

MasterShield WP 545

A two-component, polymer-modified, elastic cementitious waterproofing compound with excellent crack-bridging properties, even at low temperatures; can be applied to a thickness of 2 mm without reinforcement.

Material description

MasterShield WP 545 is a two-component, polymer-modified, elastic and thixotropic cementitious mortar.

Mixing the two components produces a protective coating that adheres strongly to the substrate, is waterproof and offers excellent crack-bridging properties.

MasterShield WP 545 is reinforced with special fibres, allowing it to be applied in a 2 mm layer, even without the use of a reinforcement mesh.

Main uses

The polymer-modified cementitious coating **MasterShield WP 545** is suitable for the protection and waterproofing of concrete structures and cementitious substrates such as:

- hydraulic structures such as dams, canals, pipelines and reservoirs, even where contact with drinking water is anticipated;
- structures made of reinforced concrete that require protection against chlorides (due to contact with seawater or seepage containing dissolved de-icing salts);
- structures made of reinforced concrete that have insufficient concrete cover, shrinkage cracks or cracks due to minor deformations.

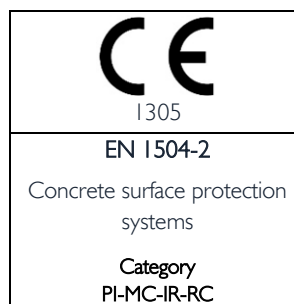
If the structure is subject to specific operating conditions (e.g. aggressive water), always contact the Master Builders Solutions Technical Service to validate the application.

Features

- **Can be applied in a single 2 mm coat without a reinforcement mesh:** the addition of microfibres to the special formulation of **MasterShield WP 545** allows the product to be applied where other coatings require the use of a reinforcement mesh.
- **Can also be applied on earth-retaining structures** or structures subject to negative hydraulic pressure.

- **Capable of improving the durability of the repair** by effectively counteracting the diffusion of carbon dioxide (**anti-carbonation coating**) and offering excellent **crack-bridging properties even at low temperatures**.
- **It may come into contact with drinking water.**
- **Highly resistant to weathering and UV rays**, it can therefore be left exposed.

In compliance with the European Regulations (EU No. 305/2011 and EU No. 574/2014), the product is CE marked in accordance with UNI EN 1504-2 and is accompanied by the relevant Declaration of Performance (DoP).



Consumption

1.6 kg/m² per mm of thickness (consumption of mixture A+B).

Packaging and storage

MasterShield WP 545 is available in a 35 kg kit:

Component A: 25 kg bag

Component B: 10 kg drum

Keep the products in their original packaging in a dry, protected location at a temperature between +5°C and +35°C. Do not expose to direct sunlight.

Under the above conditions, the products have a shelf life of 12 months.

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Preparation and method of application

Preparing the substrates

- The concrete surface to be coated with **MasterShield WP 545** must be perfectly clean, solid, without degraded, loose or detached parts, without irregularities that could compromise the application of the product, and free of cement laitance, traces of release agents, or any substance that could affect the adhesion of the product to the substrate.
- Once the above has been verified, you can proceed according to the possible scenarios described below:
 - if it is not necessary to restore degraded areas or repair significant surface irregularities, the substrate must still be made slightly rough by sandblasting, hydro-sandblasting or high-pressure washing.
 - If, on the other hand, the substrate has slight irregularities or is slightly uneven, these must be repaired, after adequate treatment and saturation of the dry substrate surface with water, using fine-grained cortical repair mortars from the **MasterCrete** range.
 - If the substrate shows deterioration with thicknesses to be restored exceeding 1 cm and any exposed reinforcement rods, the latter must be treated with the **MasterCrete** range passivating mortar, while the appropriate **MasterCrete** line product must be used for the volume to be restored, depending on the nature of the work.
- All joints between the flooring and vertical surfaces must be treated by creating chamfers, or **MasterJoint** reinforcement strips must be used.
- All structural joints, expansion joints or discontinuities subject to continuous dynamic stress must be adequately treated using elastic strips or sealants from the **MasterJoint** range.
- Before applying **MasterShield WP 545**, ensure that the substrate is also dust-free and damp but not saturated; in any case, there should be no traces of water on the surface, which should be removed with compressed air or absorbent sponges if necessary.

Preparation of mortar

Pour 3/4 of liquid component B into a clean, sufficiently large container to create the final mixture and mix the liquid at low speed. Gradually add powder component A while mixing with a mechanical mortar mixer or drill with a whisk attachment, at low speed (< 500 rpm) to avoid excessive air incorporation. Continue mixing and add the remaining part of liquid component B to the mixture to comply with the mixing ratios indicated herein. Mix for a few minutes until the mixture is smooth and lump-free.

Leave the mixture to rest for a few minutes, then stir for about a minute.

The workability time of the product at 20°C is approximately 60 minutes.

Installation

For manual application of **MasterShield WP 545**, use a smooth trowel to apply a thin layer, applying constant pressure to promote adhesion of the product to the substrate, then complete with a second coat of product on the first layer while it is still fresh, to achieve a minimum thickness of 2 mm.

For spray applications using a plastering machine, do not use continuous-cycle machines. **MasterShield WP 545** must be mixed separately and then loaded into the hopper either manually or using a dedicated pumping unit. Using a machine application, **MasterShield WP 545** can be applied in a single continuous layer with a thickness of 2 mm.

