0,03 Hz, w = 0,05 mm Wo=0,30 mm, Wu=0,10, n=1000, f = 0,03 Hz, w = 0,20 mm 	UNI EN 1062/7 (metodo B)	Class B1, B2, B35	B1 B2 B3.1
Shore A hardness	ASTM D2240	----	75 – 80
Impact resistance	UNI EN ISO 6272	Class I, Class II, Class III	20 N·m, Class III
Abrasion resistance	UNI EN ISO 5470/1 (load 1000 g of H22 abrasive wheel / 1000 cycles) measured as weight loss	< 3000 mg	< 500 mg
Thermal compatibility (freeze-thaw cycles with de-icing salts)	measured as adhesion UNI EN 1542 after 50 cycles UNI EN 13687/1 on MC 0.40 type support with water / c ratio = 0.40 according to UNI EN 1766	For rigid systems with no traffic: > 1 MPa	> 3,5 MPa
Resistance to exposure to artificial atmospheric agents (UV radiation and relative humidity)	UNI EN 1062/11 after 2000 hours of artificial weather	No swelling, no cracking, no flaking	No swelling, no cracking, no flaking

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APPLICATION SHEET

PRIMER

MasterProtect P 210: two-component, high-solid epoxy-polyamide primer, suitable for protective interventions on healthy or long-restored concrete.

PREPARATION OF THE SUPPORT

In the case of the need to protect the reinforced concrete structures only, before applying the primer it is essential to check that the concrete surfaces are not degraded and / or contaminated by oils, greases or other substances, in which case it is first necessary to remove of incoherent and contaminated concrete and then to restore it with the products of the MasterEmaco line. The primer must be applied on previously sandblasted surfaces (this operation is not necessary for areas restored with MasterEmaco products) and subsequently cleaned and dusted with pressurized air.

TEMPERATURE

The application can take place when the ambient temperature is between 5 and 35°C, it is not recommended to apply at a lower temperature because the drying of the product would be very slow.

APPLICATION OF THE PRIMER

Mix the two components separately; then pour component B (hardener) into component A (base) homogenizing well with a low speed mechanical mixer. The product can be applied by spray or roller (for limited areas). It is possible to dilute the product with 5 ÷ 10% of specific thinner E100. After applying the primer, it will be necessary to wait a minimum of 6 hours and a maximum of 48 hours, in standard environmental conditions (20 ° C, 65% RH), to proceed with the application of the MasterProtect P 220 finish.

Airless spray system	
Equivalent nozzle diameter	0,018 – 0,023 in
Spray angle	50 - 80°
Pressure at the nozzle	150 – 200 bar

APPLICATION

It will be carried out on surfaces primed with MasterProtect P 210, respecting the required recoating times.

Mix the component A can well with a low speed mechanical stirrer; well empty component B into A and homogenize for a couple of minutes with the mechanical stirrer before proceeding with the application.

The product can be applied with a short-haired roller or by spray.

With manual roller application it is advisable to provide 2 successive coats, spaced out by a minimum time of 12-18 hours in optimal environmental conditions (20 ° C ÷ 65% RH). In the case of airless spray application, the recommended thickness of 200-300 µm (microns) dry can be applied in a single coat.

It is not recommended, but possible, a dilution of the product EXCLUSIVELY with specific diluent P200 in a maximum ratio of 5%. The use of a diluent other than P200 can cause non-polymerization and swelling and surface stickiness phenomena.

In environmental conditions of low temperature and high humidity, the drying of the coating film will be slowed down and it will be advisable to wait at least 24 hours before proceeding with the second coat. Final performance will also be achieved in a longer time frame.

Airless spray system	
Equivalent nozzle diameter	0,021 - 0,029 in
Spray angle	60/1
Pressure at the nozzle	50 ÷ 80°

CLEANING

Tools used for mixing and applying the material can be cleaned with epoxy thinner.

WARNINGS

MasterTop products are for professional use. For further information, consult the Master Builders Solutions Italia Spa area technician.

SAFETY INSTRUCTION

For information on the correct and safe use, transport, storage and disposal of the product, consult the most recent Safety Data Sheet.

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OTHER SERVICES

For price analysis, specifications, supplementary brochures, references, reports and technical assistance, visit the website www.master-builders-solutions.com/it-it or contact infomac@mbcc-group.com.

Scan the QR code to visit the product page and download the latest version of this datasheet.



Since 16/12/1992, Master Builders Solutions Italia Spa has been operating under a Certified Quality System compliant with the UNI EN ISO 9001 Standard. Furthermore, the Environmental Management System is certified according to the UNI EN ISO 14001 Standard and the Safety Management System is certified according to the UNI ISO 45001 Standard.

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This version supersedes all the previous ones.