For highly heterogeneous substrates, we recommend the use of a reinforcement mesh (e.g., A.R. glass fiber mesh for skim coats with a weight greater than 100 g/m²).

Cleaning of equipment

To clean tools whilst the product is still fresh, use fresh water.

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Ageing and maturation

In environmental conditions such as dry, very windy or particularly hot climates, curing carefully the applied product to prevent excessive and sudden drying of the product itself. In such cases, proceed by keeping the surface moist with sprayed water.

Application temperatures

Application environment temperature needs to be between +5°C and +35°C.

Warnings

- Do not apply **MasterShield WP 545** to surfaces that are overheated, frozen or thawing.
- Do not apply **MasterShield WP 545** for thick coatings.
- Do not add water, binders or aggregates to **MasterShield WP 545**.
- Do not add fresh mortar to the mixture that has already begun to set.
- Protect against rain or any water or other substances for at least 24 hours after application.

Technical data

Product identification data		
Component ID	Component A	Component B
Texture	Powder	Liquid
Colour	Grey or white	White
Mixing ratio (by weight):	Comp. A: Comp. B = 25: 10	
Consumption	1.6 kg/m ² per mm of thickness (A+B)	
Mixture consistency	Plastic - Thixotropic	
Workability time (+20°C)	60 minutes	
Recoating time (+20°C, 50% RH)	12-24 hours	
Commissioning time (+20°C, 50% RH)	7 days	
Application temperature	+5°C to +35°C	
Category (EN 1504-2)	PI-MC-IR-RC	
Minimum applicable thickness	2 mm	

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Performance – UNI EN 1504-2

(The performance values shown below are obtained in accordance with UNI EN 1504-2 for a dry thickness of 2 mm)

Feature	Test method		Regulatory requirement	Product performance
Adhesion to concrete	UNI EN 1542 (MC 0.40 substrate – UNI EN 1766)		≥ 0.8 MPa	≥ 1.0 MPa
Resistance to freeze-thaw cycles with de-icing salts	UNI EN 1542 after the UNI EN 13687/1 cycles on an MC 0.40-type substrate.		≥ 0.8 MPa	≥ 0.8 MPa
Water permeability as capillary absorption coefficient	EN 1062-3		$W < 0.1 \text{ kg/m}^2\text{h}^{0.5}$	$W < 0.01 \text{ kg/m}^2\text{h}^{0.5}$ Prevents the ingress of chlorides
Crack bridging	static at 23°C	EN 1062-7	Classes A ₁ , ..., A ₅	Class A3 (0.5–1.25 mm)
	static at -10°C	EN 1062-7	Classes A ₁ , ..., A ₅	Class A3 (0.5–1.25 mm)
	dynamic at 23°C	EN 1062-7	Classes B ₁ , ..., B _{4,2}	Class B1
	dynamic at -10°C	EN 1062-7	Classes B ₁ , ..., B _{4,2}	Class B1
Permeability	Water vapour	EN 7783	Class I, Sd < 5 m Class II, 5 m ≤ Sd ≤ 50 m Class III, Sd > 50 m	Class I, Sd < 5 m
	CO ₂	EN 1062-6	Sd > 50 m	Sd > 150 m
UV resistance	UNI EN 1062-11 (2,000 hours of UV exposure)		No bulges or flaking	Specification superseded
Chemical resistance	UNI EN 13529	Liquid No. 5 (mono- and polyols, glycol ethers)	Class II: after 28 days of contact, reduction in Shore hardness < 50%	Class II (15% reduction in Shore hardness)
		Liquid No. 11 (20% sodium hydroxide)	Class II: after 28 days of contact, reduction in Shore hardness < 50%	Class II (0% reduction in Shore hardness)
		Liquid No. 12 (20% sodium chloride)	Class II: after 28 days of contact, reduction in Shore hardness < 50%	Class II (2% reduction in Shore hardness)
Reaction to fire	EN 13501-1		Euroclass	C, s1-d0

Additional performance

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(The performance values shown below are obtained for a dry thickness of 2 mm)

Feature	Test method	Regulatory requirement	Product performance
Resistance to positive hydraulic pressure	UNI EN 12390-8	Test pressure: 5 bar	5 bar
Resistance to negative hydraulic pressure	UNI 8298-8	From 0 bar to 2.5 bar	1 bar

Safety instructions

For guidance on the correct and safe use, transport, storage and disposal of the product, please see the latest Safety Data Sheet (SDS).

Scan QR code to visit the product page and download the latest version of this technical sheet and any additional documentation.



Other services

For additional technical information, brochures, references, technical reports and technical assistance please visit www.master-builders-solutions.com/it-it or alternatively contact infomac@masterbuilders.com.

Disclaimer

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.

For further information, please consult the local Technician of Master Builders Solutions. The technical advice on how to use our products, either written or verbally given, are based on the current state of our scientific and practical expertise, and does not imply the assumption of any guarantee and/or responsibility for the final results of works executed using our products.

Therefore, the customer is not exempted from the exclusive task and responsibility of verifying the suitability of our products for the intended use and purposes.

This version supersedes all the previous ones.

